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Original Articles.

INJURIES TO THE ANKLE JOINT AND THEIR TREATMENT.

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INJURIES to the ankle joint are very common, contusions and sprains being the lesions usually seen. When the bones of the leg are fractured in the lower third, or when the foot has been severely injured, there is usually an associated trauma at the ankle joint. The most common condition, however, that the surgeon is called upon to treat in this region is a sprain, a term which is popularly associated with this joint.

A sprain of the ankle may be defined as a sudden twisting or wrenching of the relaxed foot, in which there may be a transitory dislocation inward, outward, anteriorly or posteriorly. The force may be of such a degree as to injure the synovial membrane, to rupture some of the fibers of the muscles, to strain tendons and tendon sheaths, to rupture ligaments, to separate articular surfaces, or even to tear off chips of bone. Sprains of this joint are of various degrees, depending upon the character of the violence. Being the most dependent of the large joints of the body and bearing its weight, any disturbance in equilibrium, if the muscles of the foot be off guard, will produce instability, and twists of the foot result. In lateral twists, the weight of the entire body, transmitted through the leverage of the whole lower extremity, is received at the ankle, inducing stress at its supports. Again, owing to its dependency, it is the joint that is most frequently injured by falling objects or in falls from a height. The majority of ankle sprains are produced when the muscles guarding it are relaxed. The muscles that surround the joint, by their tonicity, help maintain the normal alignment and stability of the articulating surfaces. Without muscular support, this joint would be flail in character. Ligaments alone do not maintain stability. They bear the brunt of the stress, however, when violent force is applied to the relaxed foot.

Anatomy.—The ankle joint is a true hinge joint, the articulation being between the upper cartilaginous surface of the astragalus and the inferior articular surfaces of the tibia and fibula. The ligaments supporting this joint are the capsular and the two lateral ligaments with their divisions.

The capsular ligament is simple in arrangement and it surrounds the ankle joint. It arises from the

front of the tibia, near its lower border, and from the front of both malleoli. Posteriorly, it arises from the posterior border of the malleoli and the tibia. The inferior insertion surrounds the articular surface on the top and side of the astragalus. The fibers of the capsule in front and back are thin and not strong.

The internal lateral or deltoid ligament is an extremely thick and strong part of the capsule, arising from the posterior border and tip of the internal malleolus, running downward and backward to the astragalus below the inner surface and to the sustentaculum tali. The anterior part of this ligament runs to the inferior calcaneoscaphoid and superior astragaloscaphoid ligaments.

The external lateral ligament consists of three bands which radiate from the external malleolus, while only two are part of the capsule. The anterior band passes forward and inward from the front border of the malleolus to the astragalus, in front of the lateral articular surface. It is made tense in plantar flexion. The posterior band arises from the hollow on the inside of the tip of the outer malleolus and is attached to the astragalus, behind the posterior outer angle of the articular surface. It is the band made tense in dorsal flexion of the foot. With the transverse tibiofibular ligament, it strengthens the back of the capsule. The middle band, more superficial, runs downward and backward to a faint tubercle on the outer side of the os calcis. It restrains certain motions of the astragalus on the calcaneum.

The action of the numerous muscles crossing the ankle joint is greatly to strengthen it and to prevent any giving between the bones when the ligaments are not stretched to the utmost. The foot is held firm and immovable by the tension of the posterior ligament and of the posterior and middle division of the external lateral ligaments, especially by the strong posterior part of the internal lateral ligament. The annular ligaments of the ankle joint are of importance in that they help maintain the various tendons that cross the ankle joint in position.

Etiology.—Ankle sprains, in the majority of instances, are produced while in the act of walking. The unguarded foot may be caught in a piece of carpet and the weight of the body causes it to twist, or in going down a flight of stairs the foot, in its descent, may turn under and be wrenched. Falls from a height, the person landing on his feet, may produce lacerations of ligaments, tendons, etc., in the region of the ankle. Sometimes heavy objects fall upon the extended foot, producing injuries to this joint.

The shoe may be considered a factor in the causation of a number of these injuries. The French heel so commonly worn by women is a predisposing cause, and very often a direct factor in sprains of the ankle. The high and narrow heel produces instability of the foot, and women are particularly prone to ankle sprain. A shoe with a properly laced or buttoned upper is a good protection against lateral play of the ankle. It affords support to it. It has been the observation of the writer that ankle sprains are less frequent when shoes of this type are worn.

Sprains are common between the ages of fifteen and forty. They are unusual in small children and the aged.

Pathology.—Any part of the ankle may be traumatized. The character and type of injury depends upon the degree of violence, its direction and the position the foot was in in relation to the leg when injured. If the foot is plantar flexed at the time the injury is sustained, the most likely seat of the trauma is in back and front of the ankle joint. If twisted inward, the external lateral ligament and structures in back of the external malleolus bear the brunt of the stress. If the foot is twisted outward, the internal lateral ligament and the structures around the internal malleolus are injured.

Severe twists of the ankle joint produce laceration or stretching of the soft structures that hold the joint in alignment. The ligaments may be torn or stretched, muscle tendons may be torn from their attachment, the synovial tissues may be bruised and lacerated, vessels and nerves may be ruptured in continuity. The articular surfaces of the ankle in severe injuries may be traumatized. Usually there is a bloody exudate into the joint, its quantity depending upon the degree of the violence. After the blood has been absorbed, there may be organization of blood clot into fibrous tissue, producing adhesion between joint surfaces. The joint space is distended and the lower extremity of the injured side is longer than its opposite fellow. In a sprain fracture there may be a chipping of bone from either of the malleoli, or from the upper margin of the astragalus.

The areolar tissue on the dorsum of the foot, anterior to the external malleolus, is usually the first part of the foot to show evidence of injury to the external lateral ligament. It is the part showing the greatest degree of swelling after trauma.

The external lateral ligament is most frequently injured. In a series of 500 cases of ankle injuries, it was found that the external ankle was the site of trauma in about 70 per cent. of the cases. This greater frequency may be explained on anatomic grounds. In looking through the literature on this subject I have found that no explanation has been given for the above. The reasons are as follows: *First:* Unguarded muscle control, being an important factor in sprains, it is seen that of the two sides of the ankle, the outer has fewer muscles in relation to it. On the inner side of the ankle and foot are both tibials, the extensor and flexor of the large toe. The unbalanced arrangement of muscle control predisposes, therefore, to sprains. *Second:* The deltoid ligament supporting the inner side of the ankle is short, thick and very tough. It is almost impossible to tear this ligament

without taking with it some of the periosteal attachment. The external lateral ligament is divided into three portions, only one of which is strong, the middle division. This fact makes the external ankle less firmly protected against lateral stress. *Third:* The inner side of the ankle and foot present a stronger chain of bones upon which the weight is borne than the outer. When one examines the bony foot, there is a distinct line of cleavage between the stronger or inner side, consisting of the astragalus, scaphoid, the three cuneiforms and the three inner metatarsal bones, and the outer weaker half, consisting of the fourth and fifth metatarsal, the cuboid and os calcis. Theoretically, at least, this line of cleavage of the foot, dividing it into a weaker outer half and stronger inner half, may be considered a factor of unbalance, the external supports giving way in disturbed body equilibrium. *Fourth:* In the act of walking, weight is first borne upon the heel. Then it shifts to the outer border of the foot and finally upon the ball of the foot. When there is any disturbance in equilibrium, the outer side of the foot, receiving the body weight first, being unsupported by muscle tonicity, the tendency of the foot will be to turn under and inward.

Symptomatology.—Sprains are of various degrees, from the mild cases with very little disability, to the severe cases with rapid effusion and prompt disability. In the milder cases the symptoms are very often late in making their appearance. Three or four hours may elapse between the time in which the trauma was sustained until disability ensues. In the interval many of these patients attend to their duties without discomfort. After this period, however, pain at certain regions of the ankle joint, stiffness and some swelling develop. The more severe injuries to the ankle joint are exceedingly painful and troublesome in their consequences. The intensity of the pain is very remarkable when we consider the low degree of sensibility possessed by the ligaments in a normal state. They may be cut or divided transversely without pain, but if stretched in a longitudinal direction, or twisted, so as to tend to separate the articular surfaces, pain of the most intense character is set up at once. The pain is accounted for by injury to the periosteum, which is highly sensitive. At the time of the sprain, a certain amount of blood is effused into the joint cavity and the surrounding tissues, in consequence of which, the limb in a few days becomes discolored for some distance below and above the joint. The sprain is rapidly followed by swelling and inflammation of the joint and surrounding tissues, often very chronic and tedious. As the inflammation subsides, stiffness and pain in using the part sometimes results. Very often the skin over the region of the sprain is hyperesthetic.

It would be of interest to cite a few cases illustrating the various types that one may meet with in practice.

A person slips off a platform and falls upon his heel, a distance of perhaps three feet. His feet and ankle are jarred but he continues at work or walks for three or four hours. Gradually there is developed stiffness and numbness in the joint, aching and some tenderness in front of the ankle. He stops work at the end of this time because weight bearing then has become painful. An examination of this

case shows no special point of tenderness, there is no swelling of any moment, but the movements of the joint are slightly limited. When weight is borne, however, there is pain in the region of the instep and in front of the ankle. In the course of two or three days of rest, this patient recovers, with little or no treatment with the exception, possibly, of the application of home remedies. This illustrates a case of very mild sprain.

A person falls from a moving conveyance and lands either upon the outer or inner border of the foot. The symptoms of this injury come on immediately. Pain is very intense and often these patients faint. Weight bearing becomes practically impossible. The ankle begins to swell very rapidly, and within the course of several hours its contour is obscured. All movements of the foot are associated with pain. An *x-ray* taken of such a traumatized foot may reveal fracture or dislocation. If the *x-ray* is negative as to bony injury, the diagnosis, then, of course, rests upon one thing only and that is sprain.

A workman employed in one of the mechanical departments of a large industrial plant uses a sledge hammer to break up an iron pipe. A piece of this pipe breaks off and with considerable velocity strikes the inner border of the foot at the heel. He feels a stinging pain in the region where the piece of iron struck. He continues at work for several hours, when weight bearing gradually becomes painful and the ankle becomes stiff. An examination of this foot reveals the following conditions: Tenderness on pressure and pain underneath the internal malleolus, severe pain in front of the ankle and beneath the external malleolus. There is very little swelling of the joint. On plantar flexing the foot, there is severe pain in the region of the anterior slip of the external lateral ligament and the anterior attachments of the capsular ligament. Eversion of the foot relieves the pain; inversion aggravates it. When we analyze this injury, we see that the external lateral ligament is the one indirectly traumatized by the violence. The foot was slightly subluxated laterally and the points of attachment of this ligament were put upon a strain. This type of injury, while unusual, from the standpoint of etiology, illustrates the effect of indirect violence upon the supports of the ankle.

A young woman walking upon an uneven sidewalk, gets her foot caught in a hole, the foot is twisted and she falls. This is a very common form of ankle sprain. Disability is immediate and pain is present at the external ankle. In the fall, the foot was inverted and the stress was put upon the external lateral ligament. An examination of this ankle several hours after the injury, revealed some swelling beneath the external malleolus, tenderness on pressure over the injured soft structures, and redness. On inverting the foot, pain is increased. Eversion relieves it. A sprain of the external lateral ligament is diagnosed.

A laborer employed as a dock hand, while unloading a truck, receives a blow upon the heel by several bags falling upon it. The foot, at the time of the injury, was plantar flexed, heel elevated. He continues at work for several hours, when pain and stiffness in the ankle joint develop. He walks with difficulty. An examination of this ankle reveals the

following conditions: There is considerable swelling in front of the ankle joint and on the dorsum of the foot. There is also some swelling in the back of the ankle. Upon plantar flexing the foot, pain is increased. Dorsi flexion relieves it. This is a case of sprain of the capsule at its anterior attachment.

A laborer has his foot caught in a rope and it is violently pulled up. Disability is immediate. He suffers intense pain along the external aspect of the foot and leg. The foot is held stiff and movements of the ankle joint are restricted. There is severe pain at the external malleolus and the lower third of the fibula. Palpation of the external surface of the leg reveals tenderness. Eversion of the foot produces pain; inversion is restricted by the spasm of the peroneal muscles, and is very painful. Dorsal flexion is limited. An *x-ray* taken immediately shows no bone injuries. This case illustrates a type of injury in which muscles as well as ligaments have been put upon an undue stretch. Along the outer ankle and leg, the skin is hypersensitive, the patient not permitting the palpating fingers to touch the injured area. There is a slight swelling in front and back of the external malleolus.

In this injury, there is a tearing of the external lateral ligament, strain upon the peroneal tendons and their sheaths, the periosteum and the synovial pouch in the back of the external ankle being contused. Three days afterward, when the injured extremity is inspected, there is a considerable discoloration of foot and ankle.

Injuries to Muscular Attachments.—Strains of muscular attachments often give rise to serious impairment of function. These conditions are diagnosed by the fact that there are certain movements which the patient cannot perform because he is suddenly pulled up by pain, which he localizes fairly accurately about some point near the joint. Careful palpation will find a tender spot just at the attachment of a tendon over an area not greater than a half inch, and a little swelling with a suggestion of edema or fluid may be felt deep down on the bone. This spot is the clue to the trouble, and represents either the origin or insertion of the tendon through the periosteum to the bone. The pain and discomfort are due to tension on the effusion by direct pressure or the pull of the muscle. Such an injury may be acute in type, arising from the single twist or wrench of the foot, stretching, tearing or otherwise loosening the strong fibro-tendinous plexus. These cases of tendon strain very frequently become chronic, disabling the patient. The reason why this trivial injury is often so troublesome is because every time tension is put on the muscle, before fibrous union is complete, a fresh trauma occurs in the imperfectly healed tissues, and this repeated time after time maintains the effusion and prevents regeneration of the tendon fibrils.

Diagnosis of Ankle Sprains.—The diagnosis of ankle sprains rests upon, first, a history of the injury; second, the physical findings; third, *x-ray* examination.

All ankle sprains of moderate severity should be *x-rayed*. Very often what is considered a sprain may, on *x-ray* examination, reveal a fracture. A sprain, being a general term applied to all possible injuries that may occur to the soft structures of this joint as a result of a wrench or twist of the

foot, it would be an advance in diagnosis, as well as in applying appropriate treatment, if, through an accurate knowledge, the structures injured could be identified. The x-ray cannot give any idea in this respect. In all subcutaneous traumata, we have to depend upon our knowledge of anatomy in order that we may know what structures are injured. These structures are all hidden from view and we have to feel for tears, and in many instances guess at what has occurred underneath the skin. The x-ray cannot give us a picture of stretched muscle fibers, torn tendon sheaths or lacerated ligaments. It may tell us, however, that there is some distention of the joint. Sprains are diagnosed by the objective physical signs present and the subjective symptoms.

In order that a diagnosis may be made accurately, we must systematically test every movement of the ankle. What influence has movement on the pain? We have to examine every part of the capsule and its various thicknesses for tenderness to pressure and determine where the tenderness is greatest. The same can be applied to the tendons crossing the joint. By an examination in this manner, an accurate diagnosis of the structures injured can be made, and we are then in position to apply the appropriate treatment to these cases.

Chronic Ankle Sprains.—The period of disability of ankle sprains depends upon the severity of the trauma and upon the treatment that was instituted. A neglected or badly treated ankle sprain leads to chronic sprain. A chronic sprain is characterized by pain in the region of the ankle, under either malleoli, swelling and a sense of weakness. Patients tire easily. Chronic sprains, after a time, produce certain bone changes. New facets are ground upon previously healthy bone, and the feet are very often distorted to produce pronation or other deformities. The pain of a chronic ankle sprain is sometimes reflected to the knee, hip and lower back. Very often the muscles, particularly the calf muscles, are in a state of spasm, and the movements of the ankle joint, therefore, are limited in certain directions. If there has been any severe injury to the tendons crossing the ankle joint, sometimes chronic tenosynovitis is set up. This condition is characterized by restricted movements of the joint and pain on walking. If the injury has been greatest in the front of the ankle, the annular ligament, the tendons and their sheaths upon the dorsum of the ankle are indurated. There is tenderness on pressure over the inflamed tendon.

Very often, following chronic ankle sprains, there is an extension of inflammation to the interior of the joint and an arthritis is induced. Adhesions are formed in the joint and in very severe cases ankylosis sometimes follows. In these cases of arthritis, following trauma, it is always well to look for some distant focus of infection, particularly from the genito-urinary tract; gonorrheal arthritis of the foot and ankle being of frequent occurrence.

When the Achilles tendon has been traumatized in a sprain, we may sometimes see inflammation of its sheath or the bursa between it and the os calcis. These patients usually walk in an equinus position and walking is very painful. An examination of these cases reveals a swollen sheath. On each side of the tendon there is an obliteration of the space

normally present in back of the foot. There are areas of chronic inflammatory nodules which appear like shot underneath the palpating fingers. They stand out like a row of beads along the mid-calf and they follow the course of the Achilles tendon, almost up to the popliteal space. These patients cannot dorsi flex their feet because of spasm of this muscle.

Traumatic flat foot is a condition sometimes resulting from injuries to the ankle joint. The arches are depressed and there is pronation deformity. There is often a passive congestion of the foot and leg. The feet are discolored, cold and sweaty. If, in addition, there is added an infectious element, there may be present an arthritis in the joints of the foot. The muscles atrophy. There may be areas of pain and local tenderness at muscular and ligamentous attachment. These patients suffer a great deal of pain and weakness in the feet. Sometimes the muscles are in a state of spasm, the feet assuming a faulty position and being held rigid.

Treatment of Ankle Sprains.—Ankle sprains, being of such common occurrence, treatment, in a great many instances, is inadequate. It is not surprising that one sees cases of chronic ankle sprains in an orthopedic clinic. Lotions, liniments, ointments, tincture of iodine and the like, employed so commonly in these cases, very often prolong disability and jeopardize the future comfort of the patient. These should not be employed in acute injuries to this joint.

The iced compress, lead water and laudanum applications, and elastic compression of the joint are commonly employed in contusions and sprains. These dressings are beneficial in mild injuries. They very often relieve pain, limit inflammation and swelling. Another measure that is useful in these mild injuries is the immersion of the foot and ankle in hot water to which has been added a half pound of magnesium sulphate. These immersions are repeated every three hours. It is surprising how quickly some patients gain relief. The circulation of the joint is improved and the small amount of effusion is rapidly absorbed. Some of these patients are able to go about without any further disability within two or three days.

By far the most effective treatment in all degrees of ankle sprains is immobilization of the joint by either adhesive strapping in the mild cases or plaster of Paris dressing in the severe cases. In this method of treatment, all indications are met. The cure of these injuries is based upon sound physiologic principles.

Concretely stated, one should be guided by the following rules in the treatment of these cases: *First:* Relax the torn or stretched soft structures by reversing the movement followed by the traumatizing force, and immobilize the joint in this position. *Second:* Maintain this position of the ankle until healing of the soft structures has been completed. *Third:* Improve the circulation of the injured part by the use of superheated air, massage and mild, passive movements. *Fourth:* Early functional use, allowance being made that no strain be put upon the newly formed fibrous tissue.

Delayed union, chronic relaxation of ligaments, chronic passive congestion often follow if the above measures be ignored.

Strapping of the Ankle Joint.—Before one attempts to put on adhesive strapping, it must be determined which structures are damaged and the dressing must be applied so as to relax them and maintain apposition of the torn tissues as far as possible. What is essential to the correct application of this dressing is that one have an understanding of the mechanics of the condition for which it is applied, and that each strip of adhesive plaster be applied under tension enough and in such position that it have a real mechanical effect. Thus in case of an injury to the external lateral ligament or its divisions, those are to be relaxed; since adduction and supination is the direction in which the foot was twisted, the foot must be strapped in such a way that it is held in abduction and pronation. It is further important that the foot be strapped more firmly than is apparently necessary, in order that allowance be made for slipping on the skin which always takes place, but particularly when the foot is used to walk or stand.

There are required for a typical dressing seven strips of plaster, four are eighteen inches long and one and a quarter inches wide and three are ten inches long and one inch wide; it is also desirable to include a pad of felt one-quarter inch thick, two inches long and one and one-half inches wide, the latter to be applied in the region of the sprain, to produce pressure upon the local lesion. Instead of a felt pad, several thicknesses of adhesive plaster can be made, the measurement of which being practically the same as the felt pad. Sir Robert Jones advises the use of this adhesive pad with the sticky side out.

Before the adhesive straps are applied, the leg should be cleansed thoroughly and shaved. The foot should be placed at right angles to the leg, and either everted and pronated in cases of external ankle sprain, or supinated and adducted in cases of internal ankle sprain.

To illustrate the application of adhesive strapping, we shall take an injury to the external lateral ligament. The pad of felt or adhesive is first applied to the region traumatized and held there by an assistant. A long strip is then applied to the dorsum of the foot, beginning at the outer margin of the scaphoid and external cuneiform bone and in front of the astragalo-scaphoid joint. It is made to adhere, pulled taut, and passed inward around the inner border of the foot and obliquely across the sole, escaping the tuberosity of the first metatarsal and passed up to the external malleolus. At this point, the adhesive or felt pad is made to adhere to this strip. Being constantly held taut, the strip is now passed upward and slightly inward and made to adhere for the rest of its length over the front of the tibial. A short strip is now taken and its end made to adhere to the base of the first metatarsal, and it should be passed horizontally around the back of the heel and along the outer border of the foot, ending at the articulation of the cuboid with the fifth metatarsal. It should cross the first strip at right angles, just below the tip of the external malleolus. In passing it, this strip should be pulled upon sufficiently to abduct the foot. The second and third long and short strips are now applied so as to overlap the others by one-half. The fourth long strip should begin about three or four inches above the internal malleolus, pass across the sole

of the foot to the external malleolus and vertically upward along the external border of the leg, finally ending a little below the head of the fibula. To complete the dressing, and secure adhesion of the plaster, it is well to apply a bandage to the entire foot and leg, passing this also in such a direction as to secure the desired position of the foot.

This method of applying adhesive straps to the ankle joint is a modification of Gibney's, and, as far as I know, has not been described. The advantages of this method are as follows: A better leverage of the foot is obtained in turning it into the desired position; it is advantageous in injuries to the tendons and ligaments, inasmuch as it follows their course and greater relaxation is obtained, particularly to the peronei muscles.

In sprains of the internal lateral ligament, the direction of applying these adhesive strips is reversed. The modification mentioned above is also advantageous in these sprains because it gives a better support to the calcaneo scaphoid ligaments which are very often injured.

This dressing is removed at the end of three or four days and a new application is made. Walking may be permitted providing the shoe has been properly altered. The alteration of the shoe is accomplished by having the inner or outer side of the heel raised not less than one-quarter of an inch by insertion of leather wedges between the lifts. Sometimes the outer side of the sole may be raised as well by applying a wedge of leather with a space one-eighth to one-sixteenth of an inch. In place of leather wedges, a wedge-shaped piece of piano felt can be inserted into the shoe, so as to raise up the outer border of the foot.

The united effect of the strapping and the wedged heel make it impossible for tension to be put upon the torn ligaments in walking. The physiologic exercises of the foot proves a better stimulation to the normal process of circulation and repair than the best massage, provided no strain is allowed at the seat of injury. In a few days, as a rule, the foot will give no further trouble.

It has been a common observation to see patients who have sprained their ankles wearing soft slippers, rubbers, or things of that kind. This is the worst thing that they can do, because by their use the ankle joint is not supported sufficiently and the young fibrous tissue forming between the ends of the torn ligaments is sure to tear, and then when repair does take place, it is by delayed union. The best shoe to wear in these cases is one with a moderately high upper, tightly laced. The shoe supports the ankle and reinforces the adhesive strapping. I have treated a large number of cases in the above manner and the patients have lost practically little or no time from their work.

In the more severe injuries of the ankle joint, where there has been extensive lacerations of tendons, ligaments, etc., and where the joint has been distended by a bloody effusion, the plaster of Paris dressing is to be employed. If these cases are seen early, the circular plaster of Paris cast is the most appropriate. The foot is placed at right angles to the leg and in a position to relax the torn structures, a preliminary dressing of cotton flannel or cotton batting is applied, reaching from the toe to the tibial tubercle. The plaster should not be too thick. It

is split in the middle so as to allow for separation when swelling ensues. The foot is elevated upon a pillow and the patient is given a sedative for the pain. At the end of five days the cast is removed, the injured part inspected. The ankle joint is lightly massaged and the cast is reapplied. After about a week's retention, passive movements and baking may be instituted. Care must be taken in making these movements that a fresh assault be not made upon the newly formed fibrous tissue. Ankle sprains of this type are very often mistreated by instituting too vigorous massage or movements. At the end of two weeks, the cast is finally removed and the ankle is baked and massaged every day for a week. All the normal movements of the foot should be gone over. Slowly, there is a restoration of function, exudates are absorbed and circulation is improved. If there is some residual weakness in the region of the injured ligament, the ankle may be strapped in the manner indicated above, the shoe being worn and altered as indicated.

If an ankle sprain is seen late, a number of hours after the injury, where there is an extensive extravasation of blood into the joint cavity and swelling of the leg and foot, Stimson's lateral and posterior plaster of Paris splints should be employed. By their use removal is easier, the ankle joint may be inspected more readily and it is not disturbed. Massage may be applied to the exposed parts of the leg and ankle.

The posterior splint extends from the toe along the sole of the foot, around the back of the heel and up the back of the leg to the knee. The lateral splint begins at the external malleolus, passes over the dorsum of the foot to the inner side, under the sole and upward along the outer side of the leg to the same height as the posterior splint. These splints are made in the following manner. A plaster of Paris bandage four inches wide is put into water until it has become thoroughly saturated. The bandage is unrolled upon a table, about six to eight thicknesses are thoroughly rubbed together and the length of which is sufficient to extend from the toes to the bend of the knee; two slabs of plaster of Paris are therefore made. The leg and foot are covered with cotton batting or flannel bandage. The posterior splint is applied first and is held snugly by a gauze bandage to the leg and foot. The lateral splint is applied in the manner indicated and this is also held snugly by a gauze bandage to the leg and foot. During the application of these splints and until the plaster has set, the foot is held by an assistant in a position so as to relax the torn ligament.

This splint is a very efficacious method of immobilization in Potts' fracture, and it certainly is very useful in severe ankle sprains.

After the application of the plaster of Paris splints, the foot is elevated upon a pillow and is kept quiet for three or four days. At the end of this time, the cast may have become loosened owing to reduction of swelling. Light massage is instituted and the foot is moved once only in all directions. We can then either reapply this dressing or can apply a circular cast, the latter being a more stable form of dressing.

In the treatment of strains of muscular attachments, our object should be to get rid of the effusion

which separates the torn ends of tissues and so allow them to come into their proper position. Our object should also be to prevent any movement of muscular effort from stretching or tearing the newly repaired tissues and so making the condition chronic. This is done by applying a pad of adhesive plaster over the effusion and a similar pad upon the tendon, just above the inflamed area, a bandage being applied over these. In chronic strains of this kind, treatment must be directed in encouraging a free flow of blood to and through this area. This is accomplished by massage and alternating applications of hot and cold water (contrast baths).

In the treatment of chronic ankle sprains, where the foot has assumed positions of deformity, it is sometimes necessary to give an anesthetic, manipulate and break up adhesions, tenotomize contracted tendons, and bring the foot around to its normal relation to the leg. The foot is fixed in the correct position in a plaster of Paris cast. After a period of two or three weeks, the cast is removed and a light brace to restrain lateral movements is temporarily applied or a pair of shoes are wedged and furnished with arch supports. These cases should be baked and manipulated regularly for a time if they show any evidence of arthritis. All foci of infection in distant parts of the body must be searched for and treated.

1811 SOUTH BROAD STREET.

A CONCEPT OF X-RAY PATHOLOGY.

I. INTRODUCTORY.

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IN theory, there is no substance impenetrable to the x-ray. It should be possible theoretically to permeate whatever substance provided that we can control the intensity of x-ray generation.

In practice, the field of x-ray physics is limited by the mechanical perfection of the instruments available; so that there is a limit to the class of substances that we are able to penetrate or unable to penetrate with the x-ray. The essential pith of the situation is this: that penetration is a relative term. It depends upon two factors; the physical electrical intensity of the generated ray, and the atomic-density of the material to be rayed.

Ottolengui introduced the terminology radiopaque, radiolucent, radioparent. Radiopaque is coined to mean the condition of exhibiting opacity or impenetrability to the x-ray; radioparent is coined to mean transparent, or penetrable by the x-ray; and radiolucent is coined from translucent and means moderately penetrable, or moderately impenetrable by x-ray. Now, how manifestly it appears that the terms radioparent, radiolucent, and radiopaque are entirely relative. For example, in exposing a hand to the x-ray, it is possible so to regulate the factors of x-ray exposures that the bony framework will remain radiopaque, the fleshy parts radiolucent. By increasing the voltage or spark gap of the x-ray supply, the fleshy radiolucent parts become radioparent, and the bony radiopaque parts become radiolucent. It is possible to increase the spark gap and exposure to an extent that even the bony frame-

work will become radioparent. Fundamentally essential then is the primary concept that, applied to x -ray anatomy, histologic structures bear to each other certain relative values of atomic density. The atomic density of the histologic unit determines the relative radiability of the anatomical part. Relative radiability is the determinant of x -ray pathology.

FACTORS AFFECTING RADIABILITY.—Since radiability is the determinant in interpreting x -ray pathology, it is necessary to analyze the manner in which radiability may be affected. Two factors affect the radiability of a part. First, the normality of the histologic structure may be only moderately modified as to architecture; but its individual units, through various processes of pathology, may acquire a supernatural density and become, thereby, relatively more radiopaque. As an example, the parenchyma of the lung appears radioparent, or at most radiolucent, on an x -ray plate taken with the usually accepted standards of x -ray exposure. When, as the result of irritation the parenchyma undergoes connective-tissue proliferation, it acquires an increased atomic density sufficient to cast an x -ray shadow. The general orientation of the parenchymal framework is barely altered; but the chronic interstitial pneumonitis that makes for increased atomic density of a parenchyma, makes radiopaque the previously radioparent structure. So that, the significant x -ray pathology of chronic interstitial pneumonitis can be reduced essentially to a disturbance of the relative radiability of lung structures; and what formerly was radioparent has, by pathology, become relatively radiopaque.

Increased Radiability.—Some structures, such as the alveolodental membrane, when invaded by a purulent attack are so altered as to become increased radiable. Under usual technology, and in normal condition, the alveolodental membrane appears radiolucent; but the effect of early purulent inflammation reacts so that this already soft tissue becomes even softer, and, owing to the loss of atomic density, becomes radioparent.

Pathology may react, then, simply on the structure of a tissue so as to produce increased radiability, or so as to produce decreased radiability. Under these circumstances, the normal structure remains practically unchanged in form, and only the relative radiability of the unit is affected. Obviously, the x -ray interpreter must learn x -ray histology not in terms of absolute x -ray architecture, but in terms of relative atomic density of the constituent histologic units that comprise a viscus. In terms of shadows, the x -rayist must master the fact that large blood vessels, for example, are relatively radiolucent compared to small blood vessels; and abandon the erroneous conception now prevalent that large blood vessels cast shadows and small blood vessels fail to cast shadows.

Relative Radiability.—Conceived in the vision of relative radiopacity, the x -ray interpreter suspects pathologic changes when the x -ray plate reveals small vessels that are radiopaque; for, having established that when large vessels are radiopaque, small ones normally should be radiolucent or radioparent, abnormality must exist if conditions are such as to cause small vessels to be equally radiopaque as large vessels.

Normal Relativity.—With this criterion, the cri-

terion of normal relativity, our conception of the normal plate becomes better standardized; for, under this category, a plate is normal when the various histologic structures that comprise its anatomy are revealed in their relative intensity free from anatomic deviation. X -ray pathology begins, paradoxical as it may seem, with the study of the x -ray projection of normal structures.

GROSS HISTOLOGY AS A BASIS FOR X -RAY PATHOLOGY.—Homes and Ruggles present several axioms as bases for successful Roentgen interpretation. One of these axioms reads, "be familiar with the projected appearance of normal structures." The axiom is basic in essence. It needs only to be amplified in regard to the adjective "familiar." Familiarity with the projection of normal structures should include a minute intimacy with the projection of the very histologic units that compose a tissue. Of course, the individual cells of a tissue are not projected; but anatomic detail is not sufficiently exiguous. The phrase, "gross histology," would seem to convey the thought indicated. Not cellular analysis of shadow, for individual cells are not revealed; not anatomic outlines of visceral projection, for this is too crass; but an intermediate phase between cell minutia and visceral hugeness—gross histology.

ANALYSIS OF X -RAY MODULANTS IN PATHOLOGY.—Under the heading of Factors Affecting Radiability, it was outlined that the architectural structure may remain virtually unchanged; that the atomic density, which affects the radiability of the part, may suffer increment or decrement. Thus, certain pathologic invasions are revealed only by the relative variations in radiopacity. Radiopaque variations include those reflected by incipient inflammatory changes; by characteristic interstitial affections; or, in general, pathology involving actual increase of atomic density as the result of an influx of fluid (*i.e.* blood stasis and vascular engorgement in early inflammatory dramas) or occasioning an atomic density increment in a tissue as the result of chronic proliferative pathology.

Then there is a second modulant. A tissue normally radioparent, or radiolucent, may become the seat of an infiltration. The infiltrate may be a radiopaque pathologic product; and, without affecting the radiability of the pristine tissue, the injected radiopaque product causes a shadow. Muscular tissue, usually, is radiolucent; but in myositis ossificans, a calcareous infiltrate is showered into the muscle bundles and that muscular region becomes radiopaque.

It is readily detectable whether a shadow results from decreased radiability of a tissue or from a superadded radiopaque injection; in the first case, the histologic unity of the shadow is recognized; in the second case, the obliterated histology incident to the superimposed agent causing radiopacity is clearly discernible. Thus, in pneumonia, the characteristically triangular shadow of hepatization is immediately identified as a modulant not affecting histologic structure, but more as a superaddition of extraneous material.

The third modulant results from a process converse to that responsible for the second modulant. Instead of the superaddition of material to an area, there may be occasioned an absence of tissue that

should normally occupy that area. The most brilliant example of this modulant is the case in pneumothorax. Here, the normal shadow of pulmonary network is missing from the thoracic field involved, and a homogeneous radiopacity, free from structure, asserts the absence of gross histologic groupings.

Finally, perfectly obvious and well understood variations may be noticed, such as marked adenopathy of the root glands at the lung hilus. Hypertrophy, atrophy, hyperplasia, and aplasia are clearly matters of size, in x-ray pathology, so that the last modulant is that of the size of the part.

All pathology invading the human body, if it produces registrable x-ray evidence, that evidence will be manifested as a variant from the normal according to one, two, three, or all four of the x-ray modulants: (1) Changes in radiopacity without great change in structure; (2) obliteration of gross histology by superadded material; (3) elimination of gross histology by tissue displacement; and (4) changes in the relative size of a histologic group.

Orientation of Modulants.—If the circulation in the lung is studied, it is found that the periphery of the organ is supplied with a slower and somewhat different vascular system than the remainder of the viscus. In this relatively inactive circulation involving the margin of the lung, the tubercle bacillus finds conditions for establishing growth less fraught with adversity than in the more active central circulation. Thus, capillary engorgement in the pulmonary medulla may be due to whatever infectious respiratory organism; but similar engorgement in the periphery, following the law of probability, would suggest a particular infection—tuberculosis.

The situation is this, that the same character of relative change in radiability induced by pathology that one secures in a certain location has an entirely different value in some other region of the same viscus. So that the orientation of the modulant must be studied in the light of the reaction of the normal physiology against the pathological invasion.

Intensity of Modulant.—A deciding determinant is often the intensity of the modulant. In a muscle, for example, sarcomatous infiltration will make for a shadow of different intensity from that caused by the lime accompanying a myositis ossificans. The hard nodule of a carcinomatous metastasis in the lung would naturally be expected to cast a denser shadow than the soft diffuent shadow incident to a locus of circumscribed pneumonia.

BIOLOGIC SYMMETRY.—The animal differs in one respect from the highly organized plant in that the animal offers a symmetrical organization. Animal symmetry is not absolute. Thus while there are two lungs, the pulmonary fields are not exactly identical; they are similar, but have certain anatomic variations characteristic for each lung. The similarity of symmetry is sufficient, however, to refer an abnormal marking on one side for comparison to the normal marking on the other side. More important than the symmetrical comparison is the absolute comparison. That is, comparing the abnormal markings in one lung with the normal markings in the same lung.

SUMMARY OF CONCEPT.—Whenever pathology pro-

duces a change that involves sufficient variation in the atomic density of the invaded structure, that structure will suffer an alteration in its relative radiability. X-ray pathology means the study of x-ray modulants interpreted in the light of the pathology responsible for relative changes in radiopacity, for relative distribution of the shadows, for the density of the shadows, all compared to the relative normal. The normal is not an absolute standard; nor is it necessary that it should be. It is a standard whereby a knowledge of the gross histology of the part determines in the mind of the observer the relative radiability of the structures.

With this concept of x-ray pathology, uncertainty is eliminated and x-ray interpretation is placed on a basis of anatomy, gross histology, physiology, and pathology. How these factors are blended in the setting of the clinical study of the various disease entities with which the roentgenologist copes will be subsequently discussed for each group of organs, for each type of pathology.

THE LOGICAL CAUSE, PATHOLOGY, AND TREATMENT OF BRAIN LESIONS. AN EXPERIMENTAL PAPER.*

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AT different times, over a period of a number of years, the thought has repeatedly come to my mind in thinking of brain lesions from otological origin—why it is that many of these cases die either where they have had operative treatment or where nothing of a surgical procedure has taken place, and why it is that many of these cases recover, even where no therapeutic defense is brought into play. This latter class of cases of brain involvement just simply recover. Cases of brain abscesses have repeatedly been diagnosed as brain abscess only on the operating table. Their presence was in many cases not even suspected. Brain abscesses have been found on the post mortem table, where the patients have come to their end through some other intercurrent condition. Brain abscess cavities have been found to be filled with a purulent substance walled off—this purulent substance was found to be bacteriologically sterile. Can it be doubted that at some previous time this purulent appearing substance was infectious and of pyogenic origin?

It has often seemed to me—and I have repeated it here at various times, in discussion—that our surgical principles as practised were not surgically logical; that our procedures, although the best we had at hand, were inadequate, that we often, for example, opened the subdural space and did a decompression operation, that we often explored for brain abscesses where no brain abscesses were found, that we did these things surely because we thought them advisable, and largely because they were the only means that we knew for combating these complications. Do not misunderstand me—I know that we have arrived at these procedures through years of development, clinically, surgically and experimentally, and I have great respect

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for these procedures. It is only with an intense desire to give something, to do something that will perhaps precede or go hand in hand with this knowledge which we have so laboriously accumulated, that I have interested myself in the matter.

This subject is an extremely difficult and broad one, and in this comparatively short paper I am trying to group a variety of different complications—I mean brain complications of otological origin. This, in substance, chiefly refers to infectious meningitis and brain abscesses.

Among the first questions which arose in this experimental work was what is meningitis—what is brain abscess—how do they occur—what is the pathology of these lesions? Briefly stated, I concluded that meningitis, brain abscess—were the result of infections by a pyogenic germ or germs—and these experiments will endeavor logically to show that—first, let us say for example, in meningitis, the germ attack is made at some particular spot of the meninges, that the point of attack is more intense (that the irritation is more intense—that the reaction is more intense) at some one point on the surface of the meninges than at any other point. Logically, there must be a spot of beginning. This is the point of invasion, this is where the battle starts. The system, either immediately or after a period of time (an incalculable space of time, an infinite space of time) reacts according to its ability, and you have a state of inflammation, a state of congestion, exudation, and transudation and absorption. And now your clinical symptoms start (fever), a change in temperature, either first a rise or fall. This may not be noted in the clinical chart; this is followed almost invariably by a rise in temperature and you have your clinical vibrations—the character of the blood begins to change—change in number of leucocytes, quantity of blood, consistency of blood, presence of antitoxin and immune bodies—at first gradually, then in increasing amounts, finally the presence of toxins, then germs in the blood—at first dead, finally as death nears, living germs.

These clinical symptoms and signs and reactions on the part of the system you all are acquainted with, but what I want to especially point out is that you have two processes taking place in an infection of this character. That you have first a local process, an inflammation at the point of invasion, that the system at this point of infection is continually trying to localize, to surround the point of irritation. When a patient recovers, what in reality takes place—the point of infection is localized and absorbed, or it may be only localized without absorption, and you have your brain abscess, for example. Now this brain abscess may remain infectious, quiescent, or the sting may be taken out of the infectious substance by the immune activities of the system, and you have your sterile pus cavity. I do not believe this latter class to be dangerous. In addition to this localized point, the debris absorbed from the point of battle is taken up into the system and you have your toxemia, and the system forms antitoxins and throws out immune bodies, and inaugurates other means of defense. Now, if the defensive measures inaugurated by the system are strong

enough to overcome the activity of the invading organisms, your patient recovers. If the activities of the invading germs are overwhelming, your patient dies. Now what I want to particularly point out and especially call your attention to, is that the patient does not die from the local process, unless of course, the localized area should cause pressure on vital centers—but that the patient dies from the absorption of poisonous toxins from the localized area of battle. This you might dispute, but I will show you through a series of experiments performed within the peritoneal cavity on the peritoneum, where there are no vital centers to be pressed upon, that the same thing takes place and that the patient does not die from the local spot, but that the main thing is the poisoning of the system through absorption. Now you must see that this could not logically be otherwise, and you must therefore also see that our final great success in treating these complications must come through the general system, more so perhaps than at the point of local invasion.

I will not take up your time unnecessarily by enumerating each experiment separately, and going into the detail of each experiment. These experiments were carried on in the laboratory of Experimental Surgery, New York University, and the conclusions arrived at may have been the result of one experiment or they may have been the results of experiments on several dogs, or finally it is the impression made upon my mind, drawn from these conclusions at this writing. First, I learned that absorption from the sub-dural space is quicker than in the peritoneal cavity—that in operations upon the brain the element of shock is very much greater than in operations in the peritoneal cavity, that reactions upon the part of the system to infections within the brain are slower in comparison to infections in the peritoneum, but absorption is quicker. My primary object in doing these experiments was to learn first if I could infect a dog and allow him to go to a point where death from infection seemed imminent, and then to see if I could not bring into play some force that would keep the dog from dying. I first opened the peritoneal cavity of the dog, and took dust from the laboratory room and placed it in the dog's peritoneal cavity. Where dust was used in this way the dog practically invariably recovered without any interference on my part. The germs streptococcus and staphylococcus from the laboratory (I call your attention especially to the fact that I mention laboratory germs) were injected into the peritoneal cavity and into the blood stream of dogs and nothing happened. I took small pledgets of gauze saturated with pus taken from dogs that had just previously died from a purulent infection. I then took pure pus without being saturated with gauze (liquid pus) and put it in the peritoneal cavity. This liquid pus was taken from dogs that had just previously died from a purulent infection. Where the pus alone was used, the dogs became immediately very sick and many of them died within twenty-four hours. Post mortem: In many instances showed no reaction whatever. In other instances where pure pus was used, there was evidently an endeavor on the part of the system to react and

throw up a defense, for the peritoneal cavity was intensely inflamed and purulent. When gauze saturated with dust from the room was used, the systemic reaction was very slow, the dog would recover, and on post mortem, would show the gauze walled off. Where gauze saturated with pus was used, the reaction was more intense and quicker than where gauze saturated with dust was used. These dogs became quite sick, but some of them recovered and on post mortem in this class the gauze would be either entirely walled off or the walling off would be very far advanced; that is, if the dog had recovered, and the post mortem done some days later, the gauze would be entirely walled off, but in those dogs that only lived a few days, after the original infection, the gauze would be in various stages of being walled. Where pure pus was used, the peritoneal reaction was not comparatively as great nor did the tissues to the naked eye seem to localize at all. Of course, the previous experiments had a foreign body, which acted as both an irritant and a nucleus around which to localize, but in those cases where pure pus was used, the systemic reaction took place almost immediately, and these were the hardest cases to handle, as very often the dogs would die from toxemia before any treatment could be started. The practical conclusions to be drawn from these experiments are as follows. First, that it is not the infectious organisms by themselves alone or dirty material containing these germs, of a non-animal character, that is so dangerous, but what really causes the toxemia and final death in these cases of peritonitis, meningitis, brain abscess, etc., is the absorption of the debris resulting from the strife of the tissues on the one hand and the invasion of the infectious organisms on the other. Secondly, that clinically speaking, the more important process is the systemic toxemia. This is what causes the final death. It is not the local process, for the local process is finally, if at all, overcome by systemic activity. Thirdly, that any serum treatment to be found in the future will owe its success or failure to overcoming the debris resulting from this infectio-inflammatory combat, and that it will not be based upon the activity of germ life in the laboratory. In other words, it will probably be an autogenous serum. Before proceeding further, I overlooked stating that we injected directly into the blood vessels of some of these animals weak solutions of citrate of soda and blood that were not sterilized—solutions that were surely filled with all forms of bacteria—and that the animals were not in the least affected.

By way of remark, it may not be out of place to draw further conclusions from these experiments. It must be remembered that when we introduce pure pus into the peritoneal cavity, or into the sub-dural space, pus from another being is not the same thing as pus being formed in a subject himself—it is a more toxic test. In the latter case, before pus is formed, the system has gone through the various stages of irritation, inflammation, localization, breaking down and absorption, absorption only taking place when the pus is formed. In the first case, however, the economy does not go through all of these various stages, but pus is introduced directly as pus, with-

out having been manufactured at any point of localization. Therefore, the body has had no chance to react and no chance to form antitoxins. Absorption takes place directly and your patient is poisoned before antitoxin can be formed. And this absorption took place so quickly from the sub-dural space, that the few dogs upon which I tried it, died before I could do anything with them. The absorption from the peritoneal cavity is slower and the system has some chance to form antitoxin and attempt to immunize itself. These conclusions may not be absolutely correct, but it is the only way I have been able to interpret them.

Treatment.—The next question that now arises is how do you propose to cure such a state of affairs. The procedures now used are practically all surgical and are applied to the local lesion, and they consist in cases of meningitis, primarily of decompression; this is done chiefly to give the brain tissues more room to expand; it doubtless has value in this regard. As to the value of an early or late decompression, I do not think that we are at all sure. To my mind, in one instance, a decompression may be of value; in another instance, it may be of little value, or of no value at all. I believe that our success in treating these cases in the future will develop along lines that have a tendency to immunize the system to the invading organisms until the cells in the localizing area are able to localize the infection, and I can only see two possible ways of meeting success. Although it is not intended to cover the first in this paper, I think it should be mentioned. I believe that it may be possible to make a serum that will be effective. The germs entering into the formation of this serum will have to be propagated and fed on human blood or human tissue. In cases where meningeal or brain tissue is involved, if the germs entering into the formation of a given serum could be fed on brain tissue or meningeal tissue, or upon the blood of the patient himself, I think the serum offers a chance of success. I do not believe that germs cultivated on any other artificial media will have a chance to succeed. The second method is covered by this paper, and I believe offers our first immediate chance of success. And this method is a method of transfusing blood from one person to another and back again, over a period of time or at frequent intervals, and is a method which I described nearly ten years ago, and which is covered by these experiments, as follows: At the start I want to state, so that there will be no misunderstanding, that this method has never been tried on human beings. The work following is purely experimental on animals, but the success of these experiments has been of such a nature that I believe it would be perfectly safe on human beings.

My experiments consisted of infecting the peritoneal cavity of dogs in the various ways that I have mentioned before. The dogs were infected with pus from other animals, which had previously died of the purulent infection in question. I soon learned that within twenty-four to forty-eight hours a dog would reach the height of his infection, and if he were not transfused in the way in which I have described before this elapsed time, that he would die; that those dogs that were transfused within a period of twenty-four to forty-eight

hours either made a total recovery or they lived several days longer than those dogs which were not so transfused. That when the peritoneal cavity was infected as described, the dogs transfused according to this method would almost invariably recover, but when they were not transfused, they would die within a period of forty-eight hours to several days. The technique of these experiments was as follows: On the first day the dog's peritoneal cavity would be opened and the infectious material inserted. After an interval of twenty-four to forty-eight hours, depending on the nature of the infectious substance, but chiefly on the condition of the dog, he would be transfused. The transfusion in several instances was continued for a period of from thirty minutes to two hours, a continuous circulation of blood between the two animals.

The next question is apt to be, what takes place when the circulation of blood is continued between the two animals? I have already shown you during the state we clinically call meningitis, that there is a battle for existence and that there is an absorption of toxins, and there is a manufacturing of antitoxin—and the system is trying to immunize itself. Now, let us say, that the toxins have the best of it; that the system is loaded with toxins. Now if you can take away part of these toxins you are reducing the poisonous dose just so much. When you transfuse in the way I suggest, this poisonous blood passes over to another animal, and if the transfusion is continued, it reduces the poison in the infected animal just one-half, because it must be remembered that while this toxic blood is passing over to the healthy animal, an equal quantity of healthy blood is passing over to the diseased animal, in each instance, having been reduced one-half, and the toxin kept below the point of a poisonous dose. At the same time it must be remembered that the blood from the diseased animal to the healthy animal contains substances which will cause the healthy animal's organs to act and react and form an additional amount of immunizing substances, thereby increasing the force of resistance, let us say, perhaps another 50 per cent. The diseased animal is reinforced with an equal quantity of healthy blood, blood which is further capable of manufacturing immune substances, thereby increasing the diseased animal's chances still more. If the diseased animal, after a lapse of twenty-four to forty-eight hours, is again transfused with the same healthy animal, his blood is still further reinforced by antitoxins. This can be repeatedly kept up until the local point of infection is walled off and the diseased animal able to take care of himself. In other words, by frequently repeating the transfusion the diseased animal is put into an antitoxic state, following an exact example set by nature, and he is finally absolutely cured. Now, what takes place in the healthy animal? We are not injecting pus from the diseased animal to the healthy animal—you are injecting a substance called toxins, if you will, but of a dose insufficient to kill. You are not necessarily injecting infectious organisms, and even if you were injecting free organisms, the organisms without the débris are not so apt to affect the healthy animal as you

may imagine. The débris—as I have pointed out to you—is the substance which kills, and that is represented by the toxemia. In this connection, I wish to state that I did not lose a single donor from infection. The healthy dog never developed an alarming toxemia, and none of them died from infection. Another question that may arise is, why wouldn't saline solution or a direct transfusion of blood—why wouldn't these two methods be just as good as the continuous transfusion method that you advocate? I believe that both of these methods have some value in this connection, but I do not think it is very great, for this reason: If saline solution were injected into the blood stream in any quantity, it is true that it would dilute the toxins, but it is also true that it will reduce the antitoxins also. The relative quantity of toxins still remains, and the relative quantity is what kills. It is also a question as to whether saline solution by its stimulating effect, would not cause faster absorption. Now, as to the direct transfusion of blood, to a certain extent the same thing takes place as takes place with salt solution. Both the toxins and the antitoxins are diluted, but even if the antitoxins were not diluted, do you think you could introduce a sufficient amount of blood to really amount to anything? The relative quantity of toxins remains; and then you cannot dilute the vessels to the bursting point, or you are apt to have cerebral hemorrhage, or an engorged heart; so in the last analysis, you can readily appreciate that the method I describe is the only one, up to this writing, which offers any chance at all. The diseased toxic blood is removed and replaced by healthy blood, quantity for quantity, by a method which can be continued for an almost indefinite period without loss of a drop of blood—one more than the other—if necessary, to either animal.

50 EAST FORTY-SECOND STREET.

PSYCHIATRY AND PSYCHOANALYSIS.*

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THE most intensely interesting problem for the psychiatrist now-a-days concerns the fundamental conceptions of dementia præcox. Much speculative thought has been directed toward the elucidation of this problem. In his psychology of dementia præcox Jung attempted to explain psychologically the origin and mechanism of certain symptoms and traits of dementia præcox and there seems little doubt that Adolph Meyer was moved to the formulation of his conception of dementia præcox as a habit deterioration by some of the conclusions to which Jung arrived in his well-known book. I may point out, for example, Jung's explanation of the deterioration of the utterances in his patient—how a word or phrase may through symbolic or other strained connection become so changed that it loses its original meaning and may even become incomprehensible. Meyer, following this reasoning, has announced his theory by gen-

* Paper read May 25, 1920, before the New York Psychoanalytical Society.

eralizing this conception: Dementia præcox has become now a habit deterioration.

This leads me to say a few words concerning the generalizing process itself. The mind can readily leap from one idea to another without apparently any connecting link, the slightest similarity being sufficient to connect two facts. I always felt that some of the associations which Freud used were so far stressed that their connection can be appreciated only by himself and then in a dim way, by a sort of intuition. In the same way the apparently incongruous connection between dementia præcox and neurosis has been made into a congruity between the two. All you need to do this, is a rich phantasy or imagination. It is possible for one gifted with imagination to construct any tenable hypothesis. We meet with many illustrations of this linking which lead to far-reaching generalizations. The notion of the brotherhood of man, for instance, may have had such origin. Psychoanalysis offers a rich field for generalizations of this character. Nobody will dispute the fruitfulness of this generalizing process—the story of the falling apple and Newton's discovery of gravitation is just such an instance of the far-reaching consequences of fertile imagination. But here also lies the danger—the eradication of all differences of shades and varieties. To avoid this, one should never lose sight of the fact that this tendency to generalization is an inherent faculty of our mental life, a yearning after oneness in the welter of universal phenomena, and that similarities observed in other mental processes may partake of the same desire to bring under one caption phenomena of an apparently heterogeneous order. Not only in metaphysics but in science do we observe this tendency to unification. Herbert Spencer observes that he who has recently become aware of a fact is apt to overemphasize that fact. One who has recently become lame discovers how many lame persons there are in this world. This is an important truth.

One may ask, "What bearing has all this on psychoanalysis?" Only this, that observation having led to the formulation of a certain conception of the etiology of neurosis has resulted in the generalization of this conception until it is hotly denied by some that there may even be a possibility of other etiological factors. The danger here is that it may lead to dogmatic assertion. All depends upon the manner in which we approach a problem, upon our mental attitude. Let a certain fact strike you with sufficient force and you are overpowered, and it becomes well-nigh impossible for one not to become partial to it. An extreme development of this tendency to oneness begets intolerance and bigotry. In the light of these considerations, the truth of which will probably not be disputed, it will be possible better to evaluate certain of our conceptions and generalizations.

The extent which this *Drang nach Veralgemeinerung* may assume may be seen from the inclusion of epilepsy, psychosis, etc., among those diseases which have as etiology mental factors. This results in a wiping out of all differences until no clear-cut etiological or clinical entity can possibly be said to exist. The practical consequence of such a frame of mind is that in the State Hospitals, for instance, there have existed doubts almost as to the fundamentals of a psychosis. If a given psychosis may

be a dementia præcox, a manic-depressive, a hysteria, or an epilepsy, the result is a hesitancy to call it anything definite. This reached at one time such a state of doubt that the slogan was: "Never mind the diagnosis, study your symptoms, describe what you observe, get the facts," etc. This doubt I think can be traced directly to this generalizing tendency, which gets hold of us every time a great theory is being propounded.

About a year ago I had a patient, a boy of fourteen, under observation at the hospital; the boy was bright, intelligent, attended high school. There is considerable of the neurotic make-up in the family. The boy used to help out in the laundry a few hours a day after school. One day he suddenly got excited, spilled ink on clean linen, raised a club against his employer who scolded him, and a policeman had to take him home; there he was quiet for a while, but soon became disturbed, threw pillows about the room, and was finally hurried to the hospital. When admitted he was very talkative, interfering, protested his innocence; he remembered all the incidents which led to his commitment. At first the condition looked very much like a manic upset—the restlessness, talkativeness, rapid onset. A few days after admission I was informed by an attendant that the patient had a weak spell, he sat in the chair and suddenly became limp and slid down to the floor. My suspicions were aroused. The patient rapidly improved, however, and as the people were very anxious to have him home, he was paroled. He appeared at the hospital several times, looking well. One day he suddenly became disturbed and began to throw things about the rooms and was hurriedly brought back to the hospital. Here he seemed somewhat confused, but soon came to himself, began to talk excitedly, and later, I was informed, he defecated and smeared his hands with fecal matter. Closely questioning his sister, I obtained from her the statement that on two occasions when he had been in the car with her he seemed to become suddenly mute, absentminded, had to be "roused," and once he emptied his bladder on such an occasion. I immediately told her her brother suffered from epilepsy. After a few days the boy was paroled home. I advised his sister, a school teacher, to take the patient to a known neurologist and have sent a full report of the case to the doctor. He examined the boy and declared him not an epileptic. I lost track of the case for nearly a year, but lately was visited by his sister, who told me he has major epileptic seizures now, and she asked for my assistance to place her brother in an institution.

What I wish to emphasize here is not my sagacity or the other doctor's shortsightedness, but to point out wherein the mistaken diagnosis may lie. Having his mind directed toward certain psychic aspects in epilepsy, the doctor was loath to call that epilepsy which did not behave according to a preconceived formula. Here it may be interjected: We study the phenomena as they present themselves to us, clinical observation of a great number of cases has furnished us with certain facts and it is quite logical to deduce general principles from the observed facts. I must admit that the case is put strongly. In answer to this let me say that we are not so much concerned here with facts as with the inter-

pretation of facts, and this depends upon our own individual preferences, our likes or dislikes. James said that our philosophy of life will depend upon whether we are constitutionally tough-minded or tender-minded, and I believe that our interpretation of facts in psychiatric and psychoanalytic fields will depend a great deal upon something very similar to this make-up in our constitution. I have gone at some length discussing this somewhat threadbare and trite theme and I am sure some of you may be wondering what it is all about. I must say that such thoughts have occupied my mind from time to time. In reading a psychoanalytic interpretation of some dreams or of cases of dementia præcox the thought frequently popped up in my mind—one always finds what he is looking for, in other words, one reads into the case, unconsciously of course, a great deal of one's own preconceptions. Practical psychoanalysis at best is only a crude way of estimating ideation—a great deal is left to individual interpretation. The mind's work is too fleeting, ideation too rapid, and the associative links in the chain of ideation invisible. How is it possible by crude methods to trace back that which the mind itself is incapable of registering adequately and consciously? Subconscious processes are too fleeting and tenuous for conscious operations to retrace their steps.

During the past few years I have seen a large number of cases in connection with mental hygiene clinics. These clinics offer no facilities for psychoanalytic investigations and only a superficial estimate of the condition, and conflicts of the individual is possible. A great number of the patients were foreign born, often past thirty-five, lacking in the intelligence requisite for psychoanalysis. They all suffered from some form of neurosis; the neurotic character of their complaint was sufficiently evident and yet I was impressed by the absence of sexual thoughts or fancies as relating to the complaint, and I was forced to conclude that a great number of these nervous symptoms were attributable to economic factors, others to exhaustion—steady toil, routine, and monotonous occupations, deprivations, large families, and the consequent struggle to maintain them, etc. It may be objected to that since no psychoanalysis was attempted it is not justifiable to conclude that there were no upsetting sexual factors. I believe, however, that in nearly all cases we are conscious of a feeling in the presence of the patient that he has some conflict or other. *Psychoanalysis only amplifies and determines the particular details of the upsetting factors in a neurosis.*

We will now return to the consideration of the dementia præcox problem. It seems to me unthinkable that dementia præcox should be simply a further development of arrested or perverted instincts and habits. The formation of bad habits will never lead to disintegration of personality, to such loosening of concepts, such delusional formation as we see in this disease. There is a wide gulf separating paraphrenia and dementia præcox. Your paraphrenic is a queer, odd fellow; he may have some particular hobbies but he preserves a certain contact with the world. To an extent, he can be beneficially influenced, arguments may lead him to change his way of thinking. When this result cannot be obtained, it is due to that tendency which

acquired habits and thoughts have fostered, namely, a stubborn resistance to any attack on these habits and thoughts. The paraphrenic can no more give up his mode of action or thought than a standpat Democrat or Republican can change his political views. He has reached a stage where it is comfortable for him to exist without outside interference. Not so the præcox, whose condition goes from bad to worse, the final outcome of which is complete stagnation or perversion of mental life. I believe that Bleuler, who is the clearest psychiatrist of them all, has erred in his extension of the conception of dementia præcox by including so many allied but different elements in order to comprehend all under his term of Schizophrenia. If we keep in mind that dementia præcox is essentially a juvenile chronic disease leading to progressive deterioration, we will circumscribe it far better and keep out various other groups that should be kept apart and studied independently, often more is to be gained by exclusion than inclusion. For example, we may allude to the separation of a clinical entity—anxiety-neurosis—from other forms of neurosis by Freud, which led him to enunciate a somewhat different etiology for this group of cases. There is no doubt that psychoanalysis has gained by this conception.

What can be said about psychoanalysis in dementia præcox and allied condition? If we keep in mind that psychoanalysis is a method of bringing to light and before reason conflicts which oppress the individual, and that the practical solution of the trouble depends upon the retention of the powers of reasoning in the patient, it will at once become clear that where reasoning is affected, no such favorable results can be looked for. For the neurotic does not suffer from loss of power of reasoning, but from either subconscious or conscious conflicts. In the first instance, it is of course plain that the ideas must first become conscious before they can be dealt with logically. In the second case they are so laden with affect that reasoning proper is interfered with. In the dementia præcox, however, reasoning is primarily affected—and here I fully subscribe to the doctrine of Bleuler—hence no results are to be expected from psychoanalysis. Psychoanalysis will not favorably influence the deterioration of habits or instincts since they themselves are to be regarded as symptoms of the disease and not a cause of it. Psychoanalysis is also not essential; you do not have to analyze a woman who tells you at the first interview that she hears voices slandering her character, calling her an immoral woman, etc.

A girl of twenty-seven, whose sister is at King's Park, New York, had been in a nervous state six months before she came to the dispensary. She was tormented by voices. People would say, "What and look." She would hear a word signifying coitus. Sometimes she was pleased to hear the voices. Sexual thoughts occupied her mind. She said, "When I was ten years old I did it with a boy, and now it is on my mind constantly. I fear I am going insane." She constantly murmured, "Jesus, save me." There were some somatic complaints, pains in the left temporo-occipital region, behind the ear, in the head, flashes, creeping sensations, oppression. For months she had been coming to the clinic, invariably complaining of the voices and sexual thoughts. She could not bear the mention of marriage, sexual relations, or the word miscarriage. She displayed agitation and uneasiness, prayed frequently, cried, thinking she was blaspheming God. When she

was washing the windows she was insulting Jesus; when she looked at the crucifix she imagined she stepped on it. She feared something would happen to her on the street, she might fall into the hands of strangers, etc. All this she told openly, freely, without my asking her; she was a typical præcox and lacked so much common sense that psychoanalytic attempts elicited nothing more of value.

To my mind sex thoughts and reflection on sex matters did not cause the condition; rather are they to be considered as component parts of the complex symptomatology of the case. In this and similar cases the practical results obtained are negligible. We can manage to keep her out of the hospital but cannot influence her trends, for a restitution is not possible where the judgment and deeper personality are affected.

That without psychoanalysis it is possible to influence the trend and thought of a patient and achieve results is shown by the following case:

A girl of fourteen who graduated from public school, is bright and intelligent, became depressed, complained of constant headaches and insomnia. All that could be obtained from her sister by way of anamnesis is that last summer she went with a few other girls to Coney Island; they were in company of some fellows, had rides on the scenic railway; she was excited and later she saw a moving picture which scared her. The girl has been seen by a known neurologist, who prescribed bromides, but she did not show any change. As the family were poor she was brought to the mental clinic. The girl did not care to come, but after much urging, stepped into the examining room, sat down, morose. At first replied to a few questions, to others she refused to answer. Finally she exclaimed, "I don't care to go to doctors to be examined; it excites me." When I remarked that I did not mention to her any physical examination at all and explained to her the reason why she was brought to the clinic, she became mute. Finally she got up, began to take off her coat, saying, "I suppose I might just as well get through with it." There was evidently here a sexual conflict, no doubt a sex trauma preceded the condition. She unbuttoned and let me examine her chest. During the examination she kept her eyes covered with her hands. I began to chide her and lecture to her on the exaggerated modesty she exhibited and after a half hour she left for home. I told her that clinics are held twice a week and if she cared to call again in a week I would be glad to see her. To my surprise, she came in a few days, smiling, happy, and evidently greatly relieved. I made no attempt to obtain from her a statement as to the particular details of her upset and the actual mechanism involved. From a scientific standpoint much is left to be desired, but the practical purpose has been achieved.

Finally a word about the term Schizophrenia which Bleuler introduced and which means the splitting of the mind. Of course no such splitting as that observed in the double or multiple personalities in hysterical cases ever occurs. Only the unusual and rarely observed symptoms such as ambivalence can be said to approach this designation. Presumably when a patient gives both positive and negative answers to the same question, his psyche is split, one part is oblivious of the other's existence. I must confess that I have never been convinced of the truth of this assertion. This author maintains that every act or utterance of the præcox is motivated by complexes; the complexes form the nucleus of his disease, he is completely under their domination. If the analogy between dementia præcox and hysteria is so close, why is there such tremendous difference in their therapeutic possibilities? Bleuler was forced to assume an actual organic condition

underlying the psychosis, a toxemia presumably causing the loosening of associative connections. Of course, the whole thing is altogether speculative and is of interest only as such. Bleuler, among other things, mentions the blocking in dementia præcox and is of the opinion that these symptoms are due to complexes. No doubt that some idea precedes the blocking just as any activity or passivity can be said to have an adequate mental cause. But there the analogy between dementia præcox and hysteria ends. In the latter the cause operates systematically, continually, the result is constant; just as the winding up of the clock will result in a regular movement of the works. The cause is adequate and explains the symptoms; the symptoms explain the cause. There is no jolt, no startling factor, nothing that appears like a bolt out of a clear sky. The dementia præcox reactions, blocking included, cannot be predicted with certainty because they do not follow logical law, every bizarre, queer, startling reaction is possible. It is ingenious but useless to try to find some adequate explanation of the reaction of a præcox, only that can be explained which follows some definite law or rule. Where logical sequence is so disordered that prognostication is impossible, the reaction is incalculable, one can only speculate but not treat the subject with any degree of certainty. Bleuler likens the whole picture of dementia præcox to a dream; in a sense that is true, but the analogy does not go far since to the dream a definite meaning and interpretation has been given by Freud who demonstrated that the roots of the dream lie in the submerged life of the individual. The utterances of the præcox are fragmentary, disharmonious, have no relation to each other or to the totality of the ego. It is frequently extremely difficult to determine the conflicts and thoughts behind a dream. It is almost impossible to give a definite meaning to the jumble and jargon of a præcox.

I am reaching the end of my discussion this evening. I am conscious of the shortcomings. I have not offered anything positive, and the criticism I raised will be considered unnecessary and ill-founded. Perhaps so; in that case, if counter criticisms are made they will be welcome. Constructive thinking is difficult and requires more time than was at my disposal. What I have tried to bring out mainly is that current psychoanalytic thought is probably too bold in its assertions, a fact which is probably the result of its universal acclaim. I have brought no particular instances to support my assertion, having confined myself to generalities. At some future date I hope to return to the same subject again.

607 EASTERN PARKWAY.

GONORRHEA IN WOMEN.

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OF all the venereal diseases gonorrhea is by far the most prevalent. It has been estimated that from 70 to 80 per cent. of the entire population has or at one time has had gonorrhea. This of course in-

cludes active and inactive cases. Women are affected in about the same proportion as men. Of the incidence of disease in women, gonorrhea takes a most prominent part, being responsible for more than 50 per cent. of all female pelvic inflammatory conditions.

There is some difference of opinion as to the site of the original infection in the female. When the infection results from an acute condition with plenty of gonococci in the discharge, the urethra and vulva being the first to come in contact with the infective material, would supposedly be involved first and most frequently. Infection as the result of transmission from a chronic case, with few or no gonococci in the discharge, would presumably involve the cervix most often. From a study of a series of cases among a group of women more or less exposed to infection,* it would appear that about 60 per cent. of infections are combined cervical and urethral; next in frequency are cervical alone, amounting to 30 per cent., and least often urethral infection, including only 10 per cent.

The symptomatology of gonorrhea in women is that of purulent inflammation anywhere, naturally modified by the location of the infection. In acute urethral infections there is usually a varying amount of burning and frequency of urination, and a certain amount of suprapubic discomfort or pain. In acute cervical infections the symptoms are not as a rule pronounced. There is usually a sense of fullness and discomfort in the pelvis, accompanied by a profuse discharge, which is responsible for an itching and burning sensation around the external genitals and in the vagina. There is in most instances, very slight constitutional reaction.

Objectively in urethral infections, there is more or less purulent discharge, which may be demonstrated by milking the canal from behind forward. In chronic infections this discharge may be limited to the glands which open into the urethra, especially Skene's glands situated close to the external meatus. The periurethral glands also frequently harbor infective material, when all active signs have disappeared from the urethra. It is therefore very important to strip the urethra forward to its very end, in order not to miss any discharge from these glands. The urethra is often thickened and hard as a result of periurethral inflammation, feeling like a pencil when rolled under the finger. Bartholin's glands are often involved, and it is usually possible to demonstrate small red areas around the mouths of their ducts; when the inflammation closes these ducts, abscess or cyst formation occurs. In the chronic cervical infections there are not many signs of disease present. There is invariably a mucopurulent discharge of greater or lesser quantity. Associated with this there may be erosion of the cervix, with inflammatory redness and hypertrophy and small cystic Nabothian follicles. As the inflammatory process extends, as it usually does through the lymphatics, it produces varying degrees of parametritis, as well as involvement of the tubes and ovaries.

In the report of smear examinations taken from the different sites of infection, many contradictory opinions are rendered. This I believe is due to the

*From examinations conducted at the Women's Court, New York City.

varying criteria demanded by different bacteriologist in making a diagnosis of gonorrhea from a smear stained by Gram's method; also to the number of examinations made, as well as to the time the smears are taken. In a series of examinations of 300 cases, only 8 had positive and 12 had doubtful reports, making together 20 cases, or 7 per cent. Of these same 300 cases, 100, or 33 per cent., were clinically diagnosed as gonorrhea. All of the positive and doubtful laboratory reports occurred among those so diagnosed. This gives a total of 8 per cent. if the positive laboratory findings alone are considered, and 20 per cent. if the doubtful cases are included, in the cases of clinical gonorrhea. When it is taken into consideration that practically all of these cases are of the prostitute class, it can readily be appreciated how very inefficient as a help in diagnosis is the usual smear examination. This is partly due to the fact that only one smear was examined. The proportion of positive smears is much greater when repeated smears are examined, or when taken just before or following the menstrual period, or even during menstruation, or when a Schultze tampon is left over night in close apposition to the cervix, and the collected discharge examined; or when the deep cervical glands are stimulated to pour forth their secretion by the application of negative galvanism for a few minutes. On reexamination of 50 of the cases of clinical gonorrhea which were placed under treatment, 47, or 94 per cent., showed positive smears, after an average of five smears had been examined in each case. This would make proportionately about 32 per cent. positives among the entire 300 cases examined. Even this is low. It at once becomes evident how utterly inadequate is a single smear report. Provocative stimulation by means of chemical irritation, although it increases the discharge, does not to any noticeable extent increase the number of positive reports. To isolate the gonococcus by culture is impractical. It grows very poorly on ordinary media, is readily overgrown by the other organisms usually present, and even when isolated, in the absence of pus cells, its identity is difficult without further subculture.

Further evidence of the unsatisfactory nature of the smear report is furnished by the transmission of infection from one individual to another. In the acute cases the contagiousness is high. In the subacute and chronic cases, although the contagiousness is less, the menace is greater, because less obvious. A chronic case with slight discharge, in which smear examinations are negative, during the engorgement at intercourse and the attendant outpouring of secretion from the depths of the glands, may readily transmit the infection to fresh soil. It should be remembered in this connection that in chronic cases the number of gonococci are few and that pus cells are usually numerous. It would be advisable then in any individual having a history of gonorrhea or in whom there is clinical evidence of a chronic gonorrhea, and in whom a smear examination shows the presence of numerous pus cells, without other organisms and without any gonococci, to consider the case one of gonorrhea and treat it as such.

The complications and end-results of gonorrheal infection contribute largely to the morbidity and

unhappiness of the female and often of the male. The extension of the inflammatory process to the bladder gives rise to cystitis. This is not very common because the urethra is practically a straight tube and the drainage is much better than in the male urethra, and also because it is not as often subjected to injections which tend to drive the infection further back, as is often the case in the male. The spread of the infection to the parametrial tissues, which occurs in nearly every cervical involvement, gives rise to a parametritis which may go on to the development of a pelvic abscess. Further extension through the lymphatics to the tubes and ovaries, gives rise to salpingitis and oophoritis often with abscess formation. The outer ends of the tubes are usually sealed by plastic inflammation resulting in sterility. In cases in which pregnancy does take place, ectopic gestation is very apt to occur. In the fulminating cases extension to the peritoneum gives rise to a general peritonitis, a rather rare and fatal condition.

In the treatment of the acute cases rest in bed for the first few days with general care of the bowels and diet, and with plenty of water to drink, is all that is necessary. Hyosciamus and sandalwood oil are very effective as sedatives to relieve the intense pain and burning on urination. Later, when the acute inflammation has subsided, an injection of 1 per cent. protargol or 20 per cent. argyrol into the urethra should be made every other day. In the chronic cases, the instillation of $\frac{1}{4}$ per cent. protargol or 1 to 10,000 silver nitrate into the bladder three times a week, in addition to the application of 5 per cent. silver nitrate to any ulcerated areas on the mucous membrane of the urethra through a Kelly speculum, is usually very effective in clearing up these inflammations. Special attention should be given to Skene's glands; direct application of 10 per cent. silver nitrate daily by means of a small hypodermic syringe, or, in obstinate cases, incision of the gland into the vagina or actual cautery of the gland is necessary. Of the more recent remedies, acriflavine in 1 per cent. solution as an injection into the urethra or instillation into the bladder, has given good results. Still more recently mercurochrome = 220, in the same strength and used in the same way as the acriflavine, is being extensively tried, and promises to be more effective than the older and better known antiseptics.

For the acute cervical infections, treatment similar to that in the urethral case is employed. The subacute or chronic cases are best treated by the application of 25 per cent. argyrol or 1 per cent. protargol to the cervix and cervical canal, not entering the uterine cavity, as well as to the vagina, followed by the introduction of glycerin and packing with gauze three times a week. The packing is removed at the end of 18 hours, and is followed by a hot douche. The douche is repeated two or three times a day depending on the amount of discharge present. For the douche a variety of drugs are used; permanganate of potash 1 to 5,000; tincture of iodine 1 to 500, acriflavine 1 to 5,000, and mercurochrome 1 to 5,000. Gonorrheal vaccine, 500-1,000,000 bacteria to the cubic centimeter, given 1 cc. hypodermically every five days, is a valuable aid in the chronic cases. In the treatment of complications extreme conservatism is advisable, operation

being resorted to only when absolutely unavoidable. It is seldom that a gonorrheal inflammation becomes sufficiently urgent to require immediate operation. As a rule, any operation fails to remove all infected tissue, thus necessitating long continued treatment after operation; this same treatment without operation is usually equally effective in its end results.

It has always been and probably always will be a very difficult problem to decide just when a case of gonorrhea can be considered as cured. It has been claimed that chronic gonorrhea in women is never cured. This contention, however, does not coincide with the usual experience. Treatment carried out faithfully along the lines suggested, and continued for a sufficiently long period, is generally effective in clearing up the majority of cases.

It has been deemed advisable that, before a case should be discharged from observation and treatment, at least the following conditions shall be carried out: It should be absolutely required (1) that all inflammatory discharge shall have ceased; (2) that at least six smear examinations shall be found negative, the smears having been taken from the cervix, the urethra, Skene's and Bartholin's glands; some of these smears should be taken just previous to, and some immediately following the menstrual period; (3) that smear examination made after provocative injection into the urethra shall be negative; (4) that a gonorrheal complement fixation test of the blood, although not of very great importance, shall be negative; (5) finally, that a reexamination, which shall include all of the above steps, after cessation of all treatment for a period of at least one month, shall again be found entirely negative. It is as much as can be hoped for in determining the absence of infection, if all of the above requirements are fulfilled. The future state of the individual physically and mentally, and in so far as she remains a possible source of infection, and thus a focus for the spread of the disease to the community, may depend largely upon the thoroughness with which the freedom from infection is determined.

1141 FOX STREET.

HERNIA OF THE PLEURA COMPLICATING SPONTANEOUS PNEUMOTHORAX.

BY H. E. HALE, M.D.

NEW YORK.

IN my search of the literature, I have found no case even similar to the one I wish now to record. The nearest approach to it was reported by Maragliano,¹ in 1903 and again in 1904.

His patient had a left pleurisy with effusion. A thick-walled lump with sense of deep fluctuation developed close to the inferior angle of the left scapula. This gave a distinct impulse on coughing and could be reduced, with exception of the portion made up of the wall of the sac. With the removal of the reducing pressure, the sac immediately refilled, provided the patient was in such a position as to have the neck of the sac below the level of the fluid in the pleural cavity. Comparison of the fluids withdrawn from the pleural and hernial sacs completed the proof that they were communicating.

A very dissimilar, though equally interesting case is reported by G. R. Fowler,^{*} in 1889. His patient was a young child. The tumor presented in both sides of the front of the neck, most prominently, close under the left lower jaw.

Autopsy revealed a rupture of a primary bronchus in the right, upper lobe. The escaping air ascended, carrying the visceral and parietal layers of the pleura before it. It went high into the right side of the neck, then burrowed between the esophagus and the vertebral column, making its most conspicuous appearance, as before mentioned, high in the left side of the neck.

P. Fabre,[†] in 1886, reported a case of congenital "air diverticula in the front of the neck and at the superior middle portion of the thorax." In this case the defects were so gross as speedily to cause death.

Grateloup,[‡] in 1780, published an article entitled, "Observations on a Hernia of the Pleura." His patient was a woman of 24 years, who for ten years had experienced much abdominal pain, cramp-like in character. Later she developed a cough and pain in the region of the left sixth and seventh ribs. No mention is made of expectoration. In the course of a moderate time, an "oval swelling, 6.75 cm. by 2 cm., and of 2.5 cm. elevation, appeared in the sixth interspace. It came and went at will." It was soft and elastic and could be reduced by taxis. Operation was declined. Retention, with a pad and pressure, relieved the chest pain and cured the hernia, with improvement of her health.

V. A. Lebedeff,[§] reported a case of Hernia of the Pleura, in 1912. This patient had an empyema complicating pneumonia. Eight days after paracentesis, a fluctuating tumor, the size of a hen's egg, appeared at the site of puncture. This spontaneously disappeared the next day, but reappeared four days later still. It could then be felt immediately under the skin, to which it was not attached. It was movable, fluctuating, and gave impulse on coughing. One week after the second appearance, the swelling was incised. Only healthy tissue was encountered, and no pus and no cavity were found, as the swelling disappeared on incision. (I interpret this to mean the hernia, sac and contents were reduced en masse). Three days after this incision the swelling recurred, just below the cut. A needle, held parallel to the surface of the thorax, was introduced into the side of the mass and pus obtained. A second incision was then made with exactly the same result as the first, excepting that a few days after it pus began to escape through the wound. Autopsy revealed abscess of the right lower lobe of the lung, and an empyema.

My patient* was Dominick M——, a man thirty-six years of age. He had pulmonary tuberculosis with left, spontaneous pneumothorax. In the patient's back there was a semilunar tumor. It extended downward along the vertebral border of the left scapula, from a point about 8 cm. above the inferior angle, and upward and outward 9 cm. from the same angle. It was soft, compressible, though under some tension. To percussion it was

resonant. It could be almost entirely reduced, only to reform when pressure was removed. Coughing hastened the filling out and caused a perfectly plain impulse. This was evidently an air-filled, hernial sac of the pleura.

This patient did not feel very ill and after a few days in the ward, against urgent advice, left before a photograph was taken.

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64 WEST FIFTIETH STREET.

Medicolegal Notes.

Instructions as to Injured Spine Not Authorized by Evidence.—In an action for personal injuries an x-ray picture, introduced in evidence, was declared by a medical witness to describe a fracture of the fourth lumbar vertebra—in other words, a permanent injury to the spine. This x-ray picture was the subject of much controversy, and experts introduced on behalf of the defendant were in direct conflict with the plaintiff's expert on the matter of its interpretation. The plaintiff had refused to submit to a physical examination. No medical expert testified to injury to the spine, nor that the symptoms disclosed in the plaintiff's testimony could properly be assigned to spinal trouble. The plaintiff complained of pains in his back. This might be muscular as well as spinal; it might be rheumatism; it might be traumatic neuritis, secondary to an operation he had had for hernia; or it might proceed from any number of causes wholly unrelated to the spine. But the trial court in its charge invited the jury to determine "whether or not the accident caused an injury to the spine, and the extent of that injury even though the picture should not show it." This ushered the jury into the realm of speculation and permitted a finding based upon practically no evidence at all. Judgment for the plaintiff was therefore reversed by the Circuit Court of Appeals, Eighth Circuit.—Chicago, M. & St. P. Ry. Co. v. Holverson, 264 Fed. 597.

Finding of Accidental Injury by Contracting Anthrax at Factory.—In proceedings under the Illinois Workmen's Compensation Act for compensation for the death of an employee in a hide factory alleged to have resulted from anthrax contracted by accidentally coming in contact with the anthrax bacilli in the course of the employee's employment at the factory, there was no direct proof that there was, or ever had been, any hide in the factory infected with anthrax, but from the fact that the disease is primarily one which affects especially sheep and cattle; that its human victims are usually men engaged in handling wool, hides or animals; that the deceased was not at any place where he was likely to come in contact with anthrax except at the factory; that a pimple on his neck was scratched until it bled and the blood was wiped off with a towel; that he continued at work there and within the ordinary period of inoculation the neck began to swell and successive steps in the progress of the disease occurred, ending in death, it was held that an inference might justifiably be drawn that these results, thus following in regular succession, were a consequence of the only cause adequate to produce them which had been suggested, the existence of anthrax germs in the factory, showing that the deceased contracted the disease by an accident arising out of his employment.—Chicago Rawhide Mfg. Co. v. Industrial Commission, 291 Ill. 616, 126 N. E. 618.

*Seen in my service in the Tuberculosis Wards of Bellevue Hospital.

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THE GROWING ENSLAVEMENT OF THE PROFESSION OF MEDICINE.

Two correspondents in this issue of the *MEDICAL RECORD* call attention to two instances of governmental encroachment upon the freedom of medical practice. In the news column will be found a reference to other instances, especially to an attempt which will be made by the prohibitionists, emboldened by their assumed success in cutting off the use of alcoholic beverages, to forbid the use of alcohol not only in patent medicines but also in legitimate tinctures and elixirs. Under the present interpretation of the Eighteenth Amendment a physician can prescribe only one pint of whiskey or brandy every ten days for each patient. If a patient with septic fever needs any alcohol at all, he needs more than six drachms a day, but that is all the lay regulators of medical practice will permit him to have. If a man in the country is seized with renal colic twenty miles from a drug store and his companion happens to be a physician, the latter cannot telephone to that drug store for morphine, but must write a prescription on the official blanks, which he probably has not with him, and then must go himself to the drug store and prove his identity before he can get the drug, his friend with renal colic meanwhile having a good time by himself, twenty miles away.

Whether the compulsory reporting of venereal disease is for the good of the community is a question as to which there are still two sides. Whether a physician who is uncertain regarding some provision of the wretchedly drawn Harrison law shall put off prescribing for his patient until he can have the point decided by the courts, or shall prescribe as common sense and his conscience dictate, is a point for him to settle at his own risk. Every year an attempt is made in the New York Legislature to pass a bill compelling licensed physicians to register themselves each year and pay a tax under penalty of losing their right to continue the practice of their profession. The antivivisectionists and the antivaccinationists we have always with us. Nearly every year some new group of "healers," with little education or no education, are recognized by some State Legislature and are made by law the equals of medical practitioners who have given years of study to qualify themselves to treat the sick.

Who is to blame for this ever-increasing interference with the liberty of medical practitioners? If the medical societies of the land—county, State, and national—were conducted as they should be and exercised the influence that they readily could if their officers were in general more alive to their responsibilities, possibly a halt might be called to this meddling by politicians and cranks with the practice of medicine.

THE CHILD HEALTH CENTER AND THE MUNICIPAL NURSE.

THERE can be no doubt, in the most skeptical mind, of the success of municipal child health centers, or, as they are sometimes called, baby welfare stations. Beginning as they do, and as they certainly should, with prenatal care, these clinics present to the young mothers of the poorer classes the opportunity to give their infants and children the benefit of modern medical supervision. In cities where they have been established in sufficient numbers, they have the decided advantage of availability. To be successful, a place for keeping well babies well must not be too far from home. Many mothers will travel considerable distances to some large clinic or hospital in order to "get the best for the baby" when he is sick. Very few would take that trouble to have a well baby weighed, or to put an early stop to "a little running of the bowels."

Prophylaxis makes the least appeal of any of the medical sciences. Hence the antivaccinationists. But anyone who sees even a few infants will realize the importance of checking "a slight diarrhea" at the earliest possible moment, of discouraging that deep-rooted love of giving the baby anything from a can with directions on the outside, and of explaining to the mothers the proper methods of feeding and care. Protection against preventable illness would seem to be the birthright of every baby. It is for this that the baby welfare stations stand—whether the disease be diarrhea or diphtheria. The large clinics and hospitals should be the places where sick babies are treated. It should be the function and aim of the baby welfare stations to deprive them of material. This, any close observer of their work will agree, is exactly what they are doing.

The greatest obstacle to the success of baby welfare work is, strangely enough, very often the mother of the baby. Like the rest of the world, she has a lazy aversion to the prevention of calamity, whether it be war or disease. No matter how near the clinic, no matter how "good" the doctor, she simply does not care to bring the baby in for observation. Far better take the advice of grandma, or of the neighbors, or of labels on cans! Only a sick baby needs a doctor.

For protection against this maternal apathy, the baby must rely upon that indispensable medium between doctor and patient—the nurse. Competent visiting nurses, to urge attendance at the clinics, to see that the doctor's orders are carried out, are essential to the success of the welfare stations. It is very clear that where infant welfare work has

met with signal success, a well organized and efficient corps of municipal nurses is sure to be found.

Many mothers, of course, do not require constant urging to do the right thing for their babies. These regard the clinics as a present help, and are glad of observation and advice. Obviously it is the irresponsible, rather than the responsible mothers, who must be nagged and lectured and watched by nurse and doctor. It is still all too plain which class of mothers is in the majority.

PROGRESSIVE SPINAL MUSCULAR ATROPHIES OF SYPHILITIC ORIGIN.

PROGRESSIVE muscular atrophy of the Aran-Duchenne type, classically described as chronic anterior poliomyelitis, has syphilis as an extremely frequent causal factor. The great majority of cases of so-called chronic anterior poliomyelitis are, in reality, amyotrophic syphilitic myelitides. Clinically, syphilitic amyotrophy assumes the ordinary characters of amyotrophy, namely, a progressive evolution, an almost constant localization in the upper limbs; the existence of fibrillary contractions and the reaction of degeneration; usually with absence of disturbances of the sensibility and sphincteric functions. It also manifests itself by the frequent occurrence of pain more or less directly related to syphilitic meningitis, and especially by signs of spasmodicity, such as exaggeration of the reflexes, epileptoid trepidation, with or without extension of the toes, indicating a diffusion of the syphilitic process in the lateral columns of the cord. The clinical picture frequently becomes complicated by the association of medullary or encephalic syndromes of syphilitic origin, such as tabes or general paralysis of the insane. Finally, in the majority of cases the presence of signs or stigmata of syphilis are generally noted, such as specific cicatrices, the Argye-Robertson sign, unequal pupils, iridochoroiditis, aortic insufficiency, etc., which, combined with the lymphocytic count and Wassermann reaction, render the diagnosis of syphilitic amyotrophy an easy matter.

Pathologically, the process is not an anterior poliomyelitis, but is a diffuse vascular meningomyelitis. Atrophy of the interior horns is purely secondary and is constantly associated with more or less marked lesions of the white matter, vessels and meninges. At the onset the lesions consist of a lymphocytic infiltration generalized to all the parts composing the cord and its envelopes; the vessels are encased in a cuff of lymphocytes. Later on, the infiltration often disappears, leaving in its stead more or less pronounced lesions of sclerosis; fibrous thickening of the pia and connective tissue partitions, proliferation of the neuroglia, endoperiarteritis without any specific character, and sclerosis of the white columns. The latter lesion is particularly frequent and may be seated either in the anterolateral columns or in the crossed pyramidal fasciculi.

The favorable results so frequently obtained by resort to modern specific treatment should make it

incumbent on every physician to resort to it in each case of progressive amyotrophy. This treatment will often arrest the progress of the lesions and in still more fortunate cases it is susceptible of producing a more or less considerable retrogression of the atrophy, and occasionally a total and permanent cure may even be brought about.

ENTERO-ANTIGENS IN PRACTICE.

SEVERAL years ago Danysz of the Pasteur Institute of Paris introduced into the treatment of anaphylactic affections the use of cultures prepared from the intestinal contents of the patient. He calls this and analogous plans of treatment "curative antianaphylaxis." Under the conditions amenable to this kind of treatment he places psoriasis, asthma, and enteritis. His antigens for psoriasis are obtained from a number of patients and herein his method differs from that originally described which was purely a matter of autovaccination. The cultures from the intestines of 25 psoriatics were composed of a special strain of colibacillus, streptococci, staphylococci, enterococci, sarcinae, and one anaerobic organism with spores, and were used for psoriasis only, but in the preparation of a general polyvalent vaccine he got the best results from a mixture of two kinds of coli bacillus, one each of staphylococcus, streptococcus, and enterococcus, and the *B. proteus*. All of the strains are not only non-pathogenic but are sterilized by heat or ether or some other method. Danysz does not claim any advantage in theory for these preparations over simple peptones, milk, or various sera, but he does insist that the fact of obtaining cultures of microorganisms gives a better product for the practitioner. The only contraindication to this form of medication is fever, though this is not really a contraindication in the ordinary sense but the remedies are not indicated in chronic affections with fever. The dose of the hypodermic may be as small as a thousandth of a milligram, and a tenth of a milligram produces a disagreeable reaction on buccal ingestion. The fact that such small doses of culture are efficacious when given by the mouth suggests specific activities, although these are not claimed.

THE WASSERMANN REACTION IN THE TRANSUDATES OF SYPHILITICS.

RISER has studied this subject in the internist clinic at Toulouse, his results appearing in the *Annales de dermatologie et de syphiligraphie* for October, 1920, i, 10, this volume being the first of the sixth series. In 1910 Roger and Sabareanu investigated blister serum extensively for the Wassermann and apparently made a study of spontaneous exudates. In 1912 several studies were made of the transudate in syphilitic hydarthrosis. No details are given concerning the finds of Roger in exudates, but the author evidently built on their foundation and his first cases were in cardiorenal syphilitics with pleural and ascitic accumulations. In the first subject tested there were no organic lesions of syphilis. The blood serum, edema punctate, and hydrothorax punctate all gave a positive reaction. However, a second test made some time afterward gave weakly positive or negative results. In the second patient

of the same type, the results were the same for the first puncture. As the exudates were absorbed rapidly under digitalis and theobromine there was no opportunity for a second test. The third syphilitic died of pleurisy and no evidences of syphilis were found at autopsy. The pleurisy was of the ordinary type. The serum and pleurisy punctates had both been positive. In all 6 patients of this type were studied and in all the blood Wassermann was positive. The first five cases narrated also showed positive punctate reactions. The sixth patient with the same clinical finds had negative punctates. In five other patients with chronic nephritis only, various punctates were positive. It is evident that the reacting substance does not remain permanently in the transudate, which may explain negative results.

PSYCHOGENIC TETANUS.

TETANUS has at times been simulated, but documents to this effect are very rare. Chavigny of Strasbourg, however, has seen no less than 3 cases of this type (*Progrès Médical*, Sept. 18, 1920, xlviii, 38). The first was in a soldier hit by an infantry bullet who did not develop symptoms of tetanus for 6 months. He received intensive serum treatment, but apparently the condition persisted without any tendency to a serious termination. It was found that he had lived in constant fear of the disease and that the symptoms did not supervene until he had witnessed the death of a tetanus victim. Moreover the victim was a comrade who had been wounded in the same affray as himself. The tetanus contractions subsided after the man had been reasoned out of his delusion. The prolonged incubation or latency, the superposition of the symptoms at a psychological moment, and the absence of any malignant disposition on the part of the disease, together with the psychical cure readily distinguished the condition from true tetanus. In the second case there was a history of a supposed authentic tetanus at the age of 17, treated at the Pasteur Institute. Just one year later the disease reappeared, forming an example of so-called "anniversary tetanus." There was no history of a wound. Doubt was then thrown on the authenticity of the first attack, although there was no way of proving or disproving it. In the third case a man wounded in the face developed trismus, which persisted indefinitely without aggravation or generalization. It was recognized as hysterical. The subject was anesthetized, the jaws separated and a cork interposed between them. On waking the patient was cured.

News of the Week.

Drastic Rulings on Prescriptions for Narcotic Drugs.—Walter R. Herrick, State Narcotic Drug Control Commissioner, has announced two new rulings designed to further limit the illicit use of narcotic drugs. One ruling eliminates the use by doctors of the unofficial prescription blanks for administering any narcotic drugs. No such drugs can be prescribed by a doctor, whether for drug addiction or otherwise, except on official blanks issued by the department. This ruling was made because the bulk of the abuses in the dispensing of

drugs has been through the use of unofficial blanks. The second new regulation compels doctors administering to an addict to ascertain who was the last doctor who treated him. This gives the department a complete history of an addict and makes easy his arrest and conviction in case of false representation which is a misdemeanor.

No More Tinctures.—The prohibition lobby in Washington is reported to be laying its plans to have Congress pass a law forbidding the use of alcohol in the preparation of medicines. The object is publicly stated to be the suppression of the host of "bitters" and other patent medicines which are largely used for beverages in place of the liquor which can be had only at considerably greater cost. Privately it is suggested that many of the preparations of the U. S. Pharmacopœia and the National Formulary will also be wiped out if the lobby attains its end.

Harrison Law Conviction Affirmed.—The United States Circuit Court of Appeals handed down a decision, on November 16, 1920, affirming the conviction of Dr. Solomon Rothman, a physician, and Louis and William Cohen, druggists, for violation of the Harrison Law. The defendants were sentenced to two years in the Atlanta Penitentiary, but have been out on bail pending their appeal. The Government's position, on all the legal points raised, was sustained by the opinion of the court, which was unanimous. The most important point decided was that a United States Treasury regulation, construing the law, has no bearing on the case, if it is contrary to a subsequent court decision.

Smoking in Public Assailed.—Dr. Royal S. Copeland, Health Commissioner of New York City, has issued a statement declaring that there should be an organized movement against smoking in public restaurants at normal eating time, in offices where non-smokers are employed, and in every public place where smokers and non-smokers are found. Dr. Copeland calls attention to the dangers of nicotine applied to the human system, and the deadly influence of the half-consumed cigar butt. He scores as "contemptibly" selfish the smoker who contaminates the atmosphere of eating places frequented by non-smoking persons.

Smallpox on Incoming Vessels.—Two cases of smallpox have recently been discovered on incoming vessels. One of these was among the 1,357 steerage passengers of the *Duca d'Aosta* and the other was among the 1,400 steerage passengers of the *Duca d'Abuzzi* of the Italian Royal Mail Line arriving on December 23. Plans to have these immigrants passed at Philadelphia because of the congestion at Ellis Island were changed and these passengers held at Quarantine.

Hospital for Seoul.—Influential Koreans have filed a petition with the authorities of Seoul for permission to establish a modern isolation hospital in that city. Funds totalling \$100,000 for the erection of the hospital will be raised by public subscription.

Brooklyn Hospital Sells Property.—The Brooklyn Eye and Ear Hospital has sold its property to the Polytechnic Institute for \$150,000, of which \$20,000 is to be in cash. The hospital directors are negotiating for the purchase of a site for a new hospital on Greene Avenue between Carlton Avenue and Cumberland Street, Brooklyn.

Dr. Charles A. Powers of Denver has received by direction of King Albert of Belgium, the Decoration of Officer of the Order of Leopold, awarded for conspicuous service in the World War.

Paris Academy of Medicine Celebrates Centenary.—The Paris Academy of Medicine celebrated its one-hundredth anniversary on December 20. President Millerand presided and representatives of nearly all the countries of the world, including the United States, Great Britain, Italy and Spain, were present.

Paris in Need of Radium.—The French Parliament has been asked to authorize the purchase of two grams of radium at a cost of 2,000,000 francs. One gram is available in Madame Curie's laboratory and the other will have to be purchased either in London or New York.

Appeal for Louvain Library.—Dr. Nicholas Murray Butler, who is head of the executive committee for the reconstruction of the Louvain Library, is making an appeal for funds for this purpose. A site for a new library has been chosen and the architect selected, but in the months during which a campaign for funds has been under way only about \$150,000 has been raised. The authorities at Louvain are inquiring whether substantial aid may be expected from America.

A Plea for Blinded British Soldiers.—Dr. Arthur Pearson, Chairman of the Blinded Soldiers' and Sailors' Care Committee, is soliciting funds for the support of the work for blind soldiers and sailors being carried on at St. Dunstan's, England. Here 2,000 blind men are cared for and taught occupations that enable them to reconstruct their lives. Besides those actually blinded on the battlefields, 23,000 men were discharged from the army with seriously damaged sight, and many of these have found it necessary to come to St. Dunstan's. Dr. Pearson states that their plans for helping the blinded soldiers back to a normal life have worked out better than any one dreamed would have been possible. He feels that recalling to the public what this work means to the blind cannot fail to bring the funds necessary to the proper maintenance of the activities of this institution.

Rockefeller Foundation Aids Czecho-Slovakia in Public Health Program.—The International Health Board of the Rockefeller Foundation announces a cooperative program in public health, agreed upon with the Government of Czecho-Slovakia. This program provides: (1) Lending to the Czecho-Slovak Government the services of an American competent in Public Health Administration. (2) Fellowships for training a select group of young Czechs for service in the field of public health. (3) Cooperation in the development of a national public health laboratory service. (4) Expense of a Czech Commission to study public health administration in the United States. Fellowships have been provided to enable nine medical representatives from Czecho-Slovakia to pursue courses in public health, hygiene and preventive medicine in the United States for 1920-1921. Those accepting the preferred courses agree to serve the Ministry for from three to five years after their return from America. Five members of the commission from the Ministry of Hygiene of Czecho-Slovakia have recently arrived in America as guests of the Foundation. They will make a tour of the country,

which will include visits to Baltimore and Washington, scenes of rural health work in North Carolina, and Boston, Albany, Saranac, Toronto, New York, Chicago, and Columbus, Ohio.

Doctors and Nurses Give Play.—The medical, surgical and nursing staffs of the Post-Graduate Hospital gave a play, followed by a dinner and dance, at Delmonico's, on the evening of December 23, in aid of the endowment fund of the hospital. The play, entitled "There's a Reason, and Effervescence in Three Syphons," was written by Dr. Marvin Jones.

Scientific Feeding Experiments on School Children.—To determine why thousands of Detroit school children are undernourished and how undernourishment in school children can be overcome, city officials, assisted by charitable organizations, will begin in January a three months scientific feeding experiment on two groups of fifty pupils each. The group of fifty undernourished children will be served the regular hot noon luncheon which is sold at some of the schools. The homes of these children will be visited to determine whether the malnutrition is the result of physical defects, inability or neglect of parents to supply proper food, improper food selection, lack of home discipline, or dislike of the children for proper food. As a check, fifty undernourished children in another school will be selected for a similar experiment except that they will not get the hot luncheon. In this way it is hoped to arrive at the relative value of two kinds of luncheons served the children.

The Burden of the Alien Mental Defective.—In an address before the forum of the Church of the Ascension, on December 19, Dr. Pearce Bailey, Chairman of the Committee on Mental Defectives in New York City, urged the need for more educational and institutional facilities for the care of the 40,000 mentally deficient in New York State. It has been found that 31 per cent. of the persons in New York State with subnormal brain capacity are foreign born. In view of this fact, Dr. Bailey believes it is imperative to find some means of keeping out mentally defective aliens.

Abandon Plans for Police Hospital.—It has been announced by Coleman du Pont, chairman of the police hospital fund, that opposition to the proposed hospital had led to the abandonment of the project, and that the money raised will be turned over to the police relief fund.

Surgery by Radio.—According to a recent account in the *New York Herald* the correspondence school has been outdone. This report tells how the Belgian steamship *Menapier*, battered by a hurricane, sent out an S. O. S. message requesting medical aid. The *Winifredian*, several days out en route from Liverpool to New Boston, picked up the message, but as the sea was too rough to permit the launching of a boat to send medical aid, Dr. Patrick S. Burns of Providence, surgeon of the *Winifredian*, received by wireless details of the men's injuries, and dictated the treatment for broken arms, legs, and other injuries. For three days the two vessels lay within hailing distance while the surgeon's instructions were obeyed. On the fourth day the *Menapier's* captain sent word that all instructions had been carried out and the injured men were resting comfortably and apparently out of danger.

Gift for Blind Soldiers.—William Nelson Cromwell, President of the Blind Relief War Fund, has made a Christmas gift of \$5,000 to this organization.

Far East Medical Congress.—A meeting of the Far Eastern Medical Association is to be held in Batavia, Java, in August, 1921, according to an announcement made by Alejandro Albert, secretary of the Department of Public Instruction of the Philippine Islands.

Boston Meeting of the American Medical Association.—The local Committee on Arrangements for the annual meeting of the American Medical Association, to be held in Boston, June 6-10, 1921, has been organized as follows: *Chairman*, Dr. F. B. Lund; *Secretary*, Dr. Richard H. Miller. *Subcommittee on Finance*: *Chairman*, Dr. Hugh Williams; *Secretary*, Dr. Channing Frothingham; *Treasurer*, Dr. A. William Reggio. *Subcommittee on Sections*: *Chairman*, Dr. William H. Robey, Jr.; *Secretary*, Dr. H. Archibald Nissen. *Subcommittee on Exhibits and Printing*: *Chairman*, Dr. D. F. Jones; *Secretary*, Dr. George Gilbert Smith. *Subcommittee on Hotels*: *Chairman*, Dr. John T. Bottomley; *Secretary*, Dr. Stephen Rushmore. *Subcommittee on Entertainments*: *Chairman*, Dr. C. A. Porter; *Secretary*, Dr. A. W. Allen. *Subcommittee on Registration*: *Chairman*, Dr. A. S. Begg; *Secretary*, Dr. Samuel R. Meaker. *Subcommittee on Clinics*: *Chairman*, Dr. J. C. Hubbard; *Secretary*, Dr. R. S. Eustis.

Nurses Need Housing Accommodations.—Some time ago the Central Club for Nurses was organized and with the help of the Y. W. C. A. a club building costing about half a million dollars was erected at 61 Lexington Avenue, New York. This building is no longer adequate to the demands made upon it. In view of the fact that many unattached and inactive nurses availed themselves of this opportunity to obtain a home the accommodations for younger and active nurses have been greatly curtailed. To meet the situation thus created a ruling has been made whereby each and every nurse who has occupied rooms for a certain period must vacate. In view of the inconvenience which this arrangement causes the nurses are making a plea for another club. They point out that the Central Club has been a money-making proposition from the start, and are initiating a campaign for a membership of two or three hundred and a fund of \$15,000 to \$20,000 with which to extend the activities of the Club.

Visiting Nurse Service Appeals for Funds.—The Henry Street Settlement has appealed for funds to enable it to keep its nurses in the field. The nursing force is at present totally inadequate to handle the flood of calls for help which are pouring in, and it is anticipated that when unemployment has made conditions more acute far greater demands will be made upon the Visiting Nurse Service.

Dr. Haven Emerson, formerly Commissioner of Health of New York City, has been appointed to the position of Medical Advisor and Assistant Director of the Bureau of War Risk Insurance.

Obituary Notes.—Dr. JAMES THOMASSON MOREHOUSE of West Orange, N. J., died in the New York Hospital from the result of x-ray burns received fifteen years ago, on December 20, at the age of sixty-three years. Dr. Morehouse was graduated

from the New York College of Pharmacy, in 1879, and from the Medical Department of New York University, in 1893. He has been interested in x-ray work since 1895.

Dr. WORTHINGTON W. MINER of Ware, Mass., died on December 19 of pernicious anemia. He was born in Ware, November 5, 1847, of a medical family, his father and his uncle both being surgeons. After obtaining his degree from the University of Buffalo in 1871, he practised for eight years as assistant to his uncle in Buffalo, being also attending surgeon to the Sisters of Charity Hospital and associate editor of the *Buffalo Medical Journal*. In 1880 he removed to Ware and there practised his profession up to within six months of his death. He was surgeon to the Boston and Maine Railroad and was a member of the New York and New England Association of Railway Surgeons, the Hampshire District Medical Society, of which he was president in 1908-9, the American Medical Association, and the Massachusetts Medicolegal Society.

Dr. NATHAN SMITH DAVIS of Chicago, son and namesake of the founder of the American Medical Association, died on December 21 of lymphosarcoma at the age of 62 years. He was a graduate of the Chicago Medical College in 1883. For a number of years he was dean and professor of the principles and practice of medicine and clinical medicine in the Northwestern University Medical School, and was attending physician to the Mercy, St. Luke's, and Wesley Hospitals. He was a member of the Cook County Medical Society, the Illinois State Medical Society, the American Medical Association, the Chicago Pathological Society, the Chicago Neurological Society, and the Chicago Institute of Medicine.

Dr. JOHN W. HANNA of Winfield, Iowa, died December 2 from cerebral apoplexy, at the age of 73 years. He was a graduate of the Iowa State University Medical School in 1873.

Dr. SYLVESTER D. WILLARD died in London, England, on November 28, at the age of fifty-six years. Dr. Willard was born in Albany, N. Y., educated in London, and took his medical degree at St. Bartholomew's Hospital.

Dr. HERMAN HELLENSTEIN of New York, died at Mount Sinai Hospital, on December 20, at the age of fifty-seven years. He was graduated from the University of Buffalo, in 1890, and was Coroner of Manhattan from 1909 until that office was abolished in 1917.

Dr. WILLIAM J. SWIFT of New York City, a graduate of the College of Physicians and Surgeons, in 1878, died suddenly, on December 20, at the age of fifty-eight years.

Dr. ALFRED EUGENE SPALDING, a graduate of the University of Pennsylvania, in 1874, died of pneumonia at his home at Luverne, Minn., on December 4, at the age of sixty-nine years. He has for many years been a member of the Council of the Minnesota State Medical Association.

Dr. WILLIAM F. M. SOWERS of Washington, D. C., died at his home on December 19 at the age of forty-six years. He was graduated from Johns Hopkins University, 1907, was a Fellow of the American College of Surgeons, and a member of the American Medical Association. He was a member of the surgical staff of the George Washington, Providence, and Foundling Hospitals.

Correspondence.

METEORIC CONDITIONS IN RELATION TO CORYZA.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—In an article published December 6, 1919, Dr. C. M. Richter designates the following among his conclusions concerning the spread of coryza:

2. It (coryza) develops therefore principally during the cyclonic weather condition called low, especially when a period of very dry weather has preceded a low and when, in consequence, the change from previous dry air to the incoming very moist air is most rapid.

It may be added that the "period of very dry weather" is a period during which the dustiness of air, for want of a better name, the "blue haze" is most apparent. The haze is not always apparent, but usually is discoverable within a very few days after the midday humidity runs below normal. The haze increases from day to day until the horizon is greatly discolored—frequently a leaden color.

The color of haze particles depends very largely on their size; in general, the finer the particles, the more distinctly blue the haze becomes. Particles of the blue dust haze are finer than the smoke from the burning end of a cigar—very much finer than the exhaled smoke. The highest power of the microscope does not discover them. They belong to the floating dust of the air; if they are brought to the ground it is by means other than their own gravity. If they fall, it is because they become nuclei of condensation. The fact that the blue haze is apparent at times immediately after a rain is evidence that some of the particles, at least, are not brought to the ground, and also that they are not "favorable" nuclei.

The constitution of the particles is not known. Probably they consist of any sort of matter that gets into the air and is reduced to the fineness of haze matter.

Here is the interesting point: Slides exposed to air free from wind-blown dust, if placed in clean, moist air, develop colonies of microorganisms even under standard conditions of isolation. It is not unreasonable to infer that they develop from floating spores that do not come from ordinary wind-blown dust. There is but little doubt that a period of several days of wind-blown city dust is followed by onsets of pulmonary disorders; my own experience, which is that of a layman, is that a few days of haze weather will account for the prevalence of colds that usually follow.

J. W. REDWAY.

METEOROLOGICAL LABORATORY,
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SOME THOUGHTS SUGGESTED BY THE CAMPAIGN AGAINST VENEREAL DISEASES.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—I am in receipt of the following letter, which is the occasion of this communication. "Dear Doctor: On looking over the list of physicians who have reported their venereal diseases regularly, I fail to find your name among them. We feel sure that this oversight on your part is not deliberate,

but rather, in the rush and turmoil of a busy practice you have simply overlooked this important duty. Paragraphs 1 and 2 of the venereal disease regulations of the State Board of Health especially set forth that venereal diseases are communicable and dangerous to the public health and shall be reported by serial number only to the local health officer. There is not a case on record where any individual, who has complied with the law has been molested or any publicity given him by having his cases reported by other than serial number, etc." Signed by the "Director, Bureau of Control of Venereal Diseases, U. S. Public Health Service."

Our Arizona law provides that the patient shall first be reported by serial number; that he shall continue under treatment, until repeated Wassermann reactions, in the case of syphilis, and microscopic examinations, in the case of gonorrhea, show that he is free from disease. During such time he shall be considered to be in "quarantine." In case he fails to comply, literally, with these provisions of the law, he is to be reported by his physician, by "name, address and serial number," to the State Board of Health and "becomes liable to the penalties provided for, etc." So much for the patient. Now for the physician. "Any physician, health officer or other person, violating the provisions of these regulations or refusing to obey the instructions herein contained shall be guilty of a misdemeanor and subject to the penalties of the Public Health Act."

Thus the physician is held responsible for the individual acts of his patient and for the complete treatment of these diseases, extending over months or even years and, until laboratory tests show that he is entirely well. If the patient, for any reason, carelessness, ignorance or lack of funds, does not follow up the treatment, his physician, whom he consulted, in confidence and as his friend in need, is supposed to become a police officer, a spy on his movements, a traitor to his confidence and report him to the health authorities by "name and address," subjecting him to all kinds of injury, economical, moral, and social. No conscientious physician wishes to be placed in the position of threatening to report his patient if he fails to continue his treatment, thus forcing him to an expense that he, the patient, may think unnecessary and will, almost certainly in some cases, consider a species of blackmail. The physician is thus placed in the dilemma of either working for nothing or violating his professional relations to his patient, and, I think it safe to say, that most physicians will do neither. I am sure I can speak for the older generations, who, upon graduation, took the "Hippocratic Oath."

This class of physicians will quit the treatment of venereal diseases or even the practice of medicine, before they will thus violate their most sacred obligations. It is no answer to say "There is not a case on record where any individual, who has complied with the law, has been molested or any publicity given him, by having his case reported by other than serial number."

The proposition that the physician has to face is not the failure of the health authorities to fully enforce the law; but that he is asked to violate the most solemn of professional prerogatives, "professional secrecy." Is it possible that all patients have obeyed the law, the doctors too, and that no one

has been reported by "name and address" to the Board? There may be, possibly, no objection to the report by serial number, alone, if wanted for statistical purposes; but I confess that I would dislike to die suddenly and leave in my desk a private record with "serial number, name and address" of Mr. A., B., or C., perhaps one of the most prominent members of the community, including, possibly his wife, with a diagnosis of syphilis or gonorrhea. The whole thing is wrong ethically and constitutionally.

So much in the way of adverse criticism: now as to constructive suggestions. It is to the profession and the profession alone, that we must look for the successful working out of this question, and this cooperation must be obtained, with the voluntary consent of the profession and without drastic laws that interfere with the physician's or patient's personal liberty of action. With patients of intelligence and those who have the means to follow out the necessary treatment, the friendly admonition of the physician will accomplish all that is possible. The trouble is with the other and larger class, the ignorant and indigent or semi-indigent, who fear that they cannot afford the expense or are unable to appreciate the physician's forecast of the disastrous results of neglect of treatment. For these last the State might, upon the simple statement by the physician of the circumstances, furnish the necessary medicines, and I am glad to say, this is already being done.

Now, for a few remarks along broader lines. I am not an alarmist on the subject of syphilis, to the extent that many are, though free to confess that it is bad enough. It will never destroy the human race. Humanity, at large, at the present time, is pretty efficient, I should judge, as the result of the experiences of the last few years on the battlefields and in other directions, and certainly syphilis has had plenty of time to demonstrate its general average effect on the race. The ever-increasing importance attached to it by the profession will continue to act as a factor in its further control, even along the lines of a slow social evolution. Whatever is done to support the profession in its efforts must be done along these natural evolutionary lines and not by drastic, sumptuary laws that infringe on personal liberties. I trust that no one will misjudge the spirit or intent of what I have written. It is, in no sense a protest against the campaign for the eradication of venereal disease. It is a protest against some of its methods of procedure and especially against the insidious conceptions, German in origin and Bolshevik by extension, that the individual has no rights that the State is bound to respect. I am willing to be convinced, if anybody can show me that the argument is not sound from any standpoint, either professional, ethical, or constitutional.

F. CAUTHORN, M. D.

SUPERIOR, ARIZ.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—Following its established policy of giving in *extenso* decisions of the courts relating to the conviction of physicians for alleged violations of the Narcotic Laws, the Weekly Bulletin of the Department of Health, New York City, prints the following article in its issue of Dec. 11, 1920:

The United States Circuit Court of Appeals handed

down a decision, on November 16, 1920, affirming the conviction of Dr. Solomon Rothman, a physician, and Louis and William Cohen, druggists, for violation of the Harrison Law. The trial took place before Judges Rufus and Foster, and the defendants were sentenced to two years in the Atlanta Penitentiary, but have been out on bail pending their appeal. This decision of the Circuit Court of Appeals is the first to be rendered in the cases of physicians (four), convicted of similar offenses in 1919 and 1920, and all of whom appealed. The government's position, on all the legal points raised, was sustained by the opinion of the court, which was unanimous. The most important point decided was that a U. S. Treasury regulation, construing the law, had no bearing on the case, if it was contrary to a subsequent court decision.

In a similar article, "Physicians and the Harrison Narcotic Law," contributed to the *Journal of the American Medical Association*, Arthur D. Greenfield, Attorney and Counsellor at Law of this City, elaborates this decision in the following words:

Several points of more or less technical legal interest were decided, but the feature of the decision which is of particular importance to physicians and druggists relates to the power given by the Harrison law to the Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, to make rules and regulations. The court held that this gives no authority to make rulings interpreting the law; that a physician relying on any interpretation of the law made in a departmental ruling does so at his peril, and cannot plead that he was misled by it if the courts should subsequently decide that the ruling was wrong. . . . I am told that after the Supreme Court decisions on the Harrison law were rendered, in March, 1919, the officials of the Internal Revenue Bureau were subjected to great pressure from physicians and others desiring interpretations of the law, and were not only urged to issue general rulings but received innumerable requests from individuals for advice on their particular problems. This decision may help to impress on physicians that if the text of the law in any particular is not sufficiently clear to enable them to decide safely what their rights and duties are, they should either have the question tested in the courts or else try to have the law amended so as to make it clear. Appealing to administrative officials for an interpretation is of no benefit, and reliance on such interpretations may prove dangerous.

One of the paragraphs from the Court's charge as given to the jury is as follows:

Assuming that these Treasury Decisions conflicted and that Decision No. 2200 was wrong and Decision No. 2879 was right and in accordance with the decision of the Supreme Court in *Webb and Goldbaum v. United States*, 249 U. S. 96, the trial judge was bound to disregard No. 2200; the meaning of the act is authoritatively determined by the court and not by the Treasury Department. Ignorance of the law excuses no one. It could be no excuse that the defendants relied on a Treasury Decision which was wrong. In the *Webb* case it was authoritatively settled that if a practising and registered physician issues an order for morphine to an habitual user thereof, the order not being issued by him in the course of professional treatment in the attempted cure of the habit, but for the purpose of providing the user with morphine sufficient to keep him comfortable by maintaining his customary use, such order is not a physician's prescription under exception (b) of Section 2 of that act. The instruction given by the court conformed to the ruling of the Supreme Court and there was no error in refusing the instruction requested.

Summed up, the situation as it now stands practically amounts to this: Under a Revenue measure the Government taxes the hundred and fifty thousand physicians of the United States three dollars a year each for the privilege of prescribing narcotic drugs. It entrusts the administration of this law

to Treasury and Internal Revenue officials. These officials as agents of the Government make rulings interpreting these laws and setting forth conditions under which this privilege may be exercised by physicians.

It is now officially declared by the courts that "ignorance of the law," as ultimately laid down by them, "excuses no one." This rule apparently does not apply to the Government's own agents most, if not all, of whom are lawyers by profession. According to Mr. Greenfield the only remedy for a holder of a license for prescribing narcotics, for which he is taxed, is to appeal to the courts for a decision to make these rights safe to exercise or else try to have the law amended to make it clear. This is a most encouraging prospect for the medical profession of this country, the only one in the world whose government dictates to its physicians the conditions under which they may prescribe narcotics with every prospect of becoming convicted felons if they misinterpret narcotic laws which even the Government's own officials apparently do not understand.

JOHN P. DAVIN, M.D.

117 WEST SEVENTY-SIXTH STREET.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, Dec. 4, 1920.

Regional Medical Staff.—A new project of the Health Ministry has been inaugurated recently. A staff of medical officers has been appointed, the object of which is to make available to insurance practitioners and to approved societies the impartial services of Government medical officers of wide experience who will advise on questions of doubt as to incapacity for work, and on cases in which undoubted incapacity is prolonged and with regard to which it is desirable to obtain a second medical opinion. Such officers have now been assigned to convenient regions in England and Wales, and will be assisted in certain of their duties by medical officers engaged to give part of their time to this work. The work of this regional staff, insofar as it directly relates to insurance practitioners, may be considered under three heads. (1) The arrangement for the examination of patients certified as incapable of work, and for reporting on the question of incapacity. (2) The arrangements for making available the advice of regional medical officers in consultation with the insurance practitioners on cases in which the question of incapacity does not necessarily arise. (3) Other duties in relation to the insurance medical officers. It is officially stated that these medical practitioners were not appointed as the result of a recent decision. In 1913 the matter was discussed by the Insurance Commissioners, the approved societies, and the medical practitioners, and it was then considered desirable to make the appointments, each one carrying a salary of £1000 a year. The subject was raised in Parliament, and in July, 1914, the payment was sanctioned. The war prevented the appointments being made, but the Ministry of Health determined a short time ago that the time had arrived for carrying out the project. It is further explained that the appointment of these officers, insofar as it affects the Insurance Act, will ultimately benefit the tax-

payer. Any saving effected will not only benefit the approved societies, but also help the exchequer, which bears two-ninths of the cost of the benefits.

Death of a Well-known French Radiographer.—Another martyrdom to science has just been reported. Dr. Infrois, Principal of the Central Laboratory of Radiography at the Salpêtrière Hospital, Paris, has fallen a victim to the x-rays. From 1898 he had devoted all his time to the practical application of the x-rays. During the past ten years he underwent twenty-two surgical operations to alleviate the injuries caused by the rays. First the fingers of his right hand had to be amputated and in course of time he lost his right arm and four fingers of his left hand. In June last his left forearm was amputated, but he still continued to work. However, a month ago his strength gave way and on November 29 he died.

The Prevention of Malaria.—A meeting of the War Section of the Royal Society of Medicine was held on November 8 last, when Major Angus MacDonald read a paper on some problems connected with malaria, with special reference to prevention. With regard to quinine, he believed that there was little, if any, evidence of the beneficent action of this drug in prophylaxis, and considered its impracticability widely demonstrated on civilians and armies. While quinine was a proved specific for treatment, it was but a sophistical aid to prevention. Knowledge of parasitology was an essential guide to prevention, and he was of the opinion that while falciparum and vivax were widely distributed the quartan parasite was very localized. The bionomics of anophelines required careful study, and he considered temperature a very important factor, malaria did not occur in any area where a mean temperature of 60° F. was not present for some period of the year. He instanced malaria in England in proof of the influence of temperature; thus, in 1917 a mean temperature of 60° was reached in June, and army returns of malaria, of which there were about 200 cases during the summer, began in July. In 1918 a mean temperature of 60° was not reached until July; the first cases were reported in August, and the total was about 80. In 1919 60° mean temperature was not reached until August; the first cases were reported in September, and there were only 40 cases. The mean temperature for plasmodial sporogony was about 60°, the maximum 90°, and the minimum probably somewhere about 50°. The relative temperature needs of falciparum, vivax, and the quartan parasite, required further study. He felt certain that temperature greatly influenced prevention. Nets and screening were the methods of personal prevention, but culicifuges were of little use. Mosquito destruction was the most important method of prevention. Col. P. H. Henderson, who took part in the discussion, looked forward to the increase of antibodies by preventive inoculation as the chief means of prevention in the future. Rear Admiral P. W. Bassett-Smith considered quinine of value as a prophylactic and instanced as evidence of this the reduction in the Italian army of from 80 to 60 per cent. and then 12 per cent. in succeeding years, according to the thoroughness with which quinine was administered. Excerpts from Major MacDonald's paper and from the discussion have been

quoted to show that the experience gained by British medical officers during the war in districts in which malaria was rampant seems to go to show that belief in the prophylactic influence of quinine on malaria is fallacious. The majority of these hold the view that quinine is of little or no use in preventing malaria and some go so far as to assert that quinine has hindered prevention rather than helped, because it is employed in place of those radical measures which are known to extirpate the disease. Destroy the malaria-bearing mosquitos and the disease will die out. Perhaps there is hardly the belief in quinine in treatment as formerly, in fact there are some who deny much therapeutic virtue in quinine in the treatment of malaria. The whole subject appears to require investigation.

Hospitals and the Rates.—In what is known as the Miscellaneous Provisions Bill, introduced by Dr. Addison, the Minister of Health, into the House of Commons recently, a clause sets out that County Councils shall have the power to supply and maintain hospitals, to contribute to voluntary hospitals within their area, to undertake the maintenance of poor law hospitals or infirmaries, and to establish ambulance services. In short, this clause gave County Councils the power to assist voluntary hospitals from the rates. This proposal met with severe opposition, and it has just been announced that Dr. Addison has intimated that he would appoint a strong, impartial independent committee of five to report promptly on the financial position of voluntary hospitals throughout Great Britain and to make constructive recommendations. In the meantime the power proposed to be given to the County Councils to contribute to such hospitals will probably be struck out of the bill. The Ministry, however, holds to its proposals to make available through the County Councils as far as possible, the 30,000 beds usually empty in hospitals controlled by Poor Law authorities. It is also announced that the "small, strong, impartial, and independent committee" is not to comprise any medical men or anyone connected with the medical profession or with hospital management. It will probably be composed of experts in finance and in local government. Presumably the idea of excluding medical men or those connected with hospital management is that the matter will be approached impartially and disinterestedly. However, it appears somewhat out of the natural order of things that a committee appointed to report, even though it be only on the financial situation of the British voluntary hospitals, should not contain a single medical or hospital representative. It is to be sincerely hoped, too, that the investigation will be made and a report issued promptly. Parliamentary committees have a way of unduly delaying their reports. In this instance it should be borne in mind that the matter is quite critically urgent in view of the present financial situation of the hospitals.

In the House of Commons on December 2 last, further consideration was given to the Ministry of Health (Miscellaneous Provisions) Bill. In view of the decision to appoint an impartial committee to inquire into the circum-

stances of voluntary hospitals Dr. Addison, Minister of Health, moved to delete the paragraph of Clause 11, which gave authority to county councils to contribute to voluntary hospitals. Deletion of the paragraph was carried.

Financial Position of the London Hospital.—It may be thought that too much attention is paid in these letters to the voluntary hospitals question. But the matter is one of such supreme importance alike to the public and the medical profession, and its discussion cannot but contain so many points of interest to American medical readers, that it would be almost a dereliction of duty not to deal with it at some length. A meeting of the Court of Governors of the London Hospital, which took place on December 1 last, gives a very good idea of the position of the voluntary hospitals in Great Britain. The London hospital is the largest in the country, is situated in the midst of the poorest district of London and has but a very small endowment. Its position was well put in an address made at the meeting by Viscount Knutsford, the President of the Court of Governors. It is recognized, he said, that a hospital without a large endowment must to a certain extent live from hand to mouth, but it is beyond reasonable possibility to expect that the income of the hospital for next year can be increased by voluntary effort to a sufficient extent to meet the estimated expenditure.

The speaker went on to say that it must not be inferred from present difficulties that the governors had any cause to regret the policy of the hospital in the past. The income from investments, trust funds, and estate was greater now than ever before, and this despite the fact that within the past twenty-five years the hospital had been rebuilt at a cost of £727,372. Up to 1914 the hospital paid its way and was able to keep abreast of the improvements in building and equipment which the advance of medical and surgical science required. At the end of that year, after an expenditure of £123,334, there was a credit balance of £9,000. In 1919 the expenditure was £221,024 and the debit balance over £65,000. This year the expenditure would probably reach £275,000, an increase due, not to any extension of work, all proposed extensions had been cancelled, but to the abnormal rise in prices and wages since the war. The estimate for expenditure next year was £300,000, and toward this they estimated their income at £150,000, leaving a deficit of £150,000. The House Committee, Viscount Knutsford said, had gone most carefully into every possible means of cutting down expenditure and were convinced that to do this to a sufficient extent would mean entirely to destroy the present standard of efficiency. To do this in regard to an institution whose work was national could not be regarded other than as a disaster, and the House Committee felt strongly that the time had come when, at any rate for hospitals in the category of training, and research centers, such as the London hospital, some aid should be forthcoming from the State to supplement voluntary charity. The chairman, however, allowed that by advocating State or municipal aid, a good deal of controversy had been raised.

Phrases like "the death of the voluntary system" had been freely used. The committee would assure the governors that they desired as strongly as possible the retention of the voluntary system in its essentials. There were some who would cling to a voluntary system pure and simple, however inefficient the service which might result. Such ardent partisans generally overlooked the fact that the majority of the larger hospitals were already receiving State aid in some form or other. Therefore in advocating such aid they were only asking for the extension of a principle which had long since been accepted. The speaker declared that there was no ground for supposing that the receipt of State aid would kill voluntary charity. Medical and surgical science, and the various forms of treatment, grew daily more complex, and the committee felt that the point had been reached when an efficient hospital service could not be carried out by voluntary charity, alone and unaided. Referring to the committee appointed by Dr. Addison to inquire into the position of voluntary hospitals, Lord Knutsford said the future of the London hospital would seem largely to depend on the recommendation and findings of that committee.

Most of Lord Knutsford's address has been quoted, not only because as said before the London Hospital is the most conspicuous example in Great Britain of a voluntary hospital almost wholly dependent on charity, but also because Lord Knutsford is the most competent and successful hospital manager in the country. He is an authority whose words carry the greatest weight and when he declares for State aid or partial State aid all will listen to him with close attention. And yet the majority of the public probably, and the greater part of the medical profession certainly, are strongly opposed to nationalization of the hospitals in any form. However, another notable authority, Sir Napier Burnett, believes that the problem can be solved by proper organization and by the introduction of modern business principles into the management of the hospitals.

The London hospitals in particular in the past have relied nearly wholly upon spasmodic appeals for funds. This method has failed. The public should be taught the value in crude cash of the hospital to the community and a definite appeal should be made to all the various beneficiaries. Especially are such benefits evident in the case of insurance companies who practically contribute nothing. Employers of labor do not contribute in proportion to their means and employees as a rule give very little. It is left to the already overburdened middle class people largely to support institutions from which they receive no benefits. Why then should not a pay system or partial pay system be introduced? Under this system all who require and ask for hospital treatment would pay according to their means and the hospitals might be continued on the voluntary basis. The inquiry into the financial condition of the hospitals should result in the situation being made clear. Then adequate steps could be taken to reorganize them. At present it is a matter, to a great extent, of groping in the dark.

Progress of Medical Science.

Boston Medical and Surgical Journal.

December 16, 1920, clix, xliii, 25.

1. The Differential Diagnosis of Tuberculosis. E. O. Otis.
2. X-Ray Diagnosis in Phthisis. Frederick W. O'Brien.
3. Samuel Fuller, The Pilgrims' Doctor. Charles H. Bangs.
4. Malignant Disease of the Kidney with Unusual Symptoms. J. Deinger Barney.
5. Report of a Case of Acute Encephalomyelitis with Autopsy. Howard Osgood.

1. The Differential Diagnosis of Tuberculosis.—E. O. Otis discusses the following conditions which may be mistaken for pulmonary tuberculosis: Diseases of the upper respiratory tract; pulmonary diseases; influenza, collapse; bronchitis, asthma; bronchiectasis; emphysema, abscess, gangrene; cardiac lesions; diseases of the pleura; cancer of the lungs; actinomycosis; aortic aneurysm; syphilis of the lungs; anemia, neurasthenia, dyspepsia, anorexia; hyperthyroidism. In order to view the question of the differential diagnosis of tuberculosis from another angle he enumerates the various causes of blood-spitting; pulmonary tuberculosis; lesions of the upper respiratory tract, epistaxis, gums, varices; gastric ulcer; mitral stenosis; infarcts from emboli; aneurysm of aorta; bronchiectasis; abscess or gangrene of lungs; influenza; asthma, emphysema, bronchitis; from esophagus, cirrhosis of liver; acute specific fevers; cancer; arthritis; from unknown cause. Attention is called to certain sounds sometimes heard on auscultation which more or less resemble râles and which may mislead the examiner, but which arise from other causes and are not due to any pulmonary disease. He enumerates these as follows: (1) So-called "marginal sounds," closely simulating fine râles and heard in the lower axilla, especially the right, and only on inspiration; they are caused by the separation of the pleural surfaces as the edge of the lung penetrates into the complementary space. (2) Muscle and joint sound, heard over the sternum, in the vicinity of the sternocostal articulation; also along the clavicle and in many cases over the apices, the sounds being transmitted from the shoulder-joint and the sternoclavicular joints. (3) Atelectatic râles, heard at the first deep breath or cough and not repeated, generally considered to be caused by the forced opening of atelectatic alveoli. (4) Slight dullness or rise of pitch at the right apex, with harsh or bronchovesicular respiration, heard especially above the clavicle anteriorly and to the third dorsal vertebra posteriorly with increased voice sounds is physiological and not pathological for the right apex.

New York Medical Journal.

December 18, 1920, cxli, 25.

1. An Unusual Case of Alkalosis and Impairment of the Excretory Power of the Kidneys. John Lovett Morse.
2. Some Interesting Pediatric Cases. Myer Solis-Cohen.
3. The Use of Atropine in the Treatment of the Hypertonic Infant. Albert D. Kaiser.
4. The Class Method of Treating Malnutrition in Children. William Henry Donnelly.
5. Six Months' Experience with a Nutrition Class. Louis N. Ruderman.
6. The Importance of the Microscopical Examination of Human Milk. Louis Gershenfeld.
7. Simplified Infant Feeding. A Rational Feeding Program for the First Year of Life. Frank Howard Richardson.
8. Xeroderma Pigmentosum. I. S. Ravdin.
9. Emphysema in Children. Elizabeth Glenn.
10. The Weak Foot in the Child. H. Scheinberg.

3. The Use of Atropine in the Treatment of the Hypertonic Infant.—Albert D. Kaiser reports these cases and summarizes his views as follows: The hypertonic infant presents a definite clinical picture, due to a disturbance of the autonomic nervous system which gives rise to physical and psychic disturbances. The usual manifestations are irregular vomiting often with visible peristalsis, constipation, malnutrition, muscular irritability, representing the physical defects, and with insomnia and crying as psychic disturbances. The diet usually needs no change in the hypertonic infant and the food is well digested. Atropine gives early relief of symptoms and thereby metabolism is increased, bringing about the desired gain in weight. The use of the atropine is not dangerous if given in guarded doses and the early toxic symptoms are noted.

5. Six Months' Experience with a Nutrition Class.—Louis M. Ruderman bases this report on the work in connection with the nutrition class of the Brooklyn Hospital. Membership in the class was limited to children of school and kindergarten age, 5 per cent. or more under weight. Intensive work was carried on with fifty children, during a period of six months. While these fifty children are still below par in state of nutrition, considerable improvement has been shown during the period of the work, being now only 5.5 per cent. under weight. Attention is directed to the fact that these children came to the class on account of poor nutritional status. They were apparently raised to a nutritional level, where they are accomplishing what is expected of a normal child in this regard. The writer emphasizes the importance of gaining the child's confidence. He believes that if similar work were undertaken in every congested district of the large cities it would greatly contribute toward making stronger men and women and better citizens.

9. Empyema in Children.—Elizabeth Glenn bases this study on the statistics of the Children's Service of the University Hospital since 1907. There were discharged cured, 24; discharged, improved, 28; died, 12; total, 64. The length of stay in the hospital, under one month, 22; under two months, 24; over two months, 6. The mortality in these children, all of whom were under twelve years of age, was only 18.7 per cent., while the average adult mortality ranges from 20 per cent. up. The writer warns that conclusions must be drawn cautiously, but considers it safe to conclude the following: (1) The incidence in males is greater than in females. (2) The left side is more often involved than the right. (3) If the mortality rate for empyema in children under one year is excluded, the death rate is lower in children than in adults. (4) In children under one year the mortality in our six cases was 66.6 per cent., instead of the 90 to 100 per cent. usually given. (5) In the postpneumonic empyemas, when the patient was operated on within the first week after onset, the average stay in the hospital was shorter and the proportion of cures higher than in those operated on at a later time.

Journal of the American Medical Association.

December 18, 1920, LXV, 25.

1. Anthrax in Animal (Horse) Hair: The Modern Industrial and Public Health Menace. S. Dana Hubbard.
2. Relation of Contact Tubercle Bacillus to Development of Tuberculosis in Adults. J. B. Rogers.
3. Tuberculous Meningitis. George Franklin Libby.
4. The Therapy of Catarrhal Fevers. Bernard Fantus.
5. The Phenomenon of Vernal As Applied to the Serodiagnosis of Syphilis: Preliminary Report. Leon H. Cornwall and Louis S. Aronson.
6. A Treatment for Colic in Breast-Fed Infants. C. G. Grube.
7. Hookworm and Other Intestinal Parasites in Ecuador. E. Ray Royer.
8. Suppurating Myoma Uteri: Report of Case with a Brief Review of the Literature. J. W. Nixon, Jr.
9. An Operation for Tuberculosis of the Wrist. Leonard W. Ely.
10. Paraffinoma and Wax Cancer. Benjamin Franklin Davis.
11. Emptying a Chronically Distended Bladder: Description of a Simple Device. Cornelius Van Zwalenburg.
12. Abscess of the Spleen: Report of Case with Recovery Following Operation. Elliott C. Cutler.
13. Milk-Borne Diphtheria: An Outbreak Traced to Infection of a Milk Handler's Finger with B. Diphtheriae. Jonathan E. Henry.

4. The Therapy of Catarrhal Fevers.—Bernard Fantus, under the head of etiopathic therapy, states that the best prophylactic against endemic catarrhal fever, or "colds," is "hardening," i.e., accustoming the body to exposure to cold, so that such exposures do not produce chilling. The very young, the very old, and those crippled by organic disease, may be harmed instead of benefited by the hardening process. For these, protection by suitable climate or by keeping indoors during inclement weather, is a rule of safety. Removal of chronically inflamed tonsils, adenoids, or nasal polypi, straightening of deflected septums—in short, doing away with foci of infection—is an important principle of prophylaxis. Prophylactic vaccination is at best an experiment in any case. It may result in benefit or in harm, dependent on a number of conditions, some of which are at present not under control. Under the head of restorative treatment, the

writer considers that the chief problem in catarrhal fever is to restore the lost immunity. To favor this, the single most important item known is warmth, just as chilling is, no doubt, an important factor in the loss of resistance in many cases. As long as the patient's temperature is normal confinement in adequately heated rooms might be sufficient; but when the heat-regulating mechanism has been upset to the degree evidenced by fever—no matter how mild—absolute rest in bed is imperative. Diaphoresis by means of heat is a time-honored remedy, the more efficient the earlier it is used. Alkali is the only medicament likely to aid in the establishment of immunity. There is some evidence that acidosis is present in these fever patients, and that acidosis antagonizes immunization. There is also a clinical tradition that alkali favors recovery and prevents complications, perhaps by antagonizing acidosis. Sodium citrate is the most pleasant administration form of alkali. A glassful of lemonade every two hours, to which a quarter of a teaspoonful of baking soda has been added, may be recommended. Or one may prescribe 1 or 2 gm. of sodium citrate in lemon or orange syrup, to be taken diluted with a glassful of water every two hours. The liberal—though not excessive—use of fluids is important in all cases. From one-half to one tumblerful should be given every hour while the patient is awake. It may be prescribed in the form of liquid diet, given every two hours, and a fruit drink every two hours, alternating with the liquid diet. Of course, if there is albumin in the urine, soup and other preparations derived from meat would be interdicted. Hyperemia-producing agencies must not be employed in the presence of extreme congestion. At such time only cleansing and soothing or astringent applications are admissible. Under the head of symptomatic treatment, among other recommendations, the writer states that cathartics need not and should not be given in a routine manner. Having employed calomel-saline catharsis up to within the last few years, and having reaped a few cases of stomatitis as the result, he has practically given up the practice, and finds that his patients are none the worse for the change. The early administration of saline or castor oil is either responsible for or at least coincides remarkably often with initial vomiting, which continues sometimes as the most annoying part of the clinical picture. If the patient's bowels have not moved for twenty-four hours the administration of an enema of 2 per cent. baking soda does no harm, and usually accomplishes all that is desired. If not, magnesia magma may be given every two hours, a teaspoonful or two for infants, a tablespoonful or two for adults, until a satisfactory evacuation is secured. If this does not act well, a peristaltic stimulant, such as cascara sagrada, is required. Of the aromatic fluid extract of which a teaspoonful or more may be given. Summing up the question, the following points are emphasized: To draw a sharp distinction between influenza, grip and "colds" is futile; hence the term "catarrhal fevers" is advocated to embrace the whole group. The recognition of the essential similarity of these conditions might enable us to turn our experience with influenza to good account in the treatment of the common "cold." Even a mild case of catarrhal fever requires absolute bed treatment, continued until the patient has been well for several days. "Coddling" is the rule of safety in catarrhal fever; "hardening" in its prophylaxis. With the possible exception of alkalis, the use of medicines is merely symptomatic. We must beware against procuring comfort by the sacrifice of interests more vital to the patient. Thus, routine antipyresis is a mistake, though the sparing initial use of a few small doses of members of the antipyrin or salicylate group as analgesics may do no harm. Opiates to check cough should be used most exceptionally in catarrhal fever. The indication is to favor expectoration, as by saline expectorants and by fluid.

10. Paraffinoma and Wax Cancer.—Benjamin Franklin Davis reports a case, and discusses the clinical pathology of skin lesions from prolonged exposure to paraffin. Paraffinoma may be said to be a chronic granuloma produced by prolonged, continuous exposure of susceptible tissues to the irritation of paraffin. Disfigurement, deformity and interference with function, if the lesion is in a region requiring motility, are the

chief types of disability resulting; cancerous degeneration, "wax cancer," is an occasional intruder. Complete extirpation of the involved tissue is the treatment of choice. Paraffinoma probably is not the expression of a specific growth-inciting property of paraffin, but is rather the result of the long continued action of a low grade chemical irritant.

The Lancet.

November 27, 1920, cxcix, 22.

1. Bradshaw Lecture on Chorea. Cecil Wall.
2. Acute Rheumatism in Children under Twelve Years of Age. F. J. Poynton, Donald Paterson, and J. C. Spence.
3. Senecio Poisoning. Arthur B. Cushny and Henry E. Watt.
4. Malignant Growths of the Upper Jaw and Antrum: A Survey of the Notes of 39 Cases. Edward D. Davis.
5. The Disappearance of a Mediastinal Neoplasm under X-Ray and Radium Treatment. R. T. Lewis.
6. A Note on the Present Epidemic of Scarlet Fever. John Brownlee.

2. **Acute Rheumatism in Children Under Twelve Years of Age.**—Poynton, Paterson, and Spence record the results of a study at the Hospital for Sick Children, Great Ormond Street, of a severe outbreak of acute rheumatism in children under twelve years of age, which occurred between July, 1919, and June, 1920. They do not concern themselves here with the pathology or the treatment of rheumatism, nor do they enter upon the vexed questions that present themselves in a complete study of the disease. The total number of cases was 172, of which 84 were first attacks. A hundred and four were females and sixty-eight males, a proportion of about three to two. From the analysis of these cases the writers consider beyond dispute the extreme gravity of rheumatism in children of the class that are treated in hospitals—a fact all the more striking when one realizes how comparatively infrequent such cases are in children of the more fortunate. For those who are acquainted with the work done by the New York Association for the Prevention and Relief of Heart Disease, the absence of organized effort in England for control of rheumatism and its heart disease, they hold, is a matter of profound regret.

5. **The Disappearance of a Mediastinal Malignant Neoplasm under X-Ray and Radium Treatment.**—R. T. Lewis describes the case of a man who appeared to be suffering from neoplasm of the mediastinum, but who, under the influence of x-rays and radium, seemed to lose some of the signs and symptoms of the disease. On clinical grounds there was reason to believe that just as the cervical gland had disappeared in this case on three separate occasions previously under the influence of x-rays and radium, so now on this fourth occasion one had disappeared as well as the axillary glands under similar treatment. It is assumed that the dullness of the left chest was due, in part or wholly, to infiltration of the lung by the malignant growth, and that this infiltration not only involved the sympathetic and left recurrent laryngeal nerves, but also caused venous and lymphatic obstruction over the upper left arm and chest, and caused enlargement of the veins of the chest wall. The disappearance of the dullness of the left chest under x-rays and radium harmonizes with the view that the infiltration of the lung by malignant growth had been overcome, hence the relief from some of the signs and symptoms. An obvious objection to this view must be raised because it is conceivable that the dullness to percussion of the left chest and the x-ray appearance were entirely due to a large pleural effusion, and that it is the resorption of this pleural effusion which led to the improvement of signs and symptoms, the pleural effusion, the dropsy of the chest wall, and the enlarged veins being all due to thrombosis of the innominate veins and their branches, and that the recovery from this thrombosis and not the disappearance of the malignant growth is the cause of the present happy result. In answer to this objection the writer states that the heart never has been dislocated as much as it should have been had the left chest been full of fluid from the top to the bottom; that it is not a feature of blockage of the large veins of the neck occurring in mediastinal neoplasm to pass off, either spontaneously or as the result of x-ray and radium treatment; that in such blockage of the veins with re-

sulting edema and pleural effusion the obstruction is generally due to direct invasion of the vessels by the neoplasm and its terminal. It seems to him probable, therefore, that x-rays and radium have directly checked the growth and even caused retrogression of the mediastinal neoplasm in the case reported.

The Practitioner.

November, 1920, cv, 5.

1. On the Symptoms and Treatment of Raised Blood-Pressure. Sir Richard Douglas Powell.
2. Orthopaedic Surgery. A. H. Tubby.
3. Removal of Adenoids in Infancy. Hunter Tod.
4. Recent Work on Nervous Diseases. H. Campbell Thomson.
5. Renal Complications of Acute Lacunar Tonsillitis. H. L. Cronk.
6. Colloidal Therapy and the Blood Serum. W. E. Boyd.
7. Dislocations. William Paulson.
8. Cancer—A Theory. Vere G. Webb.

3. **Removal of Adenoids in Infancy.**—Hunter Tod reminds one that no topic can possibly have been treated more exhaustively than that of adenoids, but in spite of the plethora of papers on this subject very little has been mentioned with regard to adenoids in infants (babes under nine months old). It is common knowledge, or should be, that the healthy new-born infant after crying lustily soon subsides into a peaceful sleep. Who has ever seen a new-born babe lying asleep with its mouth open? Subconsciously it keeps the mouth closed, so that nasal obstruction from any cause will give rise to imperfect respiration, perhaps sufficient to cause cyanosis and to simulate laryngeal obstruction. These babes if left unaided may quickly die. Three conditions are possible causes of such a contingency: (1) swelling of the nasal mucous membrane and the presence of mucous secretion; (2) congenital obstruction of the nasal cavities or of the posterior nares; (3) adenoids. A weak solution of adrenalin chloride sprayed into the nasal cavities suffices in the first and commonest cause of obstruction. The second is external, rare, judging from the writer's experience and literature, perhaps because the infant in such cases succumbs before the condition is recognized. Adenoids, when present at birth, are never sufficiently large to endanger the child's life. At the same time they may give rise to obstructed nasal breathing, shown by restlessness, in-drawing of the diaphragm, and inability to suck. A few days after birth the infant begins to breathe with the mouth open, to snort and sniffle. Owing to the nasal obstruction it swallows air while trying to suck, which makes it sick and gives it windy spasms. If, owing to consequent dyspeptic troubles, the infant gets a rash, the doctor may suspect congenital syphilis. Adenoids, present at birth, give rise to immediate symptoms; congenital syphilis about the third week. When removing adenoids under the age of six months, especially if the baby be undersized or ill-developed, a general anesthetic is neither required nor advisable. The infant is held in a sitting position by a nurse, a small curette is passed up behind the soft palate into the post nasal space and brought down with one sweep. Owing to the small size of the post-nasal space, it requires but a tiny pad of adenoids to give rise to symptoms, but in some cases one is surprised at the amount of adenoids removed. As a rule, very little bleeding takes place, and there is rarely any shock, but the infant should be kept warm, and, if there appears to be any shocks, should be given a drop or two of brandy in a little milk. It is advisable not to feed the infant for three hours before the operation takes place, so that it can be given the breast or bottle within ten minutes or so after the operation has taken place. The writer strongly urges that adenoids should be removed whenever they give rise to any symptoms which may adversely affect the child's future welfare.

5. **Renal Complications of Acute Lacunar Tonsillitis.**—H. L. Cronk, from a study of the subject, reaches the following conclusions: 1. Albuminuria is very common in acute lacunar tonsillitis. 2. This albuminuria is not always of the simple febrile type. 3. True febrile albuminuria does occur in some diseases such as influenza. 4. Nephritis occurs in a small but not negligible number of cases of tonsillitis; it is of the latent variety with few signs. 5. The nephritis of lacunar tonsillitis is similar to scarlatina in its tendencies to recovery.

Society Reports.

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA.

Seventieth Annual Session, Held at Pittsburgh, October 4, 5, 6 and 7, 1920.

GENERAL MEETING.

THE PRESIDENT, DR. HENRY D. JUMP, IN THE CHAIR.

President's Address.—Dr. HENRY D. JUMP of Philadelphia delivered this address saying that year after year advocates of unique forms of treatment had asked for state registration. It had been our duty to contend against these for the public must be protected against improperly educated practitioners. There should be uniform requirements of knowledge in the fundamentals for all who practised the healing art. There was a growing tendency to place medical treatment under State supervision; that physicians should be under salary and assigned to districts in which to practise. Such a provision would not be desired by the profession. The fees offered under the Workman's Compensation Act were smaller than those prevailing for similar service rendered privately and physicians should refuse to accept work at rates which were below those being established by various County Societies. We were justified from the standpoint of the people and the good of our own profession in resisting efforts to establish Compulsory Health Insurance in this State.

The Physician and the Public Schools.—Dr. THOMAS E. FINEGAN of Harrisburg presented this paper in which he stated that the function of the school was no longer regarded as that simply of a class room. A public school, wherever it was maintained in America, was an institution which was to serve every intellectual necessity of the people who maintained that school. We were not content, therefore, in teaching children the usual subjects which had been put in the curriculum, but one of the first and most essential things to be given consideration was the health of the child. Parents and children had no control over the matter of attendance at school. Therefore the children should be protected in every way when they were placed in school. If we were going to give instruction upon health it must be upon the right basis and we must have a syllabus upon health. He said that there were three men, whom he regarded as the leading experts in the country, at work on this subject and they were going to have in a very short time a syllabus worked out which would begin with the child when that child entered school and would go through the eight years of elementary school course and the four years of the secondary school course.

Dr. EDWARD MARTIN of Harrisburg said that in this great work, the most splendid and profitable work in which any one could engage, every one of the profession was a worker. The State Department of Health was their department. The executive officers of the State Department regarded every member of the medical professions as one of its active working, efficient forces. There could be no antagonism between that Department and the doctors, there could be only co-operation. As far as the doctor's private capacity was concerned, exactly as the State Department became more efficient the doctor's individual standing was bettered.

The Outlook of Chronic Nephritis.—Dr. JAMES M. ANDERS of Philadelphia read this paper in which he said that the rules of renal function in disease were not hard and fast. The classification of cases of chronic nephritis was imperfect. There were many atypical cases probably due to previous infections. The outlook in these cases was modified by the extent of fibrosis; when this was limited, life might not be shortened. Many of the arterial hypertension cases had endured for many years without appreciably deteriorating. Cases of cyanotic kidney due to cardiac disease showing albumin and casts cleared up quickly when the heart improved. The prognosis in confirmed chronic parenchymatous nephritis was exceedingly grave though not altogether hopeless. In the interstitial cases the outlook was at times guardedly favorable if recognized early.

Dr. M. H. FUSSELL of Philadelphia said that the recognition of some infection which was causative of nephritis would frequently prevent the dire results of a kidney lesion. It seemed to him true that the loss of function in chronic nephritis was made distinctly more dangerous by the thoughtless use of so-called diuretics. It must be borne in mind that casts and albumin did not mean the death warrant and their presence might be of no importance as to longevity. The functional tests were valuable both in prognosis and treatment.

The Health of a Community.—Dr. JOHN D. MCLEAN of Harrisburg presented this paper in which it was stated that by a union of the medical care of a community with the powers of the State Department of Health was brought about a lessening in the number of persons suffering from diseases. The accomplishments of a community were measured by its health and the health of the community was measured by the training and activities of the doctors of that community. He wanted to plead with the doctors to maintain the health of their community, especially if they had a rural district, by reporting their cases of typhoid fever at once, even if they were only reasonably suspicious that it was typhoid fever. Two epidemics had only recently been traced to the milk on a milk producing farm.

Dr. ROBERT A. KELTY of Danville wished to direct attention to the work being done by Col. Martin and Col. McLean through the State, and when these men showed the doctors what to do they were the ones to do it. Col. McLean had spoken of typhoid fever and he could tell of an epidemic where 29 cases had materialized following the infecting of the water supply of a town of 7000. It was up to the doctors to protect that water supply. It was up to each one in his community to correlate with the State Department of Health.

Dr. THOMAS M. STAHLMAN of Pittsburgh said that it seemed to him that what was badly needed in rural communities was isolation hospitals. Where treatment could not be carried out at home these cases should be sent to these isolation hospitals. One thing which impressed him in rural communities was the unsanitary condition of school buildings.

End Results in 534 Cases of Peripheral Nerve Injuries.—Drs. W. WAYNE BABCOCK and JOHN O. BOWER of Wyncote presented this paper which they said contained a tabulation of operations for nerve injuries in 608 cases. Operative exploration of nerves was harmless and usually helpful in the milder forms of injury. Results were much better in operative than in nonoperative treatment. Nerve grafting and lateral implantation gave poor results and were rarely necessary. Accurate end-to-end suture was possible in nearly every case despite long gaps. Regeneration was almost invariable after suture. The rate of regeneration was about one inch a month, the small muscles of the hand were the last to recover. If nerve function had not been restored within 3 months after healing of an injury nerve suture should be resorted to.

Dr. CHARLES H. FRAZIER of Philadelphia said that according to the experience of European surgeons early in the war there was only one operation which need be considered in any case of peripheral nerve injury with complete anatomical nerve block, that was the end-to-end suture. The power of regeneration in the peripheral nerve was very extraordinary and quite as active as the process of repair and regeneration in other tissues. The peripheral nerve received its blood supply from minute blood vessels throughout its entire extent and if the nerve was completely isolated for 12 or 15 cm. and cut free altogether from a large portion of its arterial supply, the likelihood of arterial regeneration for complete restoration of function were not great. Another point which should be borne in mind and always was to get freedom from scar tissue. The more nearly we reapproximated the nerve according to its original condition the greater was the likelihood of restoration of function.

A New Concept Relative to the Treatment of Malignant Disease.—Dr. WILLIAM L. CLARK of Philadelphia read this paper stating that excision or other treatment of a primary malignant lesion, and block dissection of metastatic glands was not sufficient. Migratory cells in lymphatic ducts must also be taken into considera-

tion, else they would drain into the tissues after the glands were removed, and rapid progress of the disease usually resulted. Lethal action of radium on malignant cells of all types had been proved in laboratory and in practice. At least one maximum radium treatment with accurate technic was advocated, preparatory to any other procedure, for the purpose of rendering benign the migratory cells in the ducts, and to wall off glands with fibrous tissue. At least three radium treatments, averaging six weeks apart, should also follow any operative procedure. The folly of depending on operative surgery, or other methods alone, in cancer with metastasis, and the wisdom of ante- and post-operative radium treatment was amply demonstrated by clinical evidence. The invaded glands not broken down would usually disappear under radium treatment and excision would not be necessary. If degenerated in the interior, they would not disappear, but radium treatment would convert the capsule into benign fibrous tissue. Then the gland might be incised and drained with safety. Hollow, non-corrosive, steel needles, containing radium salts representing a known quantity of radium element, inserted into malignant growths and glands, produced results that could not be produced by radium applied from the outside in capsules or plaques. The judicious combined use of operative surgery, electrothermic methods, radium, and the roentgen ray would often clinically cure even very advanced and inoperable cases of carcinoma and sarcoma.

Dr. G. BETTON MASSEY of Philadelphia said that he did not see how the radium rays were so much more effective than x-rays when properly applied and it was possible that some of the bad odor of the x-ray treatment of cancer was due to a lack of use of the proper remedy at the proper time. That was, the lack of use of several remedies, the association of remedies, the knife possibly in some cases, but more particularly the electrothermic method which got rid of the bulk of the accessible growth before the x-ray was applied. It appeared to him that the x-ray had a special field in the subdermic diffusions. He had cases that were well at the end of 17 to 20 years from this electrothermic treatment, or, as it was then called, cataphoric destruction.

Dr. RUSSELL H. BOGGS of Pittsburgh said that he agreed with all Dr. Clark had said. It was folly to depend upon the cautery or surgery in the treatment of cancer without ante- and post-operative treatment. It must be remembered that the lethal dose for most types of cancer was from three to six times the erythema dose. Lip cancers were probably more successfully treated by applying radium to the lip and radium and x-rays to the adjacent glands than by the most extensive surgical operation which cut out the center of the growth and only hastened metastasis. The most extensive glandular dissection was seldom successful.

Obstetrics and the General Practitioner.—Dr. J. WHITRIDGE WILLIAMS of Baltimore read this paper saying that many specialists tended to overlook the fact that at least 80 per cent. of all deliveries had to be conducted by the family physician or by a midwife and that the services of specialists were available only in large cities and towns. Expert knowledge of the niceties of pelvimetry could not be expected of the average practitioner; all that could fairly be demanded was that he so treat his patients that they might be reasonably assured of a successful outcome, and the recognition of gross deformities. The patient should be taught to engage his services at an early period of pregnancy, that she might be assured of reasonable prenatal care, and all that it implied, particularly in reducing infant mortality during the first year of life. Patients with gross pelvic deformity, as well as those in whom unrecognized disproportion had led to disastrous results in the past, should be sent to specialists for expert advice. Dublin had shown that of all maternal deaths in this country 45 per cent. were due to infection, 26 per cent. to various forms of toxemia, while the remaining were due to other causes combined such as dystocia, hemorrhage, etc. Attention should be directed especially toward diminution of mortality from the first two causes. The remedies were aseptic technic and the greatest possible restriction of vaginal

examination, which should be replaced by abdominal palpation and rectal examination.

Dr. BARTON COOKE HIRST of Philadelphia said that there was a great future for the reduction of morbidity in women after childbirth. It was possible for the physician to cut off 61 per cent. of all diseases of women by attention to two factors: the repair of injuries and the prevention of retroversion. One could repair the injuries of childbirth immediately after delivery. By making formal intermediate operation all the injuries could be repaired. Postural treatment during the puerperium would reduce displacements to about 3 per cent.

Dr. WILLIAM N. BRADLEY of Philadelphia said that in his work at the Starr Center in Philadelphia he had had under his care during the past year 252 cases of pregnancy. Of this number, 131 had been delivered. Of the 131 there were two abortions and one premature labor with a living baby. He was happy to say to Dr. Williams that the entire number of 128 babies were being breast fed at the end of one month, which was an important point from the pediatric standpoint. As to early consultation of the physician by pregnant women, the importance of this could be overestimated. He found in the class of women he had to deal with that the blood pressure during pregnancy rarely exceeded an average of 105. This same group of women 3 months after delivery had a blood pressure of 115 or 120. One should not go to the extreme of underfeeding these women in pregnancy in order that they might have a delivery free from danger.

Dr. PAUL TITUS of Pittsburgh said that he had found that students who were on duty only 18 days became proficient in rectal examination and were able to avoid a large number of vaginal examinations. This was overlooked by the general practitioner. A man might become proficient in the rectal examination in a very short time. As regards the immediate repair of the perineum, with all respect to Dr. Hirst he differed with him. Certainly it did no harm to attempt repair. He believed a certain amount of granulating suppurating surface was avoided by the closure of the perineum immediately after the birth of the child.

Dr. J. WHITRIDGE WILLIAMS of Baltimore said puerperal infection in the hands of the profession at large in this country caused as many deaths now as it did 30 years ago. That was not his statement, but he had gotten it from reading statistics. The consequence was that there was radical need of prevention of vaginal examination.

Is the Practice of Medicine Worth While?—Dr. EVAN O'NEILL KANE of Kane, Pa., read this paper saying that the physician's viewpoint was that the practice of medicine was worth while, though realizing its strenuousness. It was peculiarly attractive and afforded especial opportunities to enter upon political and public careers. A deep knowledge of human nature was afforded; scientific study; many friends; few physicians abandoned practice when fully engaged. It was a life which tended toward compassionate regard for his fellow, through continual contemplation of suffering and forced self-denial for their relief, changing the most mercenary of practitioners, in time, unconsciously into a philanthropist; loving his art he became a lover of humanity. Gratitude was an insufficient reward. The long and expensive curriculum discouraged aspirants. Physicians' fees were inadequate. The medical profession should seek a remedy.

Dr. JAMES JOHNSTON of Bradford said that of all men the physician was closest to all that was real and vital; closest to the coming and going of humanity. Theirs was the work that was most appreciated.

Dr. SPENCER M. FREE of Dubois said that if your ideas in life were money, ease, fame, love of your fellowman to the extent of praise, if you wanted to have a good time, if you wanted to be in society, if you wanted to marry a woman and make her happy instead of uncomfortable and miserable, then you should keep out of medicine. If you want to live the ideal life, if you had that in your soul which fixed your eye upon the stars if you had in mind the great Man of Nazareth and did not care for the accumulation of money and did not mind to miss a meal from time to time, did not mind what people said about you, then you should choose medicine.

Altered Blood Pressure as a Manifestation of Imbal-

ance.—Dr. DANIEL J. MCCARTHY of Philadelphia read this paper, stating that any fault in any one of the important endocrine glandular structures led to an essential fault in the blood pressure mechanism and any fault here led to serious damage to the developing brain and nervous system. A common cause of this condition in children was tuberculosis in the parent. As the child grew to manhood the increased mental reflexes gave a hypersensitive individual with a tendency to introspection and dissociation of personality. In this group of cases adolescent insanity was not infrequently seen.

The Industrial Physician.—Dr. J. WESLEY ELLENBERGER of Harrisburg read this paper saying that since 1916 the industrial physician had been a factor of real importance. His duties included examination of every prospective employee with reference to the family physician or specialist according to his needs; looking after those injured; counseling with those who were ill; caring for working conditions of the employees; inspection of the plant; education of the employees in health matters. His efforts also contributed largely to the success of the plant employing him.

JOINT MEETING WITH THE INTERSTATE ASSOCIATION OF ANESTHETISTS AND THE NATIONAL ANESTHESIA RESEARCH SOCIETY.

Blood Pressure Guides in Anesthesia and Surgery.—Dr. ALBERT H. MILLER of Providence, R. I., read this paper saying that despite opinions to the contrary a working definition of the condition of surgical shock could be made and followed. The blood pressure was our most certain guide to the condition of the circulatory system. Most of the fatalities attributed to surgical shock were due to factors other than surgical traumatism which, if understood, might be controlled.

Dr. E. I. MCKESSON of Toledo, Ohio, said that it seemed incredible that such a valuable guide and aid to both surgeon and anesthetist in his work as blood pressure observations should have been neglected. There were many factors which influenced the blood pressure and one who was interpreting blood pressure changes in a surgical operation must be keen, he must be watchful, he must be knowing what the anesthetist was doing from the anesthetic standpoint, he must know what the surgeon was doing and must have a clear conception of the patient in order to properly locate causes of depression.

Dr. F. H. MCMEEHAN of Avon Lake, Ohio, said that in behalf of the National Anesthesia Research Society he should like to inform those in attendance of the existence of a new uniform anesthesia record which had been drawn up by a special committee of experts to assist all those who wished to protect their patients under anesthesia with blood pressure guides.

Third Stage Ether Anesthesia—A Subclassification Regarding the Significance of the Position and Movements of the Eyeball.—Dr. ARTHUR E. GUEDEL of Indianapolis read this paper in which he made a plea for higher and better anesthesia and for better teaching of anesthesia in our medical schools and hospitals. As long as we noted any movement or eccentric position of the eyeball, aside from that which might be normal for the occasional patient, that patient had not had too much anesthetic; but after anesthesia had been well inaugurated, he had had quite enough. The upper part of the third stage, namely, the first stratum, was anesthesia entirely as satisfactory to the surgeon as the second, third or fourth stratum of the third stage.

The Anesthetic Problem in Lung Surgery.—Dr. JAMES T. GWATHMEY of New York City read this paper saying that nitrous oxide and oxygen were preferable to ether and air. A larger amount of oxygen could be given if preceded by an average in adults of $\frac{1}{2}$ grain of morphin. Positive pressure of 7 to 10 mm. of mercury must be maintained in the rubber bag. With this method first-stage anesthesia was kept up throughout as indicated by pink color, active lid reflex and rolling eye. The patient should not become cyanosed at any time.

Dr. JOHN R. MCCURDY of Pittsburgh said that he would emphasize the importance of the morphinization of the patient before any procedure is begun. Three-

eighths of a grain of morphine administered in divided doses, as Dr. Gwathmey has advised, was not a dangerous dose in these cases. The morphia undoubtedly produced a much better respiratory condition, moreover, it gave the patient comfort and relief from pain irrespective of the anesthetic agent administered; that was not only humane, but assisted very materially both the anesthetist and the surgeon.

Dr. REA PROCTOR MCGEE of Pittsburgh said that Dr. Gwathmey had given these anesthetics during the war for the most extensive chest surgery that had been done in modern times. He had given the anesthetic day after day in St. Mihiel and the Argonne, in a hospital that received non-portable casualties and in every instance his patients had seemed to sleep easily and to stand the operation with the very best results. In fact, when Major Yates made his report upon the very low death rate that he had had with his chest operations it took a good deal of faith for many surgeons to believe that the work could be done so well, but he thought that Dr. Gwathmey deserved a very large share of praise for what was accomplished in saving the lives of wounded soldiers with chest injuries.

Dr. E. I. MCKESSON of Toledo, Ohio, said that he agreed not only heartily but vigorously with Dr. Gwathmey's idea of maintaining a very light anesthesia in lung surgery. There is no necessity he knew of for maintaining a deep anesthesia. In fact he thought it was quite distinctly more dangerous to do so. A gaseous dose of morphin was of more value to the patient than the damage it might possibly do by lowering the blood pressure.

Dr. F. H. MCMEEHAN of Avon Lake, Ohio, said the papers of Dr. Guedel and Dr. Gwathmey were based on research work that had been conducted in the midst of strenuous campaigning in war. When this meeting was scheduled the National Research Society offered a series of prizes for the best papers that would be presented on research subjects. He would like to inform the Society that the Committee on Prize Award had awarded a prize to Dr. Guedel, his paper being based on 10,000 anesthetics administered in France, and a second prize had been awarded to Dr. James T. Gwathmey for his wonderful work in lung surgery, which Yates, of Milwaukee, said had reduced the mortality to practically one-third or less than what it had been before Dr. Gwathmey arrived upon the scene of action.

Nitrous Oxide-Oxygen Anesthesia for Tonsil and Sinus Surgery in the Forward Inclined Sitting Posture.—Dr. IRA O. DENMAN of Toledo, Ohio, read this paper saying that for the last 10 years he had used this position exclusively in his work, believing that it was the safest position for oral or sinus surgery. The field of operation was kept clean and free from blood and other fluids and irrigation was facilitated if needed. Inspiration of blood or infected material was avoided. With this position any procedure could be carried out under general anesthesia with nitrous oxide and oxygen.

Dr. E. I. MCKESSON of Toledo, Ohio, said that he had administered a great many anesthetics for tonsil work with the various forms of anesthesia during the past years, but none had given him the pleasure and the confidence and the control of the patient that nitrous oxide had done, particularly in this position. He had been very much excited several times in trying to resuscitate a patient who had inhaled a pharynx full of blood. So, if there was nothing else to recommend the forward inclined posture, this was quite sufficient.

SECTION ON SURGERY.

THE CHAIRMAN, DR. T. TURNER THOMAS OF PHILADELPHIA, IN THE CHAIR.

Chairman's Address.—Dr. T. TURNER THOMAS of Philadelphia made this address saying that for the past 30 or 40 years the surgeon had tended to ignore the value of a knowledge of gross anatomy which had previously been held indispensable. The pendulum seemed to be swinging backward and the medical schools were giving more emphasis to the application of anatomy to the practice of medicine, especially surgery. The late G. G. Davis had done a very important work in this direction which deserved more credit than it had yet received.

Rectal Drainage for Pelvic Abscess.—Dr. ROBERT H. ENTWISLE of Pittsburgh read this paper saying that the drainage of a pelvic abscess through the anterior wall of the rectum was not meant as a substitute in any way for the accepted approach through the abdominal wall but was reserved for those cases which did not do well following operation and in which there was found a large bulging mass in the pelvis which obviously was not draining through the original incision. The operation was very simple. The results were very gratifying.

Abdominal Drainage.—Dr. ARTHUR E. CROW of Uniontown read this paper saying that it seemed to him little, if any, danger could come from the establishment of drainage in all border line cases in removal of the gall-bladder. Too often the abdomen was closed and the mistake closed with it when drainage would have saved the day. This happened more often in appendicitis than in any other abdominal trouble. Any penetrating wound of the abdomen certainly demanded immediate operation and drainage.

The Diagnosis of Chronic Appendicitis. Its Relation to an Enlarged Cecum.—Dr. RICHARD J. BEHAN of Pittsburgh read this paper saying that chronic infection in the appendix was frequently secondary to pericecal and periappendiceal adhesions rather than the result of such infection. The symptoms were those arising from dilatation of the bowel which in turn interfered with neighboring organs; those resulting from toxic material and those resulting from stimuli reflected to adjacent organs. These were pain or discomfort in the right iliac region, constipation; in the toxic types pains in the limbs, thyroid enlargement, slight fever, rapid pulse, headache, exhaustion. In some cases heartburn, vomiting and palpitation.

Appendicitis in Children with a Report of Five Hundred Cases.—Drs. EMORY G. ALEXANDER and WALTER B. MCKINNEY of Philadelphia presented this paper saying that in this series the ages ran from 19 months to 15 years. The symptoms were more marked than in the adult. Diagnosis was more difficult as history and examination were less definite. Peritonitis was frequent as a complication. Rectal examination should never be omitted. Prognosis was good if recognized and operated upon early. Chronic appendicitis was met with. The greatest mortality was due to peritonitis and intestinal obstruction. The cases which had been given purgatives furnished the highest percentage of morbidity and mortality.

Dr. SILAS D. MOLYNEUX of Blossburg, Pa., said that he thought our records in abdominal drainage were not better because we did not drain rather than because we drain too much. It was a good plan when you were in doubt to drain. However, the type of infection would help to determine whether one should drain or not. In cases of tuberculosis ordinarily it was a wise thing not to drain. In old gonococcal infection in the pelvis, or other types of infection of long standing it was not necessary to drain for the reason that the pelvic peritonium would take care of infections so well. Ordinarily we drained too much in the upper abdomen. When it was necessary to drain we did not drain thoroughly enough. Several small tubes were better than one large, perhaps one in the pelvis, one in the cecum and one in the right kidney fossa. Two or three small tubes would carry off more pus than one large one. It was better to leave the incision without any suture at all than to close it up so tight. In placing the drain it was important that we did not impinge upon the small bowel. A drain here often caused bad adhesions and intestinal obstruction and consequently we should keep our drain as far away as possible from the small intestine.

Dr. CHARLES A. FIFE of Philadelphia said that he was very glad as a pediatricist to register against the use of castor oil in appendicitis and heartily endorsed the plank of the platform which imposed the duty upon every medical man to report at once to the surgeon and turn over to him every case of suspicious appendicitis in children. As Dr. Alexander had so well said, the cases in children advanced insidiously, but often very rapidly and therefore operation must be done. Very clear evidence of this rapid advance was shown by the experience of the physicians at the Girard College. Here they have a fixed policy of encouraging all the

boys to report at once to the infirmary for the slightest disorder, particularly so-called "stomach-ache" and "bilious attacks." Dr. Wharton had told him that boys who had pain early in the morning were operated upon at 11 o'clock and in that time over 90 per cent. of cases required drainage, showing the rapid advance in children, particularly in the older children.

Dr. WILLIAM L. ESTES of South Bethlehem said that in hearing the paper on Appendicitis in Children the point of frequent mistake in diagnosis ought to be brought out, that was diagnosing for appendicitis a case of pneumonia on the right side. It was a curious thing that those that had come to him with most of these pneumonias were in the beginning central and unless one could bear in mind the cardinal factor Dr. Alexander brought out, the uniform distention and the fact that appendicitis gave so quickly a varying curve of temperature, it was very difficult to make the diagnosis. Time and time again cases of so-called appendicitis had been sent to him for immediate operation which he had found on more careful investigation to be cases of pneumonia.

Dr. F. HURST MAIER of Philadelphia thought one of the best tests of a surgeon's ability was the question of when to drain and when not to drain. The old axiom of "when in doubt drain" should probably be substituted by the more modern axiom "when in doubt don't drain." Of course, he was more interested in pelvic surgery than in general surgery, but there were very few cases of pelvic surgery in which it was necessary to drain. We must always remember in the question of drainage that it carried with it a great deal of morbidity. One of the greatest bugbears in surgery to-day concerning morbidity and also concerning the secondary mortality was postoperative adhesions and they were most frequently the result of drainage.

Dr. J. DE V. SINGLEY of Pittsburgh said that the purpose of a drain was not principally to favor the outpouring or the withdrawal of the products of infection from the abdominal cavity. If the primary focus of infection had been removed or closed the principal thing that a drain did was to stimulate the throwing out of an inflammatory exudate which localized the infection. The omentum was the best abdominal drain. The function of the omentum very readily appreciated was its ability to wall off and isolate areas of infection. The material used for drainage when drainage was absolutely demanded was of the greatest importance and personally he was very strongly opposed to glass or rigid rubber tube, as there could be no question that it was a frequent cause of pressure necrosis with occasional disastrous results. Rubber dam or a soft collapsible rubber tube was infinitely superior. Gauze of any type was one of the worst drains that anyone could use in that it commonly resulted in fecal fistula.

Dr. EMORY G. ALEXANDER of Philadelphia said that he had operated on a boy 11 years of age who had walked into the hospital with a large pelvic abscess. He had been playing around all week. The differential diagnosis was most difficult and important in regard to this subject. He knew of no condition in the realm of surgery which was so hard to diagnose as appendicitis in childhood. Especially was this true in cases with symptoms of pneumonia. He had kept patients under observation after having them in the hospital with all the facilities of making examination and laboratory test and had been unable to make a positive diagnosis for several days. If one wished to drain he had to use a glass tube. He had only one fecal fistula out of 500 cases.

(To be continued.)

X-Ray Finger Prints.—Dr. Henry Beclere of Paris is reported to have proposed to the police service of that city a new and improved method of "fixing" finger-prints for permanent identification. The method calls for the rubbing into the lines and markings of the finger-tips of a preparation of carbonate of bismuth or some other salt, which, when the fingers are photographed by means of the x-ray, shows corresponding opaque marks in the picture thus made. An additional advantage consists in the fact that the radiographic picture shows also the skeleton of the fingers and the outline and special form of the nail.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

One Hundred and Fifteenth Annual Meeting, Held at the New York Academy of Medicine, November 22, 1920.

THE PRESIDENT, DR. CHARLES H. CHETWOOD, IN THE CHAIR.

AFTER the transaction of routine business the following annual reports were presented.

Report of the Board of Censors.—DR. GUSTAV G. FISCH submitted this report, which stated that eight regular, one adjourned, and one special meeting of the Board of Censors was held during the year. Many minor complaints for infractions of the Code of Ethics by physicians and violations of the law by advertising concerns were received and all were disposed of.

Report of the Counsel.—GEORGE W. WHITESIDE, Esq., submitted this report, which showed that the counsel had attended to the usual duties of his office. The report recalled that at the last annual meeting new means of disposing of complaints received by the counsel concerning the unlawful practice of medicine were considered, whereby support and cooperation of the Police Department of the City of New York and of the District Attorney of the County of New York were to be secured and the investigation and prosecution of offenders made through these departments. The Police Department and the District Attorney had expressed themselves as willing to look into and take proper action on all complaints of crimes received and this they had done. Since the society had abandoned the employment of special investigators because of the expense entailed, the counsel had endeavored to carry out the policy of the society for the enforcement of medical laws against unlawful and unlicensed practitioners by stimulating activity in that direction by the Police Department and the District Attorney of the County of New York. Various departments of the city, State and Federal governments, including the State Department of Education, the Department of Health, the District Attorney of the County of New York, and the United States District Attorney had called upon the counsel for advice, and counsel had assisted them in the rigid enforcement of the medical law and the suppression of illegal practices. Pursuant to the resolution adopted at the last annual meeting the counsel conferred with the committee appointed to revise the constitution and bylaws of the society on several occasions and had rendered them opinions on various questions submitted to him relative to the various amendments. The counsel deemed it necessary to make a thorough search into legislative acts relating to the charter of the society and had summarized the various changes made therein since 1813, and all the various legislative acts relative to the practice of medicine in this State since 1813, in order to assist the committee in carrying out its purposes. He had also conferred with the narcotic drug committee and the special committee on public health of the State Society, and had communicated with the Board of Regents concerning the effect of a conviction for violation of the Harrison narcotic law upon the license to practise medicine. The medical statutes of this State forbid one convicted of felony thereafter to practise medicine. The question had been raised, however, whether the conviction of a felony under the Federal law disqualified one from the practise of medicine under our State statutes, and it was to the interest of the profession to have this question promptly decided. To this end proper action would shortly be taken. It must be kept in mind that the legal rights of the medical profession required aggressive exercise for their healthy growth. There was no more important function in the office of the counsel of the society than the vigorous, aggressive, positive assertion of rights under our law in behalf of the profession and the maintenance of respect and obedience to those rights. If a governor was under misapprehension that chiropractors had a right to practise, such mistaken conception must be corrected. When judges of our courts had similar views they must be shown their error. This in the past year had been the privilege and duty of the counsel. The report

then reviewed the activities of the counsel in opposition to the chiropractor's registration bill. The counsel's objections to the bill were based largely upon the method of regulation provided therein. The bill provided that the Chiropractors Society of the State would in substance control the licensing of present practitioners of chiropractic. It was evident from the provisions of this bill that it would be in practical control of the licensing of those who were to be given the privilege to practise. There were further provisions with respect to the institutions whose diplomas should be recognized as a necessary requisite for future applicants for license. This made the Chiropractors Society the judge of the schools. The counsel had shown the Governor clearly that the practice of chiropractic in this State constituted the practice of medicine under the present statute and that those engaged therein who were not licensed practitioners of medicine were violators of the law, and that therefore the proposed bill made as a necessary qualification for the practice of chiropractic that they should have been engaged in violating the present law of the State and that they should be members of the society whose activities constituted a conspiracy against the laws of the State. After reviewing several prosecutions of special interest, he concluded that it might be seen that the medical profession as represented by this society came in contact with the public in many matters of vital importance through the office of the counsel, who became the mouthpiece not only for expressing through the channels of the courts or the Legislature the legal position of the society concerning matters of importance to it and to the public at large, but also to give legal advice of a constructive character for the advancement of the profession, the eradication of injustice to the members, and the creation of increased respect and sympathy for its truths and professional ideals.

Reports of Standing Committees.—Committee on Membership.—DR. FREDERICK H. DILLINGHAM submitted this report, which showed that there had been 231 applicants for membership in the society during the past year, of which 200 were recommended for election and 25 were still in the hands of the committee.

Report of Committee on Public Health.—This committee, of which Dr. Charles E. Nammack was chairman, submitted a report stating that the only matters which had engaged their attention during the year were compulsory health insurance, the proposed establishment of health centers throughout the State, and certain amendments to the Workmen's Compensation law. These matters had been considered by a special committee, of which Dr. Delphy was chairman, and were embodied in his report.

Report of Committee on Legislation.—DR. WILLIAM P. HEALY submitted this report, which showed that six meetings had been held during the spring of 1920, when the Legislature was in session. Forty-one Senate bills were considered and seventeen Assembly bills, and proper advice was given the comitia minora. The chairman had attended hearings at Albany to oppose the Compulsory Health Insurance bill and the Sage-Machold Health Center bill. They had met with the Committee on Narcotic Drug Control and discussed Assembly bill No. 681 with reference to the control of narcotics. At a meeting for the discussion of the Nurses' Attendant bill, Senate bill No. 35, new number 379, the opinion of the Public Health Committee of the Academy of Medicine was adopted.

Report of Special Committees.—Report of the Milk Commission.—DR. ROWLAND G. FREEMAN submitted this report, which stated that the amount of certified milk had increased during the past year by some 1500 quarts a day. The same inspector who had been doing the work in the past made 225 visits to dairies during the year. She had devoted 58 days to laboratory work and had supervised 30 tuberculin tests. She had traveled 28,000 miles by railroad, over 1000 miles by motor and 700 by ferry and long distance trolley. The amount collected by the Milk Commission was \$6,147.90, of which \$5,758 was paid out, leaving \$389.09 to the benefit of the society. The commission was now certifying some 13,740 quarts of milk daily. They were still making inspections and reporting to the Milk Commission of the Medical Society of Westchester and that of the Bronx.

Report of Special Committee on New Members.—Dr. EBEN FOSKETT submitted this report, which stated that the society had in its membership nearly 3000 of the 6000 medical practitioners of this city. During the year 300 men had filed licenses to practise medicine in the office of the County Clerk. Each of these was invited to join the society. Approximately 800 invitations to join the society, accompanied by application blanks, were sent out during the year.

Report of Public Health Education Committee.—Dr. ESTHER L. JEFFERIS submitted this report, in which she stated that eleven years ago the Public Health Education Committee was a pioneer in the medical lecture field through which the public was given free lectures on the prevention of disease and instructed in measures for the attainment of health. The success of these lectures was so pronounced that soon the City Department of Health, the Board of Education, the Y. M. C. A., and other organizations, followed in the footsteps of the Public Health Education Committee and presented similar free lectures under their own organizations. The lectures of the Public Health Education Committee were always held in Hosack Hall, New York Academy of Medicine, and while popular and well attended, had not reached many of the people for whom they were intended, because the academy was a distance from many who might have attended. Other organizations had been able to overcome this disadvantage by the use of school buildings in each school district, and special organization buildings, so that their free medical lectures became practically a neighborhood affair, and a neighborhood interest aroused pride and enthusiasm. This lecture work had always been financed within the appropriation of \$300 granted by the comitia minora. The financial requirements to give the work in 1920 would have been at least two or three times greater than the original appropriation, so after due consideration there seemed no vital reason why the medical society should be taxed for more financial aid when there were already so many free health lecture courses in existence. If the work was presented it must be done on a bigger scale than ever before, and the winter of 1920, with its unrest and chaotic state, did not seem to be the propitious time for launching new lecture courses and demanding of medical men and women time and energy free, when both were needed to meet their own post-war problems. During the past eleven years the lectures had been the means of placing the physician before the public not as the medical man or woman, who came only in sickness to relieve or cure, but as the physician who insisted that patients gain knowledge of right health and life measures. This side of the work of the committee had been paradoxical, since it had apparently tended to decrease medical practice; practically it had done just the opposite and had established a relationship between the medical profession and the public so big, broad, and sane, and on so new a basis that there had been born a third relationship between the public and the physician, that of preventive medicine. If the winter of 1920-1921 presented conditions favorable for the presentation of the lecture work on the right scale, the same earnest endeavor and effort they had shown heretofore would be made by the members of the committee to assure the continued success so splendidly gained in the past.

Report of Committee on Narcotic Drug Legislation.—Dr. ALFRED A. PRENTICE submitted this report, in which he stated that he was also chairman of the special committee of the American Medical Association on the narcotic drug situation in the United States, which had held many conferences during the year in New York, Chicago, Washington, Philadelphia, Atlanta, and New Orleans. The details of these conferences were embodied in the published report of the proceedings of the house of delegates of the American Medical Association in annual session at New Orleans, April 20 to 30, 1920. The recommendations, in conclusion, were unanimously adopted by the American Medical Association, of which section 1 read as follows: "That the ambulatory treatment of drug addiction, as far as it related to prescribing and dispensing of narcotic drugs to addicts for self administration at their convenience, be emphatically condemned." The Medical Society of the State of New York adopted a similar resolution

at its annual meeting last March. The Cotillo bill was endorsed by the Medical Society of the State of New York on recommendation of its committee on legislation and on medical economics at this meeting, and at the April meeting of the Medical Society of the County of New York the bill was endorsed and the chairman of the committee on narcotic drug addiction was instructed to support the bill at a hearing held before the Senate Public Health Committee at Albany on April 15, 1920. The report quoted the amendment to the Public Health law providing for a division of narcotic addiction in the State Department of Health and also statements from the Bureau of Drug Control of the State Department of Health of Pennsylvania, and by the United States Commission of Internal Revenue, showing that the attitude of condemnation of the so-called reductive ambulatory treatment of drug addiction was now becoming generally recognized and adopted.

On motion these reports were accepted and placed on file.

Report of Special Committee on Compulsory Health and Workmen's Compensation Insurance.—Dr. EDEN V. DELPHEY submitted this report, which showed that during the year this committee had made a careful study of the subject of and the bill presented to the Legislature on compulsory health insurance, the Workmen's compensation insurance in its application to the medical profession, especially that portion relating to occupational diseases, and the freedom of choice of physician by the injured person coming under the provisions of the law, and of the subject of "Health Centers." On February 26 the chairman sent a letter to the secretaries of all the State medical societies in the United States endeavoring to ascertain the sentiment of the members of these various societies on the subject of compulsory health insurance; whether they had instructed their delegates to the A. M. A. on the subject; inquiring their opinion as to the best method of bringing the matter before the A. M. A. for action thereon, and requesting a list of their delegates to the house of delegates of the A. M. A. He sent a letter to the delegates to the Medical Society of the State of New York, calling their attention to the imperative need of taking action on the subject, and enclosing the substance of a resolution which he expected to introduce in the house of delegates of our State Society indicating that it was desirable to instruct our delegates to the A. M. A. to introduce a resolution in the house of delegates of the A. M. A. and to support the resolution in every way possible. He also sent a letter to all the delegates to the house of delegates of the A. M. A., inviting their attention to the propaganda for a scheme which could but have a serious and destructive effect upon the most altruistic profession on the face of the earth—the medical profession—that it would tend to destroy individuality and prevent the proper class of men from entering the profession in the future, whereby the entire people would suffer. He was pleased to report that resolutions against the iniquitous scheme for compulsory health insurance were unanimously adopted both by our State Society and by the house of delegates of the A. M. A. After a careful study of the subject and conferences with the New York State Industrial Commission, the committee formulated amendments to the Workmen's Compensation law, as follows:

Section 13. *Treatment and care of injured employees.* "The employer shall (promptly) provide for an injured employee such medical, surgical, or other attendance and treatment, nurse and hospital service, medicines, crutches and apparatus as the nature of the injury may require during sixty days after the injury; but the commission may, where the nature of the injury or the process of recovery requires a longer period of treatment, require the employer to provide the same. (If the employer fail to provide the same, the injured employee may do so at the expense of the employer. The employee shall not be entitled to recover any amount expended by him for such treatment or services unless he shall have requested the employer to furnish the same and the employer shall have refused or neglected to do so.) *An injured employee shall have the right to choose any physician duly licensed to practise medicine in this State to attend and treat him*

for the injury as hereinbefore provided, subject to the supervision of the commission. All fees and other charges for such treatment (and) services, medicines, crutches, and apparatus, shall be subject to regulation by the commission as provided in section 24 of this chapter, and shall be limited to such charges as prevail in the same community for similar treatment of injured persons of a like standard of living."

SUGGESTED AMENDMENTS WORKMEN'S COMPENSATION LAW.

"Amend section 26 by adding after the word 'therefrom,' section 26, page 57, twentieth line, edition July, 1919, the following: 'Claims for medical services and for services or treatment rendered or supplies furnished pursuant to section 13 of this chapter and approved by the commission in conformity with section 24 hereof, shall constitute the person or persons owning such claim or claims a party in interest hereunder for the purpose of permitting the filing with the County Clerk of the decision of the State Industrial Commission as herein provided, and such person shall to the extent of the amount of his claim so approved by the commission be deemed to have all the rights of a judgment creditor in such claim and may enforce his rights thereto with the same effect as though the judgment stood of record in his name and for his benefit.'"

"Amend section 3 by changing sub-section 7, page 22, edition of July, 1919, to read as follows: "'Injury' and 'personal injury' mean only accidental injuries arising out of and in course of employment (and) such disease or infection as may naturally and unavoidably arise therefrom (.), and such 'occupational' diseases as are scheduled under article 2a.'"

The committee was of the opinion that the occupational diseases amendment to the Workmen's Compensation law was a corollary to the law itself, and that if the medical profession were properly protected in its rights and privileges as provided for in their suggested amendments the enactment of some such an addition to the Workmen's Compensation law should be approved. The Sage-Machold Health Centers bill was thoroughly studied by this committee, and in order that they might come to a just and proper conclusion as to its merits, they sent out circular letters to all the delegates to the State Society, outside of New York City, and to all the secretaries of the county societies, proposing a series of questions and requesting replies thereto.

Dr. Delpey exhibited this questionnaire and the tabulated reply thereto, on the basis of which the committee recommended that the society take measures to have the suggested amendments to the Workmen's Compensation law introduced into the next session of the Legislature. The committee also recommended that the society take measures to oppose any and all further health insurance bills, and that the society oppose the scheme for "health centers," as their survey indicated that it was not needed—that the people in the rural districts were, as a whole, as well cared for medically as were the people as a whole in the cities; that the general medical care was adequate now; that both the poor and the well-to-do preferred to have their own physician attend and care for them in their illnesses, whether they could afford to pay for it or not; that the medical profession would in the future, as it had always done in the past, look after the poor and needy in the times of medical need and distress, and that there was no real need for a scheme which would have for its effect the production of a large number of offices to be scrambled for by both political parties, with its attendant graft and neglect of those for whom the plan was supposed to provide an improved medical care. The committee respectfully requested that those portions of the report which referred to the amendments to the Workmen's Compensation law, and to the "health centers" be postponed until the December meeting of this society, and that they be published in the December number of the New York State Journal of Medicine in order that members might have the subject before

*Matter in brackets () to be omitted; matter underscored is new matter.

them for study and consideration before being called on to decide what their action should be.

It was moved, seconded and carried that no action be taken on this report until the next meeting.

Annual Report of the Comitia Minora.—Dr. DANIEL S. DOUGHERTY submitted this report, which consisted of an outline of the work of the society as transacted at the stated meetings during the past year.

Revision of the Constitution and By-laws.—Dr. DANIEL S. DOUGHERTY then read seriatim the proposed amendments to the constitution and by-laws of the society, which were discussed and voted upon. The chief changes proposed were in a general way the following: (I) The Comitia Minora was made more democratic by the addition of four new members elected by the society. These members were: (a) Chairman of the Committee on Civic Policy; (b) chairman of the Committee on Membership; (c) chairman of the Committee on Legislation; (d) assistant treasurer. (II) Creation of a Committee on Civic Policy, whose function should be to gain information concerning those questions which determine the relation of the medical profession to the commonwealth and to advise the society concerning such questions. (III) The routine procedure for stated meetings required that motions which affected the general policy of the society should be presented in writing and should be referred to the Comitia Minora for consideration and advice. The report of such motions to be made sometimes on the same evening but usually at the following meeting. (IV) Citizenship or declared intention of citizenship was made necessary for membership in the society. (V) The dictation was adjusted to conform to legal and literary requirements.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

OREGON STATE BOARD OF MEDICAL EXAMINERS.

July 6, 7, 8, 1920.

(Continued from page 1050.)

DIAGNOSIS.

1. Give the diagnosis of pituitary disease.
2. Differentiate encephalitis lethargica and tuberculous meningitis.
3. What is the significance of nystagmus in nervous disease?
 4. Give the differential diagnosis of enlargement of the cervical glands.
 5. Give diagnosis of carcinoma of the lung.
 6. In a case of suspected gonorrheal arthritis with no perceptible discharge, how would you proceed to demonstrate the presence and location of the infection?
 7. Differentiate delayed resolution following croupous pneumonia from fluid in the pleural cavity.
 8. Discuss the reaction of degeneration as to diagnosis and prognosis in peripheral facial paralysis.

PATHOLOGY.

1. Describe branchial cyst, carbuncle, deciduoma.
2. Give the pathology of phlegmasia alba dolens, or milk leg.
3. (a) What lesion presents the largest heart? (b) Aneurysm of which portion of the aorta gives most symptoms? (c) Which is the smallest pathological kidney? (d) Which is the largest spleen?
4. (a) Describe the eclamptic liver. (b) What is rana?
5. Define paronychia, astereognosis, ischemia, vitiligo, vitamine, Koplik's spots, hemolysis.
6. Detail the coincident pathology associated with chronic obstructive hypertrophy of the prostate.
7. (a) Describe fatty degeneration, give the etiology and tissues affected. (b) Tell what you know about amyloid degeneration.
8. Give the pathology of angina pectoris.

PRACTICE OF MEDICINE.

1. Give the symptomatology and course of pernicious anemia, aside from the blood findings.
2. Discuss chorea and give diagnosis and treatment.
3. Give a method of selecting a donor for blood transfusion.

4. Give the diagnosis and medical treatment of pyloric ulcer.
5. How would you cure a case of bronchial asthma? Also give the treatment of an attack.
6. State the duration of the average febrile stage of measles, scarlet fever, typhoid fever, variola and lobar pneumonia.
7. (a) Give the differential diagnosis and treatment of dermatitis seborrhoica. (b) Give treatment of acne rosacea.
8. Give the symptoms and signs of brain syphilis.

OBSTETRICS.

1. Give measurements of the normal pelvic inlet.
2. From what is the placenta formed and what is its function?
3. Define position, presentation, and rotation of the fetus.
4. Give the symptoms and treatment of eclampsia.
5. Causes, symptoms, and treatment of ectopic gestation.
6. How would you treat persistent vomiting of pregnancy?
7. How would you manage a face presentation after the chin has rotated to the hollow of sacrum?
8. Give indications for, and technique of an abdominal cesarean section.

ANSWERS.

DIAGNOSIS.

1. *Pituitary disease* may be of two kinds: (1) in which the internal secretion is in excess (*hyperpituitarism*); and (2) in which the internal secretion is diminished or absent (*hypopituitarism*). In *hyperpituitarism* there are signs of gigantism, or of acromegaly; the gland is enlarged; there may be glycosuria; the temperature is subnormal; other parts beside the bones may be enlarged; excessive fatness, infantile stature and development of the genitals may be noticed. In *hypopituitarism* there will be noticed excessive fatness, atrophy of the genitals and infantilism.

2. Fever, torpor, and ocular paralysis may occur in both conditions. The cardiac and respiratory difficulties are greater in tubercular meningitis. By lumbar puncture the diagnosis may be made, in encephalitis the cellular elements are less marked, and in tubercular meningitis careful technique will reveal the presence of the tubercle bacilli.

3. *Nystagmus* "occurs as the result of hereditary visual weaknesses, of refractive errors of various kinds, in albinos, and in chronic hydrocephalus. It is found usually in neurotic persons who have ocular defects, in multiple sclerosis, and sometimes in chorea. It occurs also in hereditary ataxia, tumors, especially of the cerebellum, and mid-brain, and in meningitis. It occurs in miners and is called miner's nystagmus."—(Dana's *Text-Book of Nervous Diseases*.)

4. *Enlargement of the cervical lymph glands.*

"Cervical lymphadenitis may be confused with lymphadenoma. The former, as a rule, first appears in the submaxillary triangle; the latter, in the occipital or sternomastoid glands. The former are more tender, softer, and less movable than the latter. Tuberculous glands weld together, they are apt to remain localized for a considerable time, and they tend to soften. They may be accompanied by other tuberculous manifestations. Lymphadenoma from the start affects many glands; it may arise simultaneously in several regions, although in some cases there is a distinct beginning in one region. Lymphadenoma shows very little tendency to suppurate, and does not break down except late in the course of the disease, and is accompanied by great debility and anemia. Tuberculin tests may aid in the diagnosis, but a difficulty is that Hodgkin's disease and tuberculosis may coexist. Malignant gland-tumors infiltrate adjacent glands and other structures, binding skin, muscles, and glands into one hard, firm mass."—(Da Costa's *Modern Surgery*.)

5. *Carcinoma of the lung*: "Pulmonary carcinoma is most common in middle age. The disease is often strikingly symptomless for long periods, or baffling and indeterminate, the size and location of the growth being the chief factor; obstinate and violent cough may

or may not be present. Sputum may be entirely absent, or like prune juice or currant jelly, blood streaked or even purulent and of gangrenous odor, and contains compound granule cells. Involvement of the pleura may produce severe pain and the dyspnea usually present in some degree may be strikingly paroxysmal; pressure symptoms may be marked and are often identical with those of aneurism. Fever is often noted as the disease advances, profuse hemorrhage occasionally occurs, and there may be marked displacement of the heart. Secondary growths are usually suggested by a primary lesion, but primary ones are frequently beyond a positive diagnosis. The x-ray may prove valuable in such cases, and if the growth be accessible and of considerable size it may yield percussion dullness, usually without tubular breathing, and increased fremitus, more rarely, if attached to a large bronchus, both phenomena.

6. In the case of suspected gonorrheal arthritis, some of the fluid from the joint may be obtained by aspiration, and a bacteriological examination made.

7. An exploratory puncture will promptly show the presence of fluid in the pleural cavity.

8. *Reaction of degeneration in peripheral facial paralysis*: "The electrical reactions are characteristic and important, since typical or partial degeneration reactions can usually be observed. For a few days there is an increase in irritability of the muscles to both faradic and galvanic currents. This is followed by a gradual loss or diminution in faradic irritability, while the galvanic irritability remains sometimes increased for a while and then falls. At the same time a reversal of poles and a sluggish contraction, particularly the latter, may be noted. At the end of five or six weeks faradic irritability ought to begin to return. Great variations are found in the electrical reactions, dependent upon the severity of the case. For example, in very severe cases the electrical irritability may be almost or entirely absent for days and even weeks. If the disease lasts for two months or more and the palsy is not a complete one, secondary contractions begin to appear. The mouth now becomes drawn to the affected side, and the nasolabial fold becomes deeper than that on the sound side. In smiling or speaking or other facial movements there is an excess of movement on the paralyzed side, the teeth and upper gums in particular showing abnormally. This is particularly the case in old palsies beginning in childhood."—(Dana's *Text-Book of Nervous Diseases*.)

PATHOLOGY.

1. *Branchial cyst* is a cyst developed in an incompletely closed embryonic gill cleft.

Carbuncle is a lesion in which several contiguous hair follicles are infected; there are several centers of necrosis; the process is similar to that of furunculosis, but is more extensive and more severe.

Deciduoma is a tumor derived from the chorionic villi.

2. *Phlegmasia alba dolens*. "Two separate pathological conditions, which are sometimes combined, are included under this term. (1) *The thrombotic form of phlegmasia* is a septic thrombophlebitis of the femoral or other veins of the lower limb. This is usually continuous with a similar process in the uterine veins, but it may be independent. The phlebitis and thrombosis tend to spread down the limb, and the venous return is obstructed, with the result that the whole lower limb from the foot up becomes markedly edematous. The veins of the upper limbs are occasionally, but rarely, affected in the same way. The swollen limb pits on pressure, and in thin patients the affected veins may be felt as tender cords. (2) *The lymphatic or cellulitic form* is really a deep cellulitis, usually but not invariably continuous with a parametritis. The glands in the groin are frequently enlarged and tender. The swelling becomes very tense and hard, and soon ceases to pit on pressure, while the skin becomes white and glossy. If the skin is pricked the fluid that exudes is coagulable lymph, not the simple serum of the thrombotic edema. The lymphatic form—the true 'white leg'—is certainly septic in origin. It is rare now since the introduction of antiseptic methods. The thrombotic form is probably also septic in origin in most cases, the phlebitis being secondary to the infec-

tion of the thrombus. But the condition of the blood is an important element, for the disease is much commoner after serious hemorrhages during labor, and in anemic women."—(Johnstone's *Text-Book of Midwifery*.)

3. *The largest heart* is found in aortic regurgitation. Aneurysms of the arch of the aorta gives the most symptoms.

The smallest pathological kidney is found in chronic interstitial nephritis.

The largest spleen is found in spleno-medullary leukemia.

4. *The eclamptic liver*: "The lesions in the liver vary from congestion with granular and fatty degeneration to necrosis with almost complete dissolution of the liver parenchyma. This necrosis begins at the center of the lobule and extends toward the periphery, leaving only a mass of granular detritus surrounding the central vein, the nuclei and cell contents disappearing with only a reticular network in the place of the liver cells. Thromboses with hemorrhage occur throughout the whole lobule more often at the periphery. The organ may be swollen or diminished in size, according to the change in the parenchyma. It usually presents a yellowish color and may have hemorrhages under the capsule."—(Cragin's *Practice of Obstetrics*.)

Ranula is a retention cyst occurring in the duct of the sublingual salivary gland, rarely in one of the other glands; it is a mucocele in the floor of the mouth.

5. *Paronychia* is a cellulitis of the parts around a nail.

Astereognosis is the inability to recognize the form of objects held in the hand.

Ischemia is a localized anemia.

Vitiligo is a condition in which areas of the skin have lost their pigment.

Vitamines are unidentified substances which are necessary for the nutrition of the body, and which are ordinarily ingested in small amounts with the food.

Koplik's spots are irregular spots of a red color, with a bluish-white center, found on the mucous membrane of the lips and cheeks at the beginning of an attack of measles.

Hemolysis is destruction of the red blood corpuscles with setting free of the hemoglobin.

6. *Hypertrophy of the prostate* is very common in patients over fifty-five. The different varieties are: (1) General enlargement of all the tissues; (2) local enlargement, giving rise to definite tumors in the gland, which may be glandular (adenoma) or fibromatous. These tumors may project toward the rectum, into the urethra, or up into the bladder. The prostate urethra is always lengthened and distorted, so that micturition is interfered with. If the median lobe is enlarged the internal urinary meatus is more or less blocked. *Symptoms* begin with frequency of micturition, then some difficulty in the act of micturition, with diminution in the power of projection. Some pain and tenesmus occur later. Secondary changes in the bladder depend on the amount of obstruction. Hypertrophy and sacculation of the ureters and hydronephrosis are produced still later. As atrophy of the bladder comes on a certain amount of residual urine remains after each act of micturition. As this increases distention and atony are found with overflow incontinence. Cystitis soon comes on, and may be followed by septic changes in the kidney. The early changes may be unnoticed till overflow incontinence appears. Priapism may occur in the early stages.—(*Aids to Surgery*.)

7. *Fatty degeneration*: "In fatty degeneration there is an accumulation of larger and smaller droplets of fat in the cell, sometimes so slight as to be scarcely visible, sometimes so great as largely to replace the protoplasm, crowding the nucleus to one side. Cells in excessive fatty degeneration may disintegrate, forming an oily detritus in which, especially when much moisture is present, cholesterol crystals may form by decomposition of the fat. To the naked eye, organs in a condition of marked fatty degeneration are usually larger and softer than normal, have a grayish-yellow color, or are mottled with yellowish streaks or patches, and the normal markings of cut surfaces are more or less obscured. Fatty degeneration may be associated with or may follow albuminous degeneration, and may occur under similar general conditions, as in infec-

tions, poisoning, etc. It is often associated with the processes of necrosis and disintegration in dead cells and dead tissue. It may be due to local or general disturbances of nutrition, from a great variety of causes—disturbances which either directly affect the life processes of the cells themselves or which produce alterations in their nutritive supply. In addition to its local occurrence, as a result of local disturbances of circulation in the vicinity of inflammations or in tumors, it is apt to occur in the liver, heart muscle, and kidney, in chronic exhausting diseases, and in conditions and diseases in which profound anemia is incident, in senility, or as the result of the action of certain poisons, such as phosphorus and arsenic."—(Delafield and Prudden's *Text-Book of Pathology*.)

Amyloid degeneration: "This is a process by which the basement substance of various forms of connective tissue, and especially the walls of blood vessels, become swollen and thickened by their conversion into a translucent, firm, glassy, colorless material, albuminous in character. . . . Parts in which the lesion is marked are usually enlarged, and some organs, the liver, for example, may reach a very large size. . . . It is not yet known whether amyloid degeneration is due to a direct transformation of the tissue, or is an infiltration by some abnormal material formed elsewhere and brought to it, or is derived from the blood. It occurs most frequently and abundantly in the liver, spleen, kidneys, intestinal canal, and lymph nodes; but it may occur in other parts of the body. . . . It most frequently occurs in connection with severe wasting diseases, particularly in those involving chronic suppuration and ulceration, especially of the bones. It is common in tuberculosis, syphilis, and the cachectic condition induced by malignant tumors, and is occasionally seen in severe malarial infection, dysentery and leukemia."—(Delafield and Prudden's *Text-Book of Pathology*.)

8. *Angina pectoris*: "Various theories have been advanced to explain the occurrence of angina. That of *intermittent claudication* is based upon the analogous attacks of pain which sometimes occur in the legs when their arteries are partially obstructed. In such a case the circulation suffices for rest or restful movement, but prolonged exertion causes cramplike pain and temporary lameness (claudication). Similarly in a heart poorly supplied with blood (ischemic), or in which the driving power is defective, exertion may cause a temporary exhaustion of the muscle. This condition would be favored by increased peripheral tension, which is sometimes permanently present, and sometimes exists during an attack. It may also be produced by chill (contraction of the peripheral arterioles). But in some cases the tension is permanently low, and then we may suppose that a slight increase of work, which would be no obstacle to a healthy heart, is sufficient to cause exhaustion to a damaged one. It is in cases of hindrance to the work of the *left ventricle* that angina occurs.

Other theories are that the pain is a neuralgia of the cardiac nerves, or that it is due to tension of the ventricular walls, induced by acute dilatation. Allbutt considers that it is not truly cardiac, but originates in the first part of the aorta. Mackenzie, adopting generally the claudication theory, compares the pain to that produced by the obstructed evacuation of other hollow viscera (e.g. biliary colic), and regards it as a protective reflex."—(Wheeler and Jack's *Handbook of Medicine*.)

PRACTICE OF MEDICINE.

1. *Pernicious anemia* begins insidiously, with languor, muscular weakness, and pallor; palpitation of the heart, dyspnea, attacks of syncope, and edema may follow. The pulse is large and soft, hemic murmurs are often present; later on a remittent fever may develop, together with nausea, vomiting, diarrhea, anorexia, and disorders of vision. The weakness progresses.

2. *CHOREA*.—*Symptoms*: (1) Irregular and purposeless convulsive movements of the limbs, trunk, face, and tongue, rendered worse on attempting to execute voluntary acts and in fine movements such as picking up pins, conveying a cup to the lips, writing, or touching a particular point. The movements of the trunk, as the child lies in bed, may cause the body to be first twisted to one side, and then suddenly to the other. The

movements cease as a rule during sleep, but may be so violent as to prevent it. The condition may affect one side only (hemichorea). (2) Incoordination, manifested in the movements of writing, in unsteady gait, and in irregular movements of respiration, the diaphragm and intercostal muscles failing to act together. Muscular weakness is a later symptom as a rule. (3) Irregular and rapid action of the heart, sometimes amounting to "delirium cordis." (4) Soft systolic murmurs at the apex of the heart, due to endocarditis, or hemic murmurs at the base. There may be other rheumatic phenomena. (5) Altered mental conditions are sometimes marked, the patient laughing or crying in turns on being spoken to. Increased irritability is common and in some cases, chiefly in adults, there may be maniacal excitement.

Treatment.—(1) *Rest in bed* is the first and essential point of treatment. (2) Arsenic in increasing doses, cod-liver oil, abundant food, and careful attention to the bowels. Antipyrin or phenacetin in increasing doses is also useful. Salicylates are of value only in rheumatic complications. When the movements are very severe, chloral may be freely given. (3) As soon as convalescence seems established, allow the patient plenty of fresh air and gymnastic exercises."—(Wheeler and Jack's *Handbook of Medicine*.)

3. *In blood transfusion:* "The donor should be a healthy adult, with a negative Wassermann reaction. His serum should not agglutinate the corpuscles of the patient, and the patient's serum should not agglutinate the donor's corpuscles. Agglutinins should be excluded by tests done immediately before the transfusion and a single examination is not sufficient to establish the compatibility of two bloods on all future occasions. If agglutinins are absent hemolysis will also be absent. If there is great urgency, and testing of the blood of patient and donor are impracticable, a small preliminary transfusion should be done half an hour before the main mass of blood is transfused, so that gross incompatibility may be recognized in time. Febrile reactions occur after about 25 per cent. of transfusions, even though the bloods of donor and patient have been shown to be compatible. Rigors occur in about 10 per cent. of the cases."—(From DaCosta's *Modern Surgery*.)

4. In *gastric ulcer* "the degree of digestive disturbance varies. The tongue is clean, there are generally nausea and vomiting. There is tenderness over the epigastrium, with pain in the same region from a half to two hours after food, also often referred to the back, and relieved by vomiting. Hematemesis may cause anemia with a hemic murmur and weakness. In the acute ulcer hemorrhage is copious, in the chronic ulcer small occasional hemorrhages are the rule. In a certain number of cases melena is present. Constipation is frequent; there is no fever.

"*Ulcer of the duodenum:* The signs and symptoms much resemble those of gastric ulcer, with the particular features that the pain is nearer the right costal margin and its time incidence is later—two, three, or four hours after food. The pain is relieved by taking food, which causes closure of the pylorus and so prevents the onward passage of acid chyme over the ulcerated surface. Vomiting is not so common and does not relieve the pain. Hematemesis is rare, but melena is common."

In *gastric carcinoma* "a tumor may be felt, most often in the region of the pylorus, next in the epigastrium over the transverse colon, or there may be merely rigidity of one rectus muscle (more often the right). Secondary nodules may be found near the navel, in the liver, lungs, and lymphatic glands; a group of the latter just above the left clavicle is frequently palpable. According to the situation other conditions may arise—a dilated stomach if the growth is at the pylorus, a contracted stomach if at the cardiac end, adhesions, fistula or peritonitis, ascites—from implication of the peritoneum—edema of the legs from secondary deposits in the retroperitoneal glands pressing upon the inferior vena cava. Pain between the shoulder blades, or in the lumbar region. It is more constant than in chronic gastritis or ulcer, and has no relation to food or the period of ingestion. Vomiting may be absent; if present it will not relieve the pain, and may also have no relation to food. Anorexia is almost always present.

Hematemesis occurs in about 50 per cent. of cases only, the blood is only rarely like that in gastric ulcer, but is usually much altered—the so-called *coffee-ground vomit*. Cachexia (a condition of the body resulting from wasting with anemia) is much more marked than in any other pathological condition of the stomach. A leucocyte count is of value, for post-prandial leucocytosis is absent. Constipation is often present."—(Woodward's *Manual of Medicine*.)

Medical treatment of gastric ulcer: Rest and a light and easily digested diet are absolutely essential. Abstinence from food by stomach and gastric lavage with feeding may be necessary for a time. Sodium bicarbonate, bismuth subnitrate, silver nitrate, and opium are the most frequently used drugs. Pain, vomiting and hemorrhage are treated as they arise; perforation demands prompt operative interference.

5. *Treatment of asthma:* "Careful attention must be given to all the circumstances of the patient's life. Some do much better in the city than in the purer atmosphere of the country; but climatic treatment must be instituted with reference to the response of each individual patient. The diet must be carefully regulated: the gouty and the obese must be abstemious; and in all cases, particularly in those disposed to flatulency, it is wise to advise the heavy meal in the middle of the day, and the partaking of very little food toward evening. The bowels should be opened at least once daily. Sleeping in a room the atmosphere of which is laden with steam (impregnated or not with the vapor of oil of eucalyptus, oil of pine, etc.) or with the fumes of burning nitre may secure freedom from nocturnal attacks and a consequent peaceful sleep. All sources of local irritation (nasal, pharyngeal, etc.) must be remedied.

"*During the attack* relief may be obtained by the inhalation of amyl nitrite, or chloroform, or the fumes evolved by burning the leaves (cigarettes) of belladonna, stramonium, lobelia, hyoscyamus, tobacco, or by burning paper impregnated with potassium nitrate; by drinking hot coffee and whiskey or spirit of chloroform; or by the hypodermic use of morphine (combined with atropine or cocaine), or pilocarpine—to be employed with caution. Tincture of lobelia in dose sufficient to produce the physiological effect is often efficacious, but it should not be employed when the heart is weak. An emetic sometimes assists in expelling retained secretions. An imminent attack may sometimes be ward off, or aborted, by the prompt use of amyl nitrite, nitroglycerin (1/50 grain hypodermically), or chloroform.

"*Between the attacks* no drug is so useful as potassium (or sodium) iodide, combined with lobelia. From time to time one of the bromides also may be added. Nitroglycerin is quite useful in some cases, especially in those with high arterial tension. Adrenalin chloride (hypodermically), euphorbia pillulifera, arsenic, the compressed air of the pneumatic cabinet, oxygen, etc., appear to have been useful in some cases. When the heart is weak strophanthus, or digitalis, in small doses, is serviceable."—(Kelly's *Practice of Medicine*.)

6. *The average duration of the febrile stage:* In *measles*, is about four to six days; in *scarlet fever*, is about six or seven days; in *typhoid fever*, is about thirty days; in *variola*, is about two or three weeks, but is very variable; in *lobar pneumonia*, is about six to ten days.

7. *Dermatitis seborrhoica.* Differential diagnosis: "It may be distinguished from ordinary eczema by its origin in the scalp, the tendency to downward extension, the absence of well-developed vesicles, and pustules, the mild character of the inflammation, the greasy character of the scales, the superficiality of the patches, the absence of marked infiltration, the tendency to crescentic or annular configuration; and the mild grade of the itching. The affection may bear a close resemblance to pityriasis rosea, but the latter seldom, if ever, attacks the scalp; it, moreover, is often preceded by a primitive patch on the trunk or extremities. The lesions are often oval, the long diameter running parallel to the long axis of the ribs; the centers of the lesions are fawn colored and covered with fine scales which are not greasy. The itching is variable, often severe. Pityriasis rosea runs a rapid course, with spontaneous cure, in from six to eight weeks; this is not true of

dermatitis seborrhoica. In psoriasis, the distribution of the eruption is dissimilar; patches about the elbow and knees bespeak a psoriasis; the scales in psoriasis are silvery.

Treatment: The best remedies are sulphur, resorcin, salicylic acid, and ammoniated mercury.—(From Schamberg's *Diseases of the Skin*.)

Treatment of acne rosacea: Internal and external remedies are both of importance. The cause or causes of the disease must be investigated. When the stomach is at fault the diet should be carefully regulated. Condiments, alcohol, tea, starchy and sugary foods and all sorts of stimulating articles are to be prohibited. Due attention must be paid to the condition of the bowels. In the various forms of dyspepsia, nux vomica, the stomachic bitters, mineral acids, alkalies, etc., are to be prescribed. A few cases will require the use of iron, strychnine, codliver oil, and like tonics. **Local treatment:** The sulphur preparations are valuable. Excellent results often follow the use of the "compound zinc sulphide lotion," or Kummerfeld's solution. When the capillaries are enlarged they may be destroyed by scarification, by slitting them up with a fine knife, or by insertion of the electrolytic needle. In hypertrophic cases ablation of the diseased tissues may be performed with a knife or scissors. X-ray treatment is of value.—(From Schamberg's *Diseases of the Skin*.)

8. **Symptoms and Signs of Brain Syphilis:** "In its most common form this shows itself by a gradual development of severe and persistent headache. This is usually associated with vertigo, sometimes with nausea and vomiting. After the headache has developed and has lasted for a time, or even without much delay, there comes on sometimes an attack of hemiplegia. Preceding the hemiplegia, or in some cases without the hemiplegia, there are paralyzes of the cranial nerves, more especially of the nerves of the eye. Optic neuritis is somewhat frequent. The pupils may be irregular in outline and sluggish to light. There may be, before any paralyzes develop, attacks of epileptic convulsions, either general or partial. Without any paralyzes or with simply cranial-nerve paralyzes, there may develop attacks of somnolence and coma. Even if such attacks do not appear, the patient often shows a mental irritability and weakness, a slowness of the reasoning process, and incapacity to fix the attention such as is observed in connection with brain tumors, only with nerve syphilis these symptoms are not usually so marked. Polyuria and polydipsia are symptoms which are occasionally met with. The disease may take the form of a meningo-encephalitis producing symptoms of mental and physical disturbance not distinguishable from early paresis (meningo-vascular paresis)."—(Dana's *Text-Book of Nervous Diseases*.)

OBSTETRICS.

1. The normal pelvic inlet measures: About four inches in the antero-posterior diameter, about four and a half inches in the oblique diameter, and about five inches in the transverse diameter.

2. **Formation of the placenta:** "The placenta is formed by the fusion and intergrowth of the decidua basalis, which forms the maternal portion of the placenta, and the chorion frondosum, which forms the fetal part of the placenta. As a separate organ, the placenta dates from the third month of pregnancy, and from that time gradually increases in size until the termination of pregnancy. The chorionic villi lose Langhans' layer of cells, and embed themselves into the interglutular stroma of the decidua basalis, and sometimes penetrate the mouths of the small veins. The syncytium also penetrates the endothelium of the decidua arterioles, and large blood sinuses are thus formed. By this arrangement, the fetal and maternal blood, while kept separate, are brought into such close contact that osmosis may readily occur between them, thus permitting the absorption of nutritive material from the maternal into the fetal circulation, the excretion of urea and other waste products of fetal metabolism, the passage of oxygen to the fetus, and the excretion of carbon dioxide from it.

"The functions of the placenta may be summed up as follows: (1) It is nutritive, allowing of the passage of nutritive material to the fetus. (2) It is respiratory. Oxygen passes to, and carbon dioxide from, the fetus.

(3) It is excretory, allowing the escape of urea and other products of fetal metabolism. (4) It has a glyco-genic function. Glycogen is stored in its cells for the future use of the fetus. (5) It is iron storing, by which iron in organic combination is passed from the maternal circulation into the fetal circulation to be stored in the liver cells of the fetus, in order to aid in the formation of new colored blood corpuscles."—(Lyle's *Manual of Physiology*.)

3. **Position** is the relation between a fixed point of the fetus and a fixed point on the maternal pelvis.

Presentation is the relation of the long axis of the fetus to the long axis of the uterus.

Rotation is the turning of the fetal head or other part whereby it is accommodated to the birth canal.

4. **PUERPERAL ECLAMPSIA.** **Symptoms:** "Headache, nausea, and vomiting, epigastric pain, vertigo, ringing in the ears, flashes of light or darkness, double vision, blindness, deafness, mental disturbance, defective memory, somnolence; symptoms easily explained by the circulation of toxic blood through the nerve centers. These may be preceded by lassitude, and accompanied by constipation, or by diarrhea. Headache is perhaps the most significant and common warning symptom. In bad cases the urine is reduced in quantity (almost suppressed), very dark in color, its albumin greatly increased, so that it becomes solid on boiling. Next comes the final catastrophe of convulsions. The convulsive fit begins with twitching of the facial muscles, rolling and fixation of the eyeballs, puckering of the lips, fixation of the jaws, protrusion of the tongue, etc, soon followed by violent spasms of the muscles of the trunk and limbs, including those of respiration; hence lividity of the face and stertorous breathing, biting of the tongue, opisthotonus, etc. The fit lasts fifteen or twenty seconds, ending in partial or complete coma, possibly death; or consciousness may return, to be followed by other convulsions."—(King's *Manual of Obstetrics*.)

"The prophylactic treatment consists in frequent and regular examination of the urine. After the first appearance of albumin, daily quantitative examination of the urine should be made. The diet should be milk; the bowels should be kept freely open by means of calomel and salines; the skin should be kept active by hot baths, followed by vigorous rubbing. Diuretics, such as Basham's mixture, digitalis, and caffeine should be administered. During pregnancy, if the percentage of albumin increases in spite of the treatment, abortion or induction of labor is indicated.

"The treatment of the attack consists of the administration of chloroform by inhalation, chloral hydrate (gr. 60) by enema, and the fluidextract of veratrum viride hypodermically (gtt. 15 followed by gtt. 5, repeated frequently enough to keep the pulse at about 60 beats a minute), to control the convulsions, and free purgation by croton oil (gtt. 2, or 3, in sweet oil or glycerine), free sweating by the hot pack, and sometimes depletion by venesection to eliminate the poison. The after-treatment consists of free purgation by the salines, restriction of diet, and later the administration of tonics and stimulants. The obstetric treatment is usually noninterference."—(Pocket *Cyclopedia*.) Sometimes *accouchement forcé* is indicated.

5. **ECTOPIC GESTATION.** **Probable cause:** Some pathological condition in the Fallopian tube which obstructs the passage of the fecundated ovum. The most common condition is salpingitis, especially of the gonorrheal variety.

Symptoms:—"When extrauterine pregnancy exists there are: (1) The general and reflex symptoms of pregnancy; they have often come on after an uncertain period of sterility; nausea and vomiting appear aggravated. (2) Then comes a disordered menstruation, especially metrorrhagia, accompanied with gushes of blood, and with pelvic pain coincident with the above symptoms of pregnancy; pains are often very severe, with marked tenderness within the pelvis; such symptoms are highly suggestive. (3) There is the presence of a pelvic tumor characterized as a tense cyst, sensitive to the touch, actively pulsating; this tumor has a steady and progressive growth. In the first two months it has the size of a pigeon's egg; in the third month it has the size of a hen's egg; in the fourth month it has the size of two fists. (4) The os uteri is patulous; the uterus is displaced, but is slightly enlarged and empty.

(5) Symptoms No. 2 may be absent until the end of the third month, when suddenly they become severe, with spasmodic pains, followed by the general symptoms of collapse. (6) Expulsion of the decidua, in part or whole. Nos. 1 and 2 are *presumptive signs*; Nos. 3 and 4 are *probable signs*; Nos. 5 and 6 are *positive signs*."—(*American Text-Book of Obstetrics*.)

Treatment consists in the removal of the product of conception by a laparotomy, as soon as the diagnosis is made.

6. *Pernicious vomiting of pregnancy.* "The treatment consists in rest in bed in a quiet, darkened room and the administration of easily digested foods, such as milk, broths, eggs, etc. A careful search must be made for some local exciting cause, and if any such condition is found, it should receive appropriate treatment. Sexual intercourse should be interdicted. The bowels should be kept freely open. Sodium bromide, camphor, cocaine, silver nitrate, cerium, oxalate, hyoscine hydrobromide, antipyrine, etc., are among the drugs used internally. Rectal alimentation may be necessary, and, as a last resort, dilatation of the cervix and internal os, or abortion may be performed."—(*Pocket Cyclopaedia*.)

7. "In *mento-posterior positions*, endeavor to secure anterior rotation of the chin when it fails to take place spontaneously. The several methods of attempting this are: 1. Press the forehead backward and upward during a pain, so as to make extension more complete, and thus cause the chin to dip lower down and touch the anterior inclined plane upon which it may glide forward. 2. Put a finger in the mouth, or on the outside of the lower jaw, and draw the chin forward during a pain. 3. Apply the straight forceps and twist the chin to the pubes. 4. Apply the vectis, or one blade of the forceps, under the most posterior cheek, and over the anterior inclined plane, thus, as it were, thickening the latter, so as to make it reach the malar bone and constitute a *point d'appui* which the chin can touch and so glide forward. Should these attempts to secure anterior rotation fail, an effort may be made with the hand, vectis, or fillet, to bring down the occiput and convert the face into a head presentation. In order to succeed in this maneuver the membranes should be unbroken, the os uteri dilated, the face not so deeply engaged that it cannot be lifted to or above the pelvic brim, and an anesthetic administered. Again, failing in this way to produce anterior rotation, the head, if it be not too deeply engaged in the pelvis, and have not passed through the os uteri, may be pushed back, and the child be delivered by podalic version. Should none of these methods be practicable and the head become impacted in the pelvis with the chin toward the sacrum, the only resort is craniotomy. Attempts have been made in these cases to deliver by forceps after lateral incision of the perineum, but they can only succeed when either the child is small or the pelvis over-large. Usually the child's life has been so far imperiled by delay and its consequences that craniotomy may be done without compunction. Possibly symphyseotomy may prove useful in these cases in future. In all cases of face presentation special care is necessary to avoid rupture of the perineum."—(*King's Manual of Obstetrics*.)

8. *Cesarean section.*—"Indications: The cases in which it is performed are: (1) Extreme deformity of the pelvis, in which delivery by forceps and version is excluded, and in which craniotomy is either impossible or would be more dangerous to the mother than cutting into the abdomen and uterus; and in which there is not room for a successful symphyseotomy. Such cases present the 'positive' indication for cesarean section; there is nothing else to be done. Flat pelvis having a conjugata vera of 2½ inches or less, and justo-minor pelvis with a conjugata vera of 2½ inches or less, present this positive indication; (2) cases of more moderate pelvic contraction in which craniotomy is possible, but cesarean section is agreed upon to *save the life of the child*; (3) mechanical obstruction in the pelvis from fibroid, cancerous, bony, or other tumors which cannot be pushed up out of the way or be safely removed; (4) irreducible impaction of a *living* child in transverse presentations; (5) in women dying near the end of pregnancy the child, if alive, is rapidly delivered by *post-mortem* cesarean section; (6) various other obstructions from inflammatory adhesions, atresia, constrictions, etc., of the vagina, and uterine displacements,

may rarely require the operation; (7) recently the operation has been done in eclampsia cases, where more conservative methods of rapid delivery were impracticable; and (8) in placenta prævia, chiefly with a view to lessen the infant mortality attending the usual treatment of this complication."—(*King's Obstetrics*.)

Cesarean section.—"Fuidextract of ergot, mxxx, is injected into the thigh muscles just as the anesthesia is begun. The operator assures himself that there is no loop of intestine between the uterus and abdominal wall, beneath the field of incision. Should a coil of intestine be found there, it is pushed above the fundus. An assistant holds the uterus in central position. The skin incision extends one-third above and two-thirds below the level of the umbilicus. It is best made through the right rectus muscle. The external layer of the rectus sheath is divided, the muscular bundles separated with handle of scalpel and the fingers, and the deep layer of the sheath and the peritoneum divided after lifting them with tissue forceps. Bleeding vessels are controlled by gauze sponge pressure or held by catch-forceps before opening the peritoneum. A short longitudinal median incision is made in the uterine wall beginning at the fundus, avoiding the membranes if still unbroken. This is extended downward with fingers, scissors, or scalpel to a total length of about six inches. The hand is thrust through the membranes and the child is extracted by the head or the feet, whichever is most accessible. In case of anterior implantation of the placenta, usually the hand may best be passed directly through it. The cord is clamped at two points with catch-forceps, cut between them, and the child is passed to an assistant. The uterus slips out of the abdomen as the child is extracted, and the intestines are kept back with hot sterilized towels placed over the upper part of the incision. The coverings help also to protect the peritoneum from soiling. The uterus is wrapped in hot moist cloths. As a rule, it is better not to wholly evert the uterus. The placenta, if not spontaneously separated, may be peeled off by grasping it with one hand like a sponge. If the cervix is not sufficiently open for drainage, a large rubber tube or gauze strip is passed down through it and withdrawn from below. Irrigating or mopping the uterine cavity is unnecessary. Asepsis is promoted by leaving it as nearly as possible untouched. The peritoneum is sponged dry with the least possible friction or handling. The uterine wound is closed with deep No. 2 chromated catgut sutures at intervals of about ¼ inch. They are given a wide sweep laterally through the muscular wall, falling short of the decidua. The peritoneal coat of the uterus is closed with a No. 1 continuous plain catgut suture, forming a welt over the deep suture line. The hemorrhage is inconsiderable and usually ceases with the introduction of the first sutures—a hypodermic of ergotole should be given before beginning the operation, and one of ergotole and pituitrin on the delivery of the child. Retraction of the uterus is ensured by manipulating it, if necessary, through a hot towel, or by faradism. When there has been much blood lost, a quart or two of warm sterilized 0.9 per cent. salt solution may be left in the peritoneum. The parietal peritoneum is closed with a plain running No. 0 catgut suture. Interrupted silkworm-gut sutures are then passed at intervals of about ¾ inch through all but the peritoneum, from within outward. The fascia is brought together with interrupted No. 2 plain catgut sutures, or with a continuous suture. The silkworm-gut sutures are now tied. The abdomen is cleansed, and the wound covered with a dressing of several thicknesses of dry sterile cheesecloth; over this is placed a thick compress of sterile absorbent cotton."—(*Polak's Obstetrics*.)

(To be concluded.)

Gangrenous Tonsillitis Cured by Antigangrenous Serum.—That ordinary gangrenous phlegmon is the same affection as gas phlegmon and gas gangrene in war wounds has been shown recently for Ludwig's "angina," and Tixier has made the same observation in a case of gangrenous tonsillitis. The local and general reactions were both severe when a mixed serum of the nefringens septic vibrio and bacillus of edema was injected in full dose into the muscles along with antistreptococcus serum. A cure promptly followed.—*La Presse Médicale*.

Miscellany.

New Swedish Marriage Law.—The leading principle of this "advanced" marriage law is "to make the position of husband and wife equal; their rights and duties mutual in every respect, and to make them both responsible for home and family" (*International Woman Suffrage News*). The guardianship of the husband is totally abolished. A wife may, like her husband, choose her own domicile, and is entitled to take her working utensils and part of the furniture. She may practise any trade or profession without her husband's consent and has all the liberty of contract even with her husband. The parents are made joint guardians of their children. The only instance where different rights are accorded is where a child possesses a fortune of its own, in which case the father is the legal trustee. If both parties to the marriage want it dissolved, they have only to send in to the proper authority an application for separation, which is then granted for one year without further investigation. When the year ends each of the parties may urge a full divorce and is not obliged to give any grounds for his or her demand. Divorce is then immediately granted. Reasons must be assigned when one or both want a divorce before the end of the year of separation, or if only one party desires separation against the wish of the other. Such reasons are mainly infidelity, desertion, debauchery and drunkenness, neglect of family duties, and knowingly exposing the other to contagion through venereal disease. When marriage is dissolved through divorce, all property in which is vested a marital right is equally divided between the parties. The court decides which of the parents shall take care of the children, and its decision is founded solely on what is best for the children themselves.—*Social Hygiene Bulletin*.

Consumption of Licorice.—It is estimated that before the World War the consumption of licorice in the United States exceeded 100,000,000 pounds annually. Practically 90 per cent. of the amount consumed is utilized in the tobacco industry, the remainder being used in the manufacture of confectionery and drugs. Practically the entire supply is imported into this country from Europe and Asia. In 1918, according to a bulletin issued by the National Bank of Commerce, imports of licorice root fell to 26,983,000 pounds, although the reduced imports were appraised at \$1,854,000, which is \$135,000 higher than the pre-war average. During the year ended June 30, 1920, China sent to this country 6,376,000 pounds of the total imports. Turkey, Russia and Southern Europe sent the rest.

Cost of Venereal Diseases to the Army.—Statistics were recently compiled upon which to base an estimate of the cost of venereal diseases to the Army show that during the calendar year from January 1, 1919, to December 31, 1919, venereal diseases in the Army caused a loss of 1,923,420 days. Since practically all of this lost time represents days spent in hospital under treatment for gonorrhea, chancroid or syphilis, and since the estimated cost of such hospitalization for each patient per day is \$7.00, it may be said that the loss to the Army caused by these diseases, measured in dollars, was \$13,463,940.—*Medico-Military Review*.

Therapeutic Hints.

Pyrexia of Dental Origin.—Captain Herbert Wallis, R. A. M. C., discussing pyrexia of dental origin which he is inclined to believe is often due to pyorrhea, recommends the following mouth application, which should be used, along with thorough scaling and syringing the gums under pressure three times daily:

℞ Vin. ipecac.....	5iij
Liq. arsen.....	5iij
Glycerin	5iij
Aquam	ad 5viii

This mixture is issued in two-drachm bottles (to obviate self-poisoning).

Three drops should be used twice daily; apply one drop at a time on the toothbrush. The gums should be gently brushed with this mixture on the brush.—*The Journal of Tropical Medicine and Hygiene*.

Scarlatina.—Hyman I. Goldstein holds that in the vast majority of cases with slight sore throat, little fever and only mild constitutional symptoms, isolation, rest in bed, diet and nursing, local care of the nasopharynx and skin, and the administration of the mixture given below, constitute all the treatment necessary.

℞ Sodii citratis.....	5iij
Syrupi	5iv
Liq. ammon, acetatis.....	
Liq. potasii citratis.....	āā q.s. ad 5iv

M. sig.: Teaspoonful in sweetened water every two or three hours.—*Journal of the Medical Society of New Jersey*.

Eczema in Infants.—Diluted citrine ointment, externally, and very small doses of arsenic internally, in the following forms, are recommended for the relief of this condition:

Ung. hydrarg. nitratis.....	drs. 3 to 5
Ung. aq. rose, q.s. ad.....	oz. 1
M. sig.: Apply twice daily.	
Liq. Potas. arsenitis.....	dr. 1
Aq. destil. q.s., ad.....	oz. 1

M. sig.: Two to eight drops once a day.—*Clinical Medicine*.

Eclampsia.—Trevor Berwyn Davies gives the following suggestions for the prevention of recurrence of the seizure in eclampsia: Absolute quiet is essential. Avoid manipulation and give sedatives. Of these morphine is by far the most important; $\frac{1}{2}$ gr. should be given; repeat two-hourly $\frac{1}{4}$ - $\frac{1}{3}$ gr. up to 2 gr. The use of chloroform has been largely given up owing to its toxic effects, and ether is the anesthetic of choice. This should be given before all manipulations.—*The Clinical Journal*.

Protein Sensitization in Eczema.—Maximilian A. Ramirez reports seventy-eight cases of eczema tested with proteins, thirty of which gave positive skin tests. Like asthma, he holds, anaphylactic eczema occurs most frequently under the age of thirty. Eczema associated with asthma or hay fever is usually anaphylactic. Only a small percentage of all cases of eczema are anaphylactic, but it is essential that patients be thoroughly tested in order that they may be properly classified and treated.—*Archives of Dermatology and Syphilology*.

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Original Articles.

REMARKS ON THE CARDIAC ARRHYTHMIAS AND THEIR IDENTIFICATION BY METHODS WHICH ARE GENER- ALLY AVAILABLE.

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A FEW years ago the pathological side was emphasized in cardiac diagnosis; the diagnostician strove to keep in mind the pathological pictures of what the autopsy might show; murmurs were eagerly sought for as evidences of structural changes in the heart, and signs and symptoms of mechanical failure of the heart were much regarded, especially as a basis for treatment. The pendulum has swung the other way; now it is the fashion to speak slightly of murmurs, and to make much of the physiology of the heart beat, and especially of its irregular beating. The spot light is on the arrhythmias, and murmurs, abnormal heart sounds, the mechanical effects of cardiac insufficiency, and the data revealed by the old methods of physical examination with the trained senses, are cast into relative shade. Recent literature on diseases of the heart is excessively devoted to discussion of the arrhythmias.

The reason for this extraordinary prestige of the arrhythmias is found in the revelations made by the new, brilliant, impressive and precise graphic methods of examining the heart beat, particularly with the electrocardiograph. These revelations have made the arrhythmias appear as something besides mere manifestations of irregular heart action; they give an inkling of the more intimate workings of the cardiac physiology; and in some cases they point directly to definite pathological lesions. Study of the arrhythmias in the light of these revelations has educated the medical profession not only in the identification of the irregularities themselves, but also in thinking of heart disease along physiological lines.

It is not the purpose of this paper to discuss the relative place of the arrhythmias among the data of cardiac diagnosis, nor the performances and possibilities of the electrocardiograph. It is enough to say here that the value of the arrhythmias in diagnosis is positive and definite, and that the graphic methods of examination are the most effective for their identification. The writer desires in this paper to discuss very simply and briefly the nature and significance of these arrhythmias and their identification by the methods of examination which are generally available; for it is obvious that

the electrocardiograph is not available for use in general practice; its use, in the main, must be restricted to research laboratories, to large hospitals, and to special workers.

The question immediately arises, however: How far do the ordinary methods of examination fall short of the graphic methods? How much diagnostic and therapeutic deficit must necessarily result to the average patient from failure of the attending physician to employ the electrocardiograph in examining the heart beat?

Testimony of a reassuring character in regard to the effectiveness of the ordinary methods of examination as compared with the graphic methods is given by Thomas Lewis, whose qualifications for speaking with authority on this subject are well known. He says: "There are few disorders of the heart beat which the unaided and practiced senses may not recognize." And James Mackenzie, speaking on this subject in its larger aspects, says: "We have the graphic records, and even the electrocardiograph. I am the last to decry the use of these methods, but I have little hesitation in saying that, as a means of estimating the heart's integrity and capacity and elucidating the significance of symptoms, they supply very little information."

The cardiac arrhythmias are disorders of the heart beat, abnormalities of myocardial function, contraction of the cardiac musculature which show irregularities in their time and force relations. Myocardial function, looked at broadly, appears as the whole heart beat repeating itself in regular sequence within a more or less clearly defined range of rate and force. Looked at more closely, myocardial function is found to be analyzable into certain primary functions of the heart muscle, which have been called: (1) Rhythmicity, or stimulus production, that is, the regular production in the muscle of stimulus material which is rhythmically exploded to produce cardiac contractions; (2) excitability, or capacity of the muscle to respond to a contractile stimulus, the excitability being measured by the minimal strength of the stimulus required to excite the response (and perhaps inversely by the length of the refractory period during which stimulus material is being accumulated); (3) contractility, or capacity of the muscle fiber to shorten in response to a stimulus; (4) conductivity, or capacity to transmit a stimulus; (5) tonicity, or capacity to resist stretching beyond a certain limit. The cardiac arrhythmias, as abnormalities of myocardial function, should be describable in terms of these primary functions of the heart muscle, and, to a certain extent, they can be described in such terms.

The generally accepted classification of the cardiac arrhythmias recognizes these seven fundamental

varieties: Sinus arrhythmia, or simple irregularity; heart block; premature contractions or extra systoles; paroxysmal tachycardia; auricular flutter; auricular fibrillation, and alternation of the heart.

In sinus arrhythmia there is disturbance of stimulus production in the sinus node, the normal pacemaker of the heart; influences coming to the heart from without through its nervous connections interfere in some way with the rhythmic impulses which are formed and discharged in the sinus node; and as a result an irregular sequence of contractions takes place in the heart.

In heart block conductivity is impaired or destroyed in a definite region of the myocardium, usually the auricular ventricular bridge, with the result that the passage of contractile impulses from one part of the heart to another, and usually from the auricles to the ventricles, is impeded or stopped.

Premature contractions seem to be manifestations of increased excitability, usually in some region of the heart outside of the sinus node. In normal conditions excitability and stimulus production seem to diminish in the cardiac musculature directly with removal from the sinus node, or, at least, rhythmic contractions occur naturally at a less rapid rate; which explains in a way the ability of the sinus node to maintain its supremacy as the regular pacemaker for the rhythmic heart beat. Premature contractions would indicate the temporary development of a new focus in the cardiac muscle with a higher degree of excitability than the sinus node.

In paroxysmal tachycardia there seems to be increased excitability in some region of the cardiac musculature which is of sufficiently high degree to cause the production of regular contractions of the heart at a more rapid rate than normal. The manifestations of this arrhythmia occur in paroxysms. The condition may be considered as a rapid series of extra systoles.

Auricular flutter seems to be a manifestation of abnormal physiology of the same general character as paroxysmal tachycardia, but with a defect of conductivity added to the increased excitability, which produces partial heart block; and the increase in excitability would seem to be greater and more persistent than in paroxysmal tachycardia. Lewis suggests that auricular flutter is due to a contraction wave that is started in a very sensitive region, which, owing to interferences in conduction, propagates itself in a circle, coming back to the point it started from; "when the contraction (with its accompanying refractory state) having subsided at the point stimulated, the traveling wave passes on and is continued in a movement which completes the circuit of the ring over and over again. Thus a series of contractions results from a single stimulus."

In auricular fibrillation there seems to be increased excitability and also interference with conduction. There is piecemeal contraction of small sections of the auricle which prevent it from contracting as a whole; and haphazard transmission of impulses to the ventricle, to which it can resound only with contractions absolutely irregular in time and force. Lewis suggests that fibrillation may be caused by "decreased conductivity whereby the excitation wave is broken up and travels along sinuous and varying paths, reentering fibers through which it has already traveled."

In alternation of the heart there appears to be defective contractility: the capacity of the heart muscle to recover contractile power is impaired, so that every second beat is comparatively weak; and defective excitability and conductivity may also be involved. The hypothesis has been advanced that a varying number of muscular fibers contract during systole in this condition.

The seven types of cardiac arrhythmia mentioned above may appear in combination or association; and there seems to be an especially close relationship between paroxysmal auricular tachycardia, auricular flutter and auricular fibrillation.

What diagnostic significance have these arrhythmias? To what extent can we interpret these abnormal functionings in terms of structural change? In most cases their pathological interpretation depends largely on other signs and symptoms.

Sinus arrhythmia may be said, in general, not to be a sign of organic heart disease. This arrhythmia, varying with the respiratory cycle, is often observed in apparently healthy young people; it is the common irregularity of childhood. The ordinary fainting attack occurring in apparently healthy people is usually a manifestation of this arrhythmia, caused by a sudden and prolonged interruption of the cardiac contractions, or a sudden and extreme slowing of the heart rate with an independent lowering of blood pressure. Phasic variations of the pulse, the retardations and accelerations being spread over ten or fifteen seconds, is one of the manifestations of this arrhythmia; it may accompany administration of large doses of digitalis. Irregularity of the heart action in which shorter and longer pauses occur indiscriminately may be met with in children who show no other evidences of heart disease, and in apparently healthy young adults; and it may occur in patients with rheumatic disease who are under the influence of digitalis. According to Lewis all sinus arrhythmias, with and without relation to respiration, are due to alterations in vagus tone.

Heart block regularly means a pathological change in a particular region of the myocardium, usually in the Bundle of His, which impairs or destroys its ability to transmit impulses; and the degree and persistency of the block may give some indication of the character and extent of the pathological changes. Slight changes may be made more effective in blocking the impulses by digitalis.

Premature contractions, in the absence of other signs and symptoms of heart disease, are generally considered to have no definite pathological significance, although, as Lewis says, their presence must be taken as indicating some disturbance of cardiac nutrition. They occur with increasing frequency in advancing years, and are commonly found in conditions of myocardial degeneration.

Paroxysmal tachycardia, considered as a rapid succession of extra systoles, would seem to have the same general pathological meaning as the premature contractions above mentioned. No definite anatomical lesion has been demonstrated as characteristic of this condition, although degenerative changes in the myocardium have been found in the autopsies of patients who had been subject to it. The exaggeration of excitability in some part of the myocardium outside of the pacemaker, as has been

suggested by experimental evidence, may be due to "intracellular changes induced by variations in the blood supply of the heart, which may or may not show degeneration of the myocardium."

Auricular flutter appears to be an auricular paroxysmal tachycardia of a very rapid rate. The associated heart block may conceivably be without pathological significance if the auricular contractions are too rapid for a normal degree of conductivity to permit all of them to get through to the ventricle; otherwise it must be accepted as a sign of myocardial disease or subnutrition. Auricular flutter is almost always associated with demonstrable disease of the myocardium or valves, and most of the cases occur in the latter part of life. It may generally be taken as a sign corroborative of organic heart disease, perhaps as pointing to a lesion in the muscular wall of the auricle which constitutes a focus of irritation.

Auricular fibrillation, as a haphazard jumble of contractions originating in different parts of the auricle, suggests a severe degree of nutritional disturbance of the auricular musculature; and if the condition is permanent, as it usually is, the presence of degenerative changes may be inferred. It occurs in the course of most organic diseases of the heart. The fact, experimentally demonstrated, that overdistention of the auricle may produce fibrillation, is significant in this connection, as is the clinical fact that auricular fibrillation is regularly attended with more or less cardiac insufficiency; and we know that whenever this arrhythmia manifests itself contraction of the auricle as a whole cannot take place.

Alternation of the heart is generally accepted as indicating pathological changes in the myocardium; and this arrhythmia may be produced experimentally by chemical poisons, notably digitalis. The pathological significance of alternation, which is positive in itself, is usually made clearer by other evidences of myocardial disease.

Let us now briefly review some of the main points in the identification of the cardiac arrhythmias by the ordinary methods of physical examination.

A simple irregularity of the heart action which waxes and wanes with respiration, natural or forced, can be diagnosed as sinus arrhythmia. Any irregularity occurring in young people, with normal correspondence between the radial pulse and the apex beat, and without evidence of coexisting organic heart disease, is apt to be sinus arrhythmia. A sinus arrhythmia can be abolished by anything that increases the rapidity of the heart's action, such as exercise, fever, or atropine; it regularly disappears when the heart rate is above 100 per minute.

Heart block may be suspected when the heart rate is below 60, and almost certainly identified when it is below 40. If the ventricle beats regularly between 40 and 50, a 2 to 1 heart block may be looked for, especially if the ventricular rate suddenly doubles when exercise is taken, falling back to the slow rate after rest; and any irregular ventricular rate due to partial heart block is usually temporarily relieved by exercise. A ventricular rate of 35 or less is almost certain evidence of complete heart block. Single dropped beats due to heart block can be differentiated from those due to premature contractions by the fact that failure of ventricular contractions cor-

responds with the pulse deficit; and usually from sinus arrhythmia by the absence of regular association with respiration. Pulsation of the veins of the neck at a rate twice that of the pulse at the wrist indicates a 2 to 1 heart block. The less pronounced varieties of heart block, especially the early manifestations of the irregularity, which consist in lengthening of the interval between the auricular and ventricular systoles, are not easy to recognize by the ordinary methods of examination, although, as Lewis has pointed out, there are two physical signs which suggest it. The auricular systole, which is not ordinarily audible in the contractions of the normal heart, may become audible when the interval between the contractions of the auricles and ventricles is lengthened: with a slight lengthening of the interval, a reduplication of the first sound may be heard, and with a greater lengthening, a double second sound may be heard, due to the fact that the auricular systole now falls in the early part of the ventricular diastole. And in mitral stenosis similar prolongation of the interval between the auricular and ventricular systoles may bring it about that the auricular systole, occurring in the ventricular diastole, may produce a murmur and thrill which replace the regular murmur and thrill due to the organic lesion of the valve; and such abnormally timed murmur and thrill occurring in the early or mid-diastole, suggest beginning heart block as well as mitral stenosis.

Premature contractions can be identified by noting that the absence of pulse at the wrist is not associated with a corresponding failure of ventricular contraction: the ventricular contraction, though weak and occurring early, gives a first sound, and also, if the premature contraction is forcible enough to open the semilunar valves, a second sound. If mitral systolic murmurs are regularly present, they are usually heard with the premature contraction, although diminished in intensity. Mitral presystolic murmurs are usually absent, although when the extra systole is auricular, the presystolic murmur may be replaced by a presystolic sound. Aortic murmurs may be heard only if the premature contraction opens the aortic valve.

The differentiation of auricular from ventricular premature systoles can be made by noting the length of the compensatory pauses following the premature contractions: When the extra systole is of ventricular origin the short and long pause sum up to the length of two normal pauses, and when it is of auricular origin the long or compensatory pause is imperfect, and the two sum up to less than two normal pauses.

The pulsations in the jugular vein may give a suggestive sign. In place of the two venous waves which belong to the ordinary rhythm, a single venous wave larger than usual may mark the premature contraction.

The characteristic disturbance of rhythm which gives rise to the pulsus bigeminus, in which a large pulse wave and a short pause are followed by a small wave and a long pause, and the corresponding pulsus trigeminus can be easily identified as due to premature contractions occurring every second and third beat respectively.

When the extra systoles occur frequently and at quite irregular intervals, they are not always so

easily identified, but usually some of them can be found which show the characteristic features of premature contractions, above described. This arrhythmia is rarely observed in hearts beating at a rate above 90, and it usually disappears when by exercise the heart's rate is increased; although if the exercise is made fatiguing, it may make the arrhythmia more prominent.

Paroxysmal tachycardia presents such striking phenomena that its recognition is usually easy. The sudden onset and termination, the fact that the rate changes only slightly when the patient passes from the recumbent to the upright position, and the fact that the rate is beyond the ordinary physiological range, are distinctive features. Any attack of rapid, regular heart action with a rate above 180, which begins and ends abruptly, is pretty sure to be paroxysmal tachycardia. The differential diagnosis from exophthalmic goiter can be made easily by the absence of the other signs and symptoms of that condition and the presence of the paroxysmal feature.

Auricular flutter cannot be identified by ordinary methods as easily as paroxysmal tachycardia, of which it seems to be a modification—a very rapid tachycardia with an added heart block, usually of the 2 to 1 variety—but a pulse rate between 130 and 160, mostly regular, persisting for a considerable time, occurring in an elderly person, strongly suggests this condition. A history of previous short attacks of this rapid pulse rate before the more persistent attack developed is also significant. Lewis says that if this rapid rate of ventricular contraction persists for a month the condition is almost certainly flutter. In cases where the pulse is notably irregular, exercise by quickening the heart rate usually transforms the irregular partial heart block into a regular 2 to 1 heart block.

Auricular fibrillation can usually be identified by the rapidity of the heart's action and its absolute irregularity. The ventricular rate is usually over 90, and the beats are absolutely irregular in time and force. Often the apex beats are considerably more numerous than the pulsations at the wrist, because many of the former are too feeble to send a pulse wave to the wrist. Any irregular ventricular rate above 120 is most likely to be auricular fibrillation. If the ventricular rate is slower than 90, which is comparatively rare in this condition, recognition may not be so easy; but close observation usually reveals the fact that the heart action is never quite regular; and the other signs and symptoms of organic disease of the heart, particularly mitral stenosis, are usually present to strengthen the diagnosis. Short presystolic murmurs are apt to disappear when there is fibrillation, but long, rough murmurs usually persist. When the auricle is practically paralyzed, the presystolic murmur of mitral stenosis may appear in early diastole. Auricular fibrillation can be differentiated from heart block and premature contractions with marked ventricular irregularity, by the fact that moderate exercise increases the irregularity in fibrillation and diminishes it in the other two conditions. Auricular fibrillation is also usually a permanent condition.

Alternation of the heart, except in advanced cases, cannot be recognized by digital examination

of the pulse. In the slighter degrees, however, it may sometimes be recognized by the aid of the sphygmomanometer: At the top range of blood pressure the pulse rate may be observed to be just one-half what it is at a range a few millimeters lower.

It is seen that the arrhythmias which depend on disturbances of rhythmicity and excitability possess, in general, a less serious pathological significance than those in whose complex is involved defective conductivity or contractility. Sinus arrhythmia and premature contractions seem generally to be without serious significance, while heart block, auricular flutter, auricular fibrillation and alternation of the heart suggest the presence of organic disease.

An important practical reason why the physician should cultivate skill in identifying the cardiac arrhythmias is found in the fact that among common cardiac signs and symptoms there are few which so disturb the peace of mind of the average patient as those which inform him that his heart is beating irregularly; he is prone to imagine the worst. But in a very large proportion of the cases showing an irregular heart beat there is no demonstrable organic disease of the heart; the irregularity is due to sinus arrhythmia or premature contractions. If the physician is able to identify the arrhythmia as one without definite pathological significance, he can greatly benefit his patient by assuring him of that fact.

1218 PACIFIC STREET.

A CONCEPT OF X-RAY PATHOLOGY.

II.—PNEUMOPATHY.

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IN dorsoventral view, there appear on the plate two large clear areas (lung areas) separated from one another by a median shadow (cardiovascular stripe); the lung areas are bounded above and laterally by the shadows of the soft parts and the bones, and below by the two convex shadows that correspond to the two halves of the diaphragm. Ordinarily, the shadow of the right half of the diaphragm is on a higher level than that of the left half. Also, it is generally more intense. The costal grill crosses the lung areas; the anterior rib portions are more distinct than the posterior rib portions. In the upright position, often the apices of the lung are scarcely to be made out, being obliterated by the superimposed shadows cast by the arch of the first rib, and by the clavicle. It is generally advisable to study the apices apart from the remainder of the lung areas, the apices requiring usually a special technology for their elicitation.

INFLAMMATORY PNEUMOPATHIES.—These may be divided into three groups: (1) the parenchymatous pneumonias; (2) the interstitial pneumonias; (3) the "specific" pneumonias.

1. Of the parenchymatous pneumonias there will be considered lobar pneumonia, bronchopneumonia, metastatic pneumonia, pulmonary abscess, and gangrene.

Lobar Pneumonia.—Stages and x-ray pathology

in engorgement: Three clinical stages of lobar pneumonia may be distinguished, engorgement, consolidation and resolution. Engorgement follows the initial chill quite rapidly and in relatively few hours is superseded by the stage of red hepatization. It is seldom that the x-rayist obtains a plate in cases of pneumonia during the initial stage of engorgement; but when he does there is readily to be discerned in the affected lung area a diffuse increase in radiopacity involving all the gross histologic structures of the portion attacked. Thus, the finer bronchi, normally radioparent because free from cartilage, become visible owing to the accumulation within their lumen of catarrhal debris; the smaller blood vessels usually radioparent, become radiolucent; and the larger vascular structures, ordinarily radiolucent, become radiopaque, because of their increased volume of blood surcharged with chlorides. As the exudate accompanied with fibrin, leucocytes, red blood cells and exfoliated epithelium fills the individual air vesicles, the radioparent parenchyma becomes radiolucent. The x-ray picture of the stage of engorgement in pneumonia differs from unchanged lung in that in pneumonia all radioparent structures have become radiolucent, and all radiolucent structures have become radiopaque. As a rule, if only a fraction of the lung area is involved, the affected portion assumes a triangular figure on the plate; the base of the triangle at the axillary line, the apex of the triangle pointing towards the hilus of the lung. Above and below the infected tissue can be contrasted the uninvolved lung.

Stage of Consolidation: As engorgement continues, more cells and fibrin accumulate in the smaller bronchi and air spaces. In proportion as the air is displaced by the pathologic products, the radioparency approaches radiopacity, until the stage of consolidation, at first red hepatization, has replaced practically all the air with material as dense as the surrounding structures so that the entire area assumes a rather even radiopacity. The stage of consolidation manifests as a shadow, most often triangular, evenly radiopaque and therefore free from distinguishable structure.

In the consolidated area, the red cells lose their pigment, the leucocytes and exfoliated epithelium undergo fatty degeneration, the fibrin softens and disintegrates. As this autolytic liquefaction proceeds, the solids pass to the fluid state with attendant loss in volume; also, the softened exudate is gradually absorbed and may be in part expectorated; therefore, air again enters the involved portion of the lung.

Stage of Resolution: Edema still persists in the interstitial tissue, and the vessels, though to a less extent, are still somewhat engorged. Only the air vesicles, through regaining their air, have had their radiability altered; and in the stage of resolution, as the vesicles regain their air, they become radiolucent and radioparent lending a mottled "Swiss cheese" appearance to the healing area.

Associated Lesions and their x-ray Pathology: Fibrinous or serofibrinous pleurisy, usually slight, but often with voluminous exudate, commonly accompanies lobar pneumonia. This is naturally sought in the dependent spaces, the costo-diaphragmatic sulci, as an obfuscating shadow. Early in pneumonic infection, a transient paralysis of the

diaphragm on the affected side exists. Under fluoroscopic examination, one half of the diaphragm, that in the invaded hemithorax, remains motionless; the other half passing over its normal, sometimes over augmented, excursions.

Special anatomical forms of pneumonia may occur. Thus there is apical pneumonia, involving the upper lobe and attended with a high mortality. One lobe after another may become affected by insufflation or by gravitation. In insufflatory migration, the infecting organism is breathed into a new portion of the lung; in gravity migration, infectious products permeate the injured pleura separating the lobes on the same side, and a fresh infection in the newly attacked lobe begins. The x-ray demonstration of migration by gravity is typical and immediately recognized. In central pneumonia the area involved clusters around the hilus and loses its characteristically triangular form. Its general structure is identical to the usual form, and makes for ready recognition.

Abnormal terminations of lobar pneumonia include abscess of the lung, gangrene, tuberculosis, and chronic pneumonia. These will be considered in due order.

It is well to remember that lobar pneumonia is most often unilateral, the lower right lobe being usually the seat of disease.

Bronchopneumonia.—From the x-ray standpoint, and indeed, pathologically, the pathology of bronchopneumonia is identical in kind to that of lobar pneumonia which has just been discussed. There are two important differences; the manner of invasion and the distribution of the lesion.

Bronchopneumonia develops in connection with, and as an extension of, capillary bronchitis. So that the earliest changes in bronchopneumonia are registered as increased radiopacity of the finer bronchi. Normally radioparent in bronchopneumonia, these become at first radiolucent, later radiopaque. This is soon followed by a direct extension of the process from the bronchi to the contiguous parenchyma of the lung where an interstitial pneumonia develops followed by an exudative process. Delafield first urged the importance, and Osler reiterated it, of the interstitial inflammation of the bronchi and the alveolar walls as special features of bronchopneumonia.

x-ray Pathology: After the process is established, the x-ray pathology rests with a veritable peribronchial inflammation manifested by increased radiopacity of the bronchi plus an encapsulated radiopaque mantle extending into the lung tissue. At first, the radiopaque streaks, limited to the course of the bronchus, are separable from uninvaded lung. As the process develops, lung tissue included between two involved bronchial areas becomes compressed and atelectatic. Therefore, the normally radioparent lung, becoming airless through atelectatic changes, assumes a radiolucency. The peribronchial infection may spread further and become confluent in areas where the bronchi lie in close proximity. Even in this stage, difficult to differentiate clinically from the consolidation of lobar pneumonia, the x-ray pathology, resembling perfectly the necroscopic findings, reveals the unevenness of the radiopacity, an unevenness due to the confluence of areas of different age and density.

The character of bronchopneumonia exudate is distinctly less fibrinous than the exudate of lobar pneumonia; and the radiopacity of bronchopneumonia lesions is not quite as complete as the consolidation in pneumonia. Bronchopneumonia infiltration resolves in the manner of lobar pneumonia, both processes bearing every similarity on the x-ray plate. Since it is especially centered in the peribronchial surfaces, chronic interstitial pneumonitis and chronic bronchitis are apt to remain.

Veritable peribronchial intensification occurs in bronchopneumonia. There is no other condition in which peribronchial invasion is so accentuated; and there is no other condition in which peribronchial thickening should be read into an x-ray plate in mistake for bronchial thickening. It is a common error to find the phrase "some peribronchial thickening," or an equivalent, in routine reports of chest plate interpretations. Close study will show generally one of two things: That the intensified linear markings are not at all pathologic; or, if pathologic, are bronchial thickening and not peribronchial thickening.

Of course, the fact that bronchopneumonia is not often bilateral, and that it attacks infants and children rather than young adults, are factors aiding in the differential diagnosis.

Epidemic Influenza.—Entity not clearly established: There are those (Blake and Cecil) who attribute epidemic influenza to the bacillus of Pfeiffer. Others, MacCallum particularly, fail to subscribe to the thought that the Pfeiffer bacillus is the cause of this disease. Essentially, epidemic influenza is a form of pneumonia, the pathology of which is incident to the secondary invading organism. Usual secondary invading organisms are pneumococci, hemolytic streptococci, staphylococci, Friedlander's bacillus. With these, the influenza bacillus (Pfeiffer) may or may not be found; but the Pfeiffer bacillus, while it may occur together with any of the secondary invaders above mentioned, rarely occurs alone in a given epidemic influenza case. So that the x-ray pathology of epidemic influenza is the pathology of pneumonic types, according to the predominant secondary organism present in the case under study.

Influenza with Secondary Pneumococci: When the pneumococcus is the secondary invader, there occurs a confluent lobular pneumonic infiltration and consolidation. Dispersed alveoli become filled with a clot of exudate into which preserved red and white cells, organisms and fibrin, loosely agglomerated, are found.

Influenza with Secondary Staphylococci: As in pneumococcal secondary invasion, with staphylococcal secondary invasion, confluent pneumonic lobules appear. In the case of staphylococci, however, these tend to greater discreteness, assuming more an abscess form.

Influenza with Secondary Friedlander: Friedlander's bacillus causes a similar consolidation to that occasioned by the staphylococci, though with Friedlander organisms a gelatinous viscid exudate also occurs. With these three types of bacilli, the fundamental x-ray pathology of the infection is the result of an obliteration of the alveoli with radiopaque material. Usually the obliteration occurs widespread, the foci at first being somewhat scat-

tered. One or both lung areas may be involved. This scattered infiltration supersedes a primary bronchial infiltration, which bronchopathy is so acute, and the registrable x-ray changes so slight, as to escape anything but the most scrutinizing search on the plate; but the alveoli fill so rapidly that soon radiopaque flakes appear diffusely spread over the areas involved. These become more radiopaque and more numerous as the infection progresses. J. H. Selby aptly refers to the process as a "snowstorm." It is rare that the confluence assumes such completeness as to occasion an even obfuscation of an entire lung area. The whole lung area may be radiopaque, but the radiopacity rarely ever is uniformly dense as in the case with lobar pneumonia, or with pleuritic effusion. Influenza of the types above mentioned, pneumococcal, staphylococcal and Friedlander's, may induce a radiopacity which begins as a flaky mosaic, tends to confluency, and although a vast area may become radiopaque, a mottling persists that attests the character of the infiltration.

Influenza with Secondary Streptococci: In the main, hemolytic streptococci bring about a similar pathology to that just described for the other three types; but with this somewhat distinguishing addition: That in hemolytic secondary invasion, besides the flaky mosaic referred to, a general edema supervenes, and the consolidation is more confluent and extensive. Many hemolytic organisms are found in the tissue; and where these are most abundant, a liquefaction necrosis is initiated with resulting disintegration of tissue at that locus. The distinguishing x-ray dominant of streptococcal influenza arrives only after the consolidation is complete. Initially, the snow-flake storm appears. Dispersed radiopaque areas are prominent. These become more numerous and tend to confluency. The entire area is injected with edematous infiltration causing a uniform radiopaque veil to be drawn over the site. Through this veil of even density may be seen the pristine characteristics of lobular pneumonic infiltration. Influenza of the first three types may be represented for x-ray visualization as a snowstorm viewed through a clear glass window; while streptococcal influenza, from the x-ray standpoint, represents a similar snowstorm viewed through a ground-glass window.

Influenza with Pfeiffer Bacillus: It has been uncommon experience to have x-rayed cases where the influenza bacillus alone could be recovered at autopsy. In the few cases rayed, the dominant characteristic was the relative evenness of the radiopacity. In character, the radiopaque area was indistinguishable from a radiopaque infiltration caused by lobar pneumonia; but the orientation, triangular and usually confined to one lobe in lobar pneumonia, and extensive without definite geometric configuration excepting that incident to anatomical boundaries in influenza, may serve to differentiate. From the pathology at necropsy, the evenness of density is presumably due to the intense hemorrhagic infiltration incident to the infection.

At a camp, during the epidemic, a proficiency in x-ray diagnosis was attained wherein the type of secondary organisms was predicted from the x-ray appearance of the pathology. It was as usual to have the x-ray diagnosis include the probable secondary organism responsible for the infection as for the pathologist to surmise the character of the sec-

ondary organism from the gross pathology at autopsy; and a remarkable correctness, as shown by subsequent laboratory studies, fell with equal regularity both to the x-rayist and to the pathologist.

Abscess of the Lung.—Etiology: Abscess formation is not uncommon as a sequel to the deglutition and aspiration forms of lobular pneumonia, more especially influenzal pneumonia. Fundamentally, a circumscribed area of exudative pneumonia is the locus in which an abscess develops. The locus of exudative pneumonia registers as a radiopaque disc. As the exudate undergoes central disintegration, autolytic digestion is followed by a liquefaction necrosis; and a cavity is gouged out in the center of the exudative mass filled below with the products of liquefaction, above with air.

X-ray Pathology: In its typical form, the lung abscess is readily recognized. A fluid level is demonstrable which, with the shifting of the patient, assumes a surface according to the position of the chest. The x-ray test for fluid in the cavity consists, obviously, in making two plates, the first with the patient upright, the second with the patient on his side. If the suspected shadow is produced by a fluid bearing cavity, the level will move so as to remain parallel to the horizon regardless of the shift of the patient. Abscesses may be confused with tuberculosis, especially in the case of abscesses comparatively free from fluid; but with tuberculous cavities, other signs of tuberculous infection are contemporaneously present, particularly in the apices of the lungs. Most usually, abscesses are found in the basilar pulmonic fields, whereas tuberculous cavities occur with greater frequency in the apical and upper lung areas.

Lung gangrene is virtually lung abscess on a larger scale; and the x-ray pathology is in every way identical to lung abscess in character, differing only in the greater extent of anatomical distribution in the case of gangrene.

Interstitial Pneumonitis: Chronic interstitial pneumonia is as important, clinically, as chronic bronchitis. Excepting for the absence of tubercle bacilli in the sputum, and the temperature, both resemble tuberculosis and may be mistaken for it. It is sometimes impossible clinically to distinguish between chronic bronchitis and chronic interstitial pneumonitis. The x-ray pathology is distinctive; but it requires precise observation to differentiate the tubular thickenings of the chronically enlarged bronchi, and the laminar striations of inflamed and fibrous connective tissue when the smaller histologic units are involved. When the larger units are attacked, the distinction is made without difficulty.

2. SPECIFIC INFLAMMATORY PNEUMOPATHIES:
Pulmonary Tuberculosis.—Tuberculous inflammations of the lung occur in two forms; as tuberculous granulations, and as caseous pneumonia. Tuberculosis granulations are productive inflammations; caseous pneumonia, exudative. The former develops in the interstitial tissue, the latter fills the alveoli with exudate. Both arise from the same bacillus and may be present at the same time in one lung.

Etiology: The tubercle bacillus may reach the lung in various ways; by aspiration, or aerogenous infection; by the lymph channels, lymphogenous infection; or by the blood stream, hematogenous infection. In general, aside from direct inoculation

into the blood stream, there is always first, no matter what portal of entry, an involvement of the regional lymph glands.

Acute Miliary Tuberculosis.—Widespread development of miliary tubercles in the lung is often a part of general tuberculosis, even though the lesion be most marked in the lungs. The tubercles are found in the parenchyma of the lung, in the connective tissue forming the septa, along and in the walls of the bronchi and blood vessels, and in the pulmonary pleura.

The tubercles may be composed of cells with more or less fibrous stroma. Giant cells may be present. Coagulation necrosis is usual. Each individual tubercle is tiny and when first forming would escape detection under ordinary inspection if it were not for the associated exudate that usually involves the immediately adjacent air vesicles. This exudate is composed chiefly of exfoliated epithelial cells that have proliferated, serum, leucocytes, and fibrin.

In acute miliary tuberculosis, the microscopic tubercle, though composed of relatively radiopaque epithelial structure, is so small as to preclude visibility on the plate; but the stimulation by the tubercle of exudative infiltration in the immediately adjoining air vesicles makes for a radiopaque area, varying in size from 2 millimeters to 8 or 10 millimeters in diameter. Beginning acute miliary tuberculosis is evidenced then by the ubiquitous presence, in the septa, along the course of the bronchial walls and the blood vessels, of small radiopaque foci. At first, it is not the actual miliary tubercle that casts the radiopaque focus on the x-ray plate; but the exudate accumulated in the surrounding air vesicles stimulated by the tubercle. Just as the products of tubercle activity promote exudate in the surrounding air vesicles, so do they drain into the pulmonary lymphatics leading eventually to the hilus of the lungs. The lymph channels along the entire course of the draining circuit are engorged, and the glands at the hilus become at the same time pronouncedly enlarged.

X-ray Signs of Activity: Holmes and Ruggles refer to fine grayish mottlings typically present in plates of acute miliary tuberculosis. They regard this as the only sure basis for a roentgen diagnosis of active tuberculosis. Knox makes the test for deciding activity the distinctness and circumscription of the intensified markings. When, according to Knox, the markings are blurred and hazy, activity is indicated; but when the markings are prominent and distinctly circumscribed, they must result, says Knox, from an old-established fibrosis incident to a non-active lesion.

Recently, in an x-ray clinic at one of the Service Hospitals, a number of plates were read without knowledge of the clinical history of the patient from whom they were made. A supporter of the Knox contention diagnosed active tuberculosis in a number of undoubtedly tuberculous cases; but the most exacting clinical and laboratory survey could convince the clinicians that only a chronic process was present. Now, in an incipient lesion, there is always a definite amount of lymphatic and hematogenous engorgement in the infected area; and these engorged lymph and blood vessels, pursuing the bronchial course in places, alone in others, cast radiolucent to radiopaque shadows. As the lesion pro-

gresses, fibrosis ensues; and *pari passu* with fibrotic proliferation, which means advancing chronicity and inactivity, the engorgement recedes. It is possible, then, often to have no absolute change in the radiopacity of a structure as the metamorphosis from activity to inactivity proceeds; and also it is possible that the metamorphosis may be attended with a change in the reverse direction, the incipient pathological process being more radiopaque than the final chronic fibrosis. So that Knox's sign, that of indistinctness of structure, may mean one of two things—a new process, in its inception, or an old process, in its recrudescence. In the first case, it may represent pathological activity, in the second case, physiological resorption of a pathological remnant. Obviously, Holmes and Ruggles, and Knox's only sure sign of activity of tuberculous pathology, may often fail; and if this is true of the "sure" sign, what can be expected of less exact signs?

Activity, then, cannot be estimated from the *x-ray* plate alone in cases of tuberculosis for the reason that in limited infections the pathology is ushered out in the reverse order from that in which it appeared; radioparent structures become radiolucent and finally radiopaque in progressive infection, whereas radiopaque structures become radiolucent, and in instances radioparent, in the physiological extinction of a healed process.

In those cases where physiological reactions are incapable of extinguishing a chronic process, because of its peculiarly resistant fibrotic and even calcified structure, the *x-ray* evidence shows clearly the infection, but in no way does it give a clue as to the presence or absence of disease. Activity means disease, and disease is a purely subjective reaction. The *x-ray*ist can detect infection; he may outline it with an anatomical precision far excelling the accuracy of clinical determinations; but there is yet no sure sign advanced that is positively diagnostic, from *x-ray* evidence alone, of tubercular disease. Activity may be inferred, if the history and the clinical findings in the case are known. Purely from the standpoint of *x-ray* pathology, however, activity cannot certainly be surmised.

CHRONIC PULMONARY TUBERCULOSIS: Beginning usually in the apices, chronic pulmonary tuberculosis extends gradually to the lower portions of the lungs, and to the pleura. It heals with induration in some places, extending, or softening, in others. There are reasons why chronic pulmonary tuberculosis should choose the apices for its invading march; (1) the minimal energy of the movement of the air during respiration; (2) the lessened energy of the lymph current (according to Tendeloo) in the apex; (3) the predisposing influence of stenosis of the upper aperture of the thorax in persons of the habitus phtisicus due to a congenital shortening of the cartilage of the first rib (Freund); (4) the groove like constriction, owing to the first rib shortening, of the apex of the lung (Schmore); (5) faulty development of the bronchial tree in the apex (Birch-Hirschfeld).

X-RAY PATHOLOGY: When the apex becomes a nest for tubercle bacilli, and these begin to proliferate, the toxins reach the lymph vessels which become engorged. Radioparent lymph vessels become radiolucent, and radiolucent channels become radiopaque. The general distribution of bronchi, blood and

lymph-vessels is everywhere similar in the lung area. The larger structures are at the root and hilus; from these tree-like branching occurs, each branch being of smaller diameter and lesser caliber than the main stem from which it is derived. At the root, the larger bronchus from the tracheal bifurcation is the inlet and outlet to all the myriad bronchial structures in the lung; so that, for the entire lung, as for any particular area, the general arrangement is tree-like, the branches extending away from the hilus of the lung, toward the periphery, and the main stem extending toward the hilus.

When the tubercle bacillus lodges in the apex, the blood and lymph vessels become engorged as the first step in the inflammatory process. Since their distribution is tree-like, a radiopaque tree-like structure appears in the apex that should normally be clear.

DISTINCTIVENESS OF INCIPIENT TUBERCULOUS LESIONS: True, the apex is deficient in bronchial structure, but it is not entirely free from bronchial structure. Care must be used not to confuse the normal markings in the apex for the pathological markings due to infection. There are two criteria that make for differentiation. First, the comparison of one apex with the other. This relative standard is not always sufficient, for both apices may be infected at the same time. Secondly, the tubercle bacillus, as was pointed out in the discussion of miliary tuberculosis, incites an exudative infiltration of the adjoining air vesicles.

In the miliary type of tuberculosis, there being foci of bacillary activity everywhere present in a given locus, the air cells fill with fibrin, blood serum and particularly exfoliated epithelium; all materials that are radiopaque. In incipient pulmonary tuberculosis, there being infinitely less bacilli, the air vesicles do not become filled with exfoliated epithelium, but only with fluid; so that the tissue does not become radiopaque, but radiolucent. All the air vesicles included in the area drained by the radiopaque arborization are infiltrated with fluid, and the normally radioparent lung acquires the appearance frequently described as "filmy," or radiolucent.

This is the typical lesion of apical infection—a V-shaped radiolucent lung area ribbed with radiopaque vessels and bronchi, the Dunham fan.

LOCATION OF FAN DECIDES DIAGNOSIS: It is not the character of the fan that is diagnostic of tuberculosis. It is the location of the fan. Laboratory cultures of certain organisms, listed below, were injected hypodermatically into the apex of one lung of guinea pigs. There were: Staphylococci (aureus), Streptococci, Influenza, Meningococci, Diphtheria. The lung areas of the pigs were rayed before injection, immediately following injection, and at intervals of 30 minutes after injection until recognizable lesions had developed. The experiments were repeated with the injections made along the periphery of the lung other than at the apex. In all cases, whether in the apex or at the periphery, there develops for every organism a radiolucent fan-shaped density in the peripheral parenchyma, whether in the apex or elsewhere in the lung area. As the infection progressed it assumed more characteristic forms depending upon the organism. The important observation in connection with the experiments is the fact that in incipient stages of infection all of

the organisms used produce a similar pathology; the only difference developed in the time required to produce the pathology and in the subsequent orientation that it assumed after infection had become better established.

In a limited way the same observation holds for humans. Incipient pneumopathies of whatever origin may be shown to have foci of infection whose pathology is identical to that of the Dunham fan. The absolute significance of the Dunham fan then is that it represents a locus of edema, which locus is partly the result of a filling of the air vesicles with fluid incident to a toxemia produced by an incipient infection. There is nothing characteristic of the Dunham fan, obviously, suggestive of tuberculosis excepting its location. The fan represents incipient infection; and when it occurs in the apex or at the periphery of the lung, it generally signifies tuberculous infection. It is usual for infections other than tuberculosis not to be so discreetly localized; and their progress is generally rapid, compared to tuberculosis, so that wide spread infection is soon manifest.

HILUS ADENOPATHY: As the lymphatics drain the toxic effluents from an infected area, and the effluents reach the cluster of glands at the hilus of the lung, with all infections and lymphadenoid irritants, there is produced an enlargement of the hilus glands. Hilus adenopathy is therefore not specifically significant of tuberculosis infection. It is sometimes an index of the acuity of infection. That is, an infiltration in the lung areas that resembles one produced by tuberculosis, might be inferred to result from an active acute infection if the hilus glands are enlarged. But this X-ray sign of active infection in tuberculosis is not specific, neither is it trustworthy. In pneumoconiosis, for example, hilus adenopathy becomes chronic and persistent; so that a superadded infection in a case of pneumoconiosis, the enlargement of the hilus glands could not be interpreted as acute infection unless pneumoconiosis were first ruled out.

PROGRESS OF INFECTION: There are x-ray signs of the progress of infection which can be gathered from serial x-ray studies of a case. The signs are those of an increase in the anatomical distribution of the x-ray markings. They refer only to the registrable quantitative alterations in the anatomic distribution of the infection; and while activity is inferred by these signs, it cannot be positively stated that activity actually exists.

BIRCH-HIRSCHFELD FOCUS OF INCIPIENT TUBERCULOSIS: It is stated that in the lung the first lesion is commonly, though by no means always, in the walls of the bronchus, a centimeter or more below the apex. Birch-Hirschfeld demonstrated the formation of a tuberculous granulation tissue in the wall of the bronchus in the apical or subapical lesion. Accordingly, the peribronchial lymphatics would be involved in the draining of the infectious toxins; so that a peribronchitis would be manifest on the plate. This same process of peribronchial invasion may invade the entire lung area. The repeated stimulation and irritation occasioned by the tuberculosis toxins may induce fibrotic proliferation and occasion marked bronchial accentuation throughout the invaded lung area. It is rare to find an active progressive tubercular process relegated entirely to

the peribronchial tissues, without, at the same time, finding some foci of parenchymal infiltration; but in a cleared infection, accentuated bronchial markings incident to the fibrosis induced by the previous tuberculous infection, may remain as the only evidence of a past lung infection. In this case, the lesion truly represents a chronic bronchitis and is in no way different from the residual chronic bronchitis incident to whatever pneumopathy of toxic origin. So that thickening of the bronchial markings so often referred to in x-ray reports as peribronchial thickening, unless other signs characteristic of the infection inducing the peribronchial thickening are present, can be interpreted only as chronic bronchitis.

FIRST STAGE OR INCIPIENT TUBERCULOSIS: Excluding miliary tuberculosis and caseous pneumonia, the chronic forms of pulmonary tuberculosis may be divided into three stages, according to the extent and progress of anatomical infection.

Stage I. Initial, incipient, or developmental.

Stage II. Well established infiltration.

Stage III. Necrosis and repair, often terminal.

In general, these three stages agree with the nomenclature advanced and adopted by the National Association for Study and Prevention of Tuberculosis in which fourfold classification there are included: Incipient tuberculosis. Moderately advanced tuberculosis. Fully advanced tuberculosis. Miliary tuberculosis. The National Association classification is a clinical one and is made on the basis of physical findings and subjective symptoms.

An x-ray classification into these classes is scientifically improbable for the reason that in the x-ray study only the anatomical extent of the infection can be estimated. Practically, however, there is a close agreement between the extent of infection, and the symptoms incident to that extent, so that a useful classification of infection from the x-ray viewpoint can be made into three stages:

Stage I. Corresponding to incipient tuberculosis.

Stage II. Corresponding to moderately advanced tuberculosis.

Stage III. Corresponding to fully advanced tuberculosis.

From an x-ray standpoint a tuberculous infection that shows only an occasional film described as the Dunham fan would be classified as a Stage I infection. In so reporting the clinician would be advised that the character of infection noted on the x-ray plate was significant of tuberculosis, and that its extent was slight.

STAGE TWO OR MODERATELY ADVANCED INFECTION: When more than the apex is involved, the infiltration is more extensive than that characterizing Stage I, and in the mottling there is very little evidence of cavity formation, the infection could be termed moderately advanced or Stage II. An arbitrary limit of one-sixth of the total area of one lung might well be set as a maximum amount of infiltration that could be called moderately advanced.

STAGE THREE OR FAR ADVANCED INFECTION: When the infected area amounts to more than one-sixth of the total area of one lung the case could be reported as far advanced or Stage III. In such cases areas of disseminated cavity formation, foci of caseation and necrosis, and other anatomical complications could be descriptively included in the report.

In this manner the x-rayist has a guide for the report of tuberculous infection, which guide corresponds with sufficient accuracy to the classification of chronic pulmonary tuberculosis so as to make for an exact understanding common to the x-rayist and clinician. It is better that the infection, after it is identified as tuberculous, be reported in terms of stages, as Stages I, II or III, rather than in terms of incipient, moderately advanced, or far advanced. A Stage I infection corresponds in anatomical extent to an incipient infection; but when the word incipient is used it conveys the tacitly understood meaning of activity. If Stage I infection is used it describes accurately the anatomical extent of invasion without specifying activity or inactivity, both of which are more for the clinician than for the x-rayist to determine.

ACUTE FORM OF PULMONARY TUBERCULOSIS: Barker refers to the acute form of pulmonary tuberculosis as *phthisis florida* or galloping consumption, and includes in the classification the pneumonic form and the multiple focal form.

In the pneumonic form, including caseous pneumonia, the infiltration is similar to the infiltration incident to moderately and far advanced chronic forms. It differs only in that in the pneumonic form the infiltration is more massive, thereby more closely resembling lobar pneumonia, and progresses with great activity.

The focal form may be disseminated, hemoptoic, or peribronchitic. The conditions are rapidly recognizable on the x-ray plate. It is indeed more difficult clearly to recognize a diagnosis of Stage I tuberculosis, from x-ray evidence, than it is to recognize a diagnosis of any other stage of tuberculosis.

GENERAL CONSIDERATIONS: In certain instructions under the title "Principles of X-Ray Diagnosis" issued to Roentgenologists in the Hospital Division of the Public Health Service, the following general considerations were included:

Abnormal densities at the hilum need little description unless they are markedly abnormal or connected to a parenchymal lesion by a heavy trunk. Calcified areas at the hilum and even in the lung tissue, indicate resistance to tuberculosis rather than pathology of clinical significance.

Peribronchial thickening unless very pronounced or much heavier within one lobe, should receive limited consideration. The bronchi to the bases are normally heavy and unless connected to the pleura by abnormal densities should not receive consideration except in cases giving a history of gas, bronchiectasis or having signs of emphysema. The trachea, aorta and heart should be noted, and if dislocated it should be stated in which direction.

Abnormal densities, such as faint cloud-like "fans" are often artificially produced by improper technique, such as breathing between stereoscopic exposures or a too long exposure. Stereoscopic plates are necessary to determine the location of an abnormal density within the lung.

Decreased densities within bronchi on end, and outside the pectoral muscle are normal and are to be disregarded. Such areas surrounded by studied or mottled increased densities should be classified as tuberculous until other etiology can be proved.

SYPHILIS OF THE LUNG: Syphilis of the lung is very similar in its x-ray pathology to pulmonary tuberculosis. It may assume a gummatous form, in which discrete rounded areas of radiopacity are scattered through the lung field; but more often assumes the form of a chronic, sclerotic, interstitial pneumonia. There are three x-ray indications of

the specificity of the lesion. First, whether the discrete or the sclerotic form is present, the pathology in each case favors clustering in the region of the hilus; and, unlike tuberculosis, rarely, if ever, invades the apex. Secondly, the lesions are as a rule of great extent and wholly out of proportion to the few clinical symptoms of the case. Third, after specific therapy, whether by salvarsan or mercury, the pulmonary lesions can be seen to retrogress in serial x-ray plates.

PNEUMOPATHY CHARACTERIZED BY CHANGES IN THE ALVEOLAR LUMEN: There are two principal pneumopathies that follow under this grouping. The first is atelectasis; the second, emphysema. Atelectasis is recognized best by the pneumothorax-like condition that accompanies an atelectatic lung. There is nothing particularly distinctive about a collapsed lung, whether the collapse is due to the atelectasis of the new-born or is of acquired origin. The x-ray diagnosis depends on the accompanying removal of lung tissue from those parts of the normal lung area from which the collapsed lung has shrunk.

In emphysema there is an abnormal inflation and dilation of the air cells. The abnormality may be temporary; but is more commonly permanent. Five clinical forms are recognized. These are: Chronic hypertrophic; atrophic; acute vesicular; interstitial; and compensatory.

CHRONIC HYPERTROPHIC EMPHYSEMA: This is distinguished from other forms of emphysema not by the character of x-ray pathology, which is similar in all types, but by the distribution of the lesions. In chronic hypertrophic emphysema both lung areas are involved more or less uniformly, and in most cases the greatest amount of inflation involves the apices. The shape of the costal grill, which assumes a barrel form, is often of x-ray importance in pointing to the possibility of the presence of a chronic hypertrophic emphysema. There may be isolated areas of pneumothorax. The bronchi throughout both lung areas may show an intensity in their markings representing a chronic bronchitis usually associated with emphysema. Occasionally, dilated bronchi, tending to bronchiectasis, occur.

Acute vesicular emphysema is less extensive than the chronic form and occurs usually as the sequel to some bronchial infection or to any condition that throws violent respiratory effort on the lung structures. Because of its secondary character it is seldom of x-ray pathological interest; there being in the same plate much more clinically important pathology which attracts the interest of the roentgenologist.

Interstitial emphysema is characterized by the formation of large bullae in the interlobular and subpleural tissues. Rupture of one of these large bullae near the root of the lung leads to an extravasation of air along the trachea, and thence into the subcutaneous tissues of the neck. The x-ray pathology in this form of emphysema is characteristic, the lung area representing the usual emphysematous appearance, and in addition there is an air infiltration of the soft tissues overlying the clavicular space.

Whatever the cause of emphysema, the air super-inflated lung makes for abnormal clearness or radioparency of the otherwise radiolucent parenchyma.

This abnormal clearness is often associated with a protusion to the right of the cardiovascular stripe.

PNEUMOPATHIES OF CIRCULATORY ORIGIN: There are included under this heading: (A) Chronic passive congestion of the lungs and stasis bronchitis. (B) Pulmonary hemorrhage and hemoptysis. (C) Pulmonary embolism, hemorrhagic infarction of the lung and thrombosis of the pulmonary artery. (D) Edema of the lungs.

Of these, edema of the lungs is of possible x-ray interest. It may be due to an inflammatory etiology as in pneumonia; or a non-inflammatory origin as in cardiopathy. When due to pneumonia the associated pathology is of a distinguishing character; and when due to cardiopathy it might better be considered under the classification of heart disease.

PNEUMOPATHY DUE TO FOREIGN BODIES AND PARASITES: Two general heads are included under this title, the pneumoconioses and parasitic invasion of the lung. The x-ray diagnosis of a pneumoconiosis depends upon the chronic bronchitis, the interstitial inflammation and the characteristic radiopacity due to the particular pneumoconia. There are three main varieties of pneumoconioses that are distinguishable, namely:

"(1) Anthracosis pulmonum, due to carbon or coal-dust, met with in coal-miners, chimney-sweeps, stokers, and workers in graphite.

"(2) Calcicosis pulmonum, due to stone-dust, and met with in stone-cutters, slate-workers, polishers, etc. The gold-miner's phthisis of South Africa seems to belong here.

"(3) Siderosis pulmonum, due to iron-oxide-dust, met with in file workers, iron-workers, scissors-grinders, mirror-makers, workers in wall-paper factories, etc." (Barker).

The lung dust responsible for the lesion is exceedingly radiopaque and shows pronouncedly on the plate. Under parasites of the lung, the x-rayist occasionally meets with invasions by actinomycetes. In this infection the x-ray pathology assumes the form of lung abscess. The diagnosis is made in the laboratory rather than by the x-rayist.

NEOPLASTIC PNEUMONOPATHIES: Neoplastic invasions of the lung may effect primarily the lung substance or the bronchi, as in carcinoma; or are brought to the lung metastatically through the blood stream, as sarcoma, or reach the lung directly by extension from a primary invasion from the mediastinal structures.

Carcinoma of the lung may originate at the hilus. There is nothing pathognomonically characteristic of hilus malignancy. In a certain type it may be disseminated throughout one or both lung areas in the form of discrete scattered foci. The origin of these foci may be that of a blood dissemination of malignant nuclei throughout the lung field; and, as the nucleus arrives in its newly deposited locus, a malignant growth proceeds. This epithelial growth is radiopaque; so that the x-ray pathology of metastatic malignancy approaches the appearance of a miliary tuberculosis, from which it differs in that in malignancy each locus is larger than in miliary tuberculosis, is more discrete and more radiopaque.

Another form is described in which radiopaque plaques are scattered throughout the lung field. This is a relatively uncommon form of metastatic malignancy.

Primary malignancy is rare. It is most always unilateral and may be nodular or infiltrating. When nodular the lesions gather around the hilus. When infiltrating the lesions follow the bronchial distribution from whence it arrives.

Says the U. S. Army X-Ray Manual, in connection with new growths of the lungs:

Of metastatic new growths those most commonly encountered are carcinoma and sarcoma. By means of the x-ray examination alone it is not possible to distinguish them. The earliest metastases appear as faint circular homogeneous shadows a few millimeters in diameter. They are irregularly distributed throughout the lungs and are larger in the lower lobes. The size they attain varies with the type of the primary tumor and the duration of the disease. They may attain the size of a lobe; on the other hand, even at a late stage of the disease the lungs may be studded with myriads of small metastases. Miliary carcinosis may be difficult to differentiate from some forms of tuberculosis. The x-ray examination will reveal metastases before the clinical examination will discover them. For this reason it is important to ray the chest prior to operation of primary tumor, especially sarcoma, in other parts of the body.

Primary new growths occur in two forms, the true pulmonary and the mediastinal tumors. By the x-ray examination, just as by the clinical, it is often impossible to decide whether a neoplasm arises in the lung or mediastinum, because mediastinal growths as they increase in size may invade the lung. In their earlier stage this distinction may be made.

Primary carcinoma of the lung assumes two forms, the so-called bronchial carcinoma and the lobar carcinoma. The former begins usually in one of the larger bronchi and casts a dense shadow extending a variable distance from the root of the lung. Numerous secondary tumors develop by extension along the bronchial system, producing a network of small shadows along the bronchial tree. In lobar carcinoma there is found a dense shadow which occupies a part or all of a lobe. This seems to occur more frequently in the upper lobes. In all forms of primary growths the intercostal spaces are frequently narrowed, and the heart and mediastinum are apt to be drawn over to the affected side, unless prevented by a hydrothorax.

INSOMNIA.

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INSOMNIA means no sleep. In practice it means that the afflicted one is a poor sleeper. The quantity of sleep is diminished. Although the word insomnia does not suggest it, in a study of this kind we should include also those cases where the quality of the sleep is not normal. In many cases both conditions prevail. No one can do without sleep for a protracted length of time.

In the beginning insomnia is usually nothing more than a symptom. However, I have reason to believe that it often becomes in time the predominate factor of an abnormal condition. It is a part of my purpose in this article to show how this may happen. When one becomes a poor sleeper it is a serious matter. It lessens efficiency and diminishes the enjoyment of life.

Chronic insomnia demands serious study. The physical factors that cause insomnia and also the physical factors that prolong insomnia, are matters of great importance. The discussion of these factors, however, I will leave to the surgeon and to the internist. In this article I shall confine myself to a study of the psychic elements of the trouble, considering: 1. Psychic factors that have to do with the

passage from the waking to the sleeping state. 2. Psychic factors that aggravate and prolong insomnia. 3. Psychic factors that act as a first cause. I have read many learned and interesting studies as to what the sleeping state really is; I am sorry, but I am still in ignorance.

Fatigue if great enough will bring on sleep. This is an important fact, but not of much practical value. It is important that we pass from the waking to the sleeping state at the proper hour whether we are fatigued or not.

Let us look in at the family circle of the average American family during the evening hours. Perhaps the family are playing cards. The conversation is animated. There is no evidence of either drowsiness or fatigue. But when father glances at the clock and perceives that the hour for retiring has arrived, when he arises and begins to wind the clock, each member of the family begins to show unmistakable signs of drowsiness. Does this mean that each one in the family has become suddenly fatigued? I hardly think this even a possible explanation.

No, this is an average family of normal habits. Their lives are well ordered. They have a regular hour for retiring. Certain impressions and suggestions connected with this hour are registered in the subconscious brain of each member of the family. These suggestions and impressions have been doing their good work over a long period of time. Their regularity and long continuance is at last sufficient to hypnotize automatically each member of the family into the condition we call sleep.

We often hear the remark "I am so dead-tired that when bed-time comes, I drop asleep as soon as my head touches the pillow." But if we look into the history of the case we do not discover that the work done by this particular person is of a very strenuous character. The real truth is, I think, that the impressions and suggestions concerned with the transitional period between waking and sleeping are so wholesome and so thoroughly normal that this individual is actually compelled to go to sleep through autosuggestion.

Sleep itself can hardly be called a habit. The ability to drop asleep at a certain hour is a habit. It is about the best habit I know. Where the psychic features predominate, insomnia may really mean nothing more than the loss of this excellent habit. Many people have had the habit of dropping asleep at a certain hour so long that they suppose they were born that way. They were not. The baby is not the least bit particular about his hour for dropping asleep. Neither is he at all particular about those hours that he proposes to devote to wakefulness. Many fond parents who have walked the floor at night with a wakeful baby in their arms are well aware of this fact. The savage, who can not appreciate the civilized man's blessed privilege of working like a slave, is not much more particular than the baby about his hours for sleep. Any time when he has nothing more important to do seems to answer very well. Our colored brethren who have been learning our ways now for a long time do not seem as yet to have developed any great need of being especially solicitous about any certain hour of the twenty-four for passing into the sleeping state. Even with many of us the mere thought of an oppor-

tunity to take a nap seems to carry enough of autosuggestion with it to enable one to pass at once from the waking to the sleeping state.

Times and conditions may change with us. One who can pass from the waking to the sleeping state almost at will may himself at some future time become the victim of insomnia. Civilization is becoming more complex. The percentage of families who can have one certain hour for retiring for all the members of the family is becoming less. Father works during the ordinary daylight hours. George quits work at 11 P.M. and cannot retire before midnight. Mother has to see to it that he has a warm supper before retiring. John goes on duty at 4 A.M. and must have an early hour for retiring. Sammy works all night and must sleep as best he can during the day. It is surprising how well really healthy people can accommodate themselves to such circumstances. In spite of unfavorable conditions they retain in the subconscious brain the normal psychic impressions connected with the passing from the waking to the sleeping state.

These psychic impressions naturally vary under different circumstances. Some city people need the monotonous roar of the street traffic in order to pass easily from waking to sleeping. The uncanny stillness of the country, the absence of the street lights, the creaking of the crickets and the katydids, the distant hoot of an owl, the croaking of the frogs drive many city people almost to distraction. The countryman in spite of his rugged health is distressed and wakeful from the roar of the city noises at night. Many trainmen can sleep better in the swaying noisy little red caboose than they can under what would seem to be more favorable circumstances in their own homes. Most people can sleep very well in spite of the stress of modern civilization. Others who inherit irritable nervous systems can not retain correct habits of sleep on account of the rapid changes in environment, in occupation and in a thousand and one ways. In their cases the normal psychic impressions that should go with the transitional period from sleeping to waking become obscured. They may become poor sleepers without any tangible first physical cause. Where the inherited neuropathic tendency is pronounced they may not only become poor sleepers through the above named causes; they may even become insane. Whereas if they had been surrounded by the influences of a more simple life; and if they had been able to have one unchanging hour for retiring every night, they might have been able to pass through life successfully and normally in spite of developing inherited neuropathic tendencies.

Nothing succeeds so well as success. This is as true of sleep as it is of anything else. When one has enjoyed successful sleep night after night over a long period of years the impressions registered in the unconscious brain become stronger and more sleep compelling as the years go by. Failure of any sort leaves behind a whole train of irritating and unwholesome impressions registered in the unconscious brain. It is an old saying that "failure begets failure." Our identity does not consist in the length of our noses or in the confirmation of any of our features. It is our memories, both conscious and subconscious, that give to each one of us our personal and particular place in the universe.

These things have a great deal to do with making or breaking us. The painful impressions recorded in the brain because of hundreds of nights of poor sleep or no sleep constitute a force for ill of no mean power. While this force can not be said to be just so long, just so high, just so wide: and while it can not be declared to weigh just so much, its ponderability and magnitude for harm are very real indeed.

I now come to a study of certain psychic factors that may prolong insomnia or that may be the means of continuing the insomnia long after the physical causes have ceased to be operative.

Among the physical causes of insomnia of course are included all painful diseases or traumatism. Anything that may cause reflex disturbances like indigestion, faulty metabolism, alcoholism, etc.

In most cases after the internist or the surgeon has removed the physical causes the patient soon gets back into normal habits of sleep. Where insomnia accompanies painful diseases, it is only a symptom. However if these disturbances last over a long period of time, we can readily see how there may be superimposed upon the normal physis impressions connected with the transitional period between waking and sleeping a whole series of painful impressions and unwholesome suggestions which may nullify to a great extent the sleep compelling power of the normal suggestions.

If the individual inherits psychopathic tendencies, a very moderate amount of physical suffering may be sufficient to break up and destroy to a large extent the sleep inducing power of those suggestions registered in the brain previous to the patient's illness.

In cases of this sort insomnia may cease to be a mere symptom and may become the dominant factor. Even in cases where the patient has inherited a robust constitution, a series of painful diseases or accidents or other factors that may interfere with sleep may so completely break up wholesome suggestions that the first causes may pretty much disappear and insomnia may cease to be a mere disagreeable symptom and become the principal feature of the illness. Of course in no case of insomnia can this feature be said to be the only factor. Because insomnia itself reacts to produce a lowered resistance and a marked depreciation of the vital powers. What I mean is that the insomnia may cease to be a mere symptom or result of the diseased condition and may become the main cause of the patient's enfeebled health.

I realize of course that the physical debility that must remain after a long series of illnesses or accidents must react to interfere with sleep. However, I believe that the psychic elements are the more important of the two. Both physical and psychic elements are present in every conceivable condition of both health and disease. It is only a question of relative importance. To my mind the psychic elements in these cases are the more important.

We might naturally suppose that painful conditions lasting over a long period of time are the most effectual means of breaking up the autohypnotic power of the impressions registered in the subconscious brain concerning the period just preceding sleep. I do not believe that this is the case. The long continued use of any one of the hypnotics to in-

duce sleep will more effectually obliterate normal psychic suggestions than any pain can do.

Every time a person passes from the waking state to a state of artificial sleep or more properly narcosis, certain impressions are registered in the subconscious brain. These impressions are totally different from those that we get from the period just preceding normal sleep. The abnormal impressions in time will completely destroy the autohypnotic power of the previous normal impressions. It is thought by many that an abnormal craving for the hypnotic is established and that it is this craving for the hypnotic that keeps the patient awake when the hypnotic is withdrawn. This is never the case unless some form of opium is used as a hypnotic. My long experience in caring for the various drug addictions has made me very familiar with this feature of insomnia. Opium is not ordinarily a good hypnotic. However it will put the patient in a condition where he is not the least bit concerned as to whether he sleeps or not.

Any claim made in regard to any drug that it will induce or compel normal sleep is an absolute absurdity. Normal sleep is normal sleep and any other kind is not normal sleep.

The great care that many physicians take to skip from one hypnotic to another with the laudable intention of preventing the danger of inducing an addiction is to my mind a ridiculous waste of effort. The danger is not in forming an addiction but in putting the patient into a condition of chronic insomnia. This can be done and has been done just as effectually with several hypnotics as it has been done with one.

I think what happens is the abolishing of nature's method of inducing sleep by autosuggestion. This happens because the suggestions that obtain with the passing into stupor and into sleep are entirely different. When this happens there is to my way of thinking nothing left to do but to train the patient back into normal and to keep the patient sleeping normally every night over a long period of time to enable normal impressions to obscure and to obliterate the abnormal ones received from the repeated narcosis.

I now pass to a consideration of those causes of insomnia that are purely psychic rather than physical. That is to say certain emotional states: Fright, shock, grief, anger, financial losses, great mental strain, and sometimes the loss of mental equilibrium caused by overpowering success, especially sudden success followed by equally sudden failure. To those who inherit good health and whose life and environment has been conducive to the conservation and even to increasing their good inheritance, the above named causes are not likely to bring on chronic insomnia. Troubles, unless great in amount and continued over a long period of time, make about as little impression upon those in robust health as water upon a duck's back. Unfortunately not everyone enjoys good health. The constant wail of Mrs. Gummidge was that "everything goes contrary with me." Mr. Dickens also says of this character that, after living in the bright sunshine of Australia, "thinks no longer went contrary with her." However, although Mr. Dickens is silent upon this point, I fancy that Mrs. Gummidge was not a bad sleeper. Persons who worry over trifles usually

sleep fairly well. It is those troubles that strike at the very foundations of our happiness that insist upon going to bed with us.

The inventor may be so engrossed with some problem almost solved, but not quite, that he is unable to dismiss it when he retires for the night. The very intensity of these thoughts may be so great as to render inoperative the autohypnotic power of impressions registered in the subconscious brain connected with the passing from the waking to the sleeping state. This may also be true of any of the great problems of life. The greatest possible mental concentration, however, will not cause insomnia providing it is properly done.

There should be a period of diversion between the hours given up to mental concentration and the hour for retiring. A wise use of the brain strengthens this organ. Some people try to work the brain without the use of a governor belt. Some untrained and undisciplined people may get to thinking so intensely upon some problem that seems to them to be of great importance, that the brain keeps right on at the same subject against their will. Some very bad cases of insomnia arise in this way. Intense emotional disturbances take hold of the brain and refuse to let go in the same way. The resulting insomnia may be very grave. I think, however, that the insomnia is produced in both cases in the same manner. That is, the subconscious memories connected with the presleeping state become so obscured as to be inoperative.

Sleep poor in quality is often due to reflex disturbances arising from abnormal functional trouble in some part of the body. Disturbances in the alimentary tract furnish a familiar example. Sub-acute pain or distress in any part of the body which is not sufficient to keep one awake may be sufficient to cause disturbed non-refreshing sleep. Such disturbances may cause sleep that is accompanied by horrible dreams.

It has been claimed by some that powerful emotional states may cause disturbed sleep long after the original emotional disturbance has been forgotten. It is claimed that although the memory of such upsets may have passed from the conscious brain they are still present in the subconscious brain and continue to make sleep unrefreshing by causing frightful dreams. I have seen no cases of this sort, so far as I know.

Sleep may be abridged as well by a too early awakening as by difficulty in passing from the waking to the sleeping state. The causes of this trouble seem to be obscure. Nearly all the cases of this kind that I have met either were or had been heavy consumers of the distilled liquors. Whether the alcohol was the cause or not I do not know. I have never found the trouble to be very amenable to treatment.

I shall not say very much as to treatment. In cases where there is an obvious physical cause the treatment suggests itself. Mild cases of any sort can usually be treated successfully in their own homes. In all cases that show any disposition to be chronic I have only to mention the hypnotics to condemn their use in toto. If I have interpreted the matter correctly, any therapeutic measure that compels sleep or, to speak more correctly, that induces stupor, is to be condemned because it in-

terferes with nature's process. Severe cases can best be managed in a sanitarium, where the patient's habits of life can be observed and if need be corrected. If the ability to drop asleep at a certain hour is, as I think, largely a habit, then the patient should be trained back into that wholesome habit. Remedies that predispose to sleep may be used to good advantage. Anything that will assist in restoring nature's process of passing from the waking to the sleeping state, may be correctly called good therapeutics.

SOME INTERESTING THINGS ABOUT TUBERCULOSIS.*

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TUBERCULOSIS, the most common and one of the oldest diseases of which we have any record, has been looked upon until recently as incurable and uninteresting, which no doubt accounts for the little progress that has been made in conquering it. It has been considered an inherited disease, and even now this antiquated and unscientific idea lurks in the minds of some. It has, however, been clearly proven that it is not inherited, but that the patient becomes infected after birth. It is also known, though it is hard to convince the public, that this disease is curable when discovered early and the proper treatment instituted. The finding of the early case and the proper handling of it after it has been discovered should be a field wide enough for one interested in the practice of medicine to find something that would appeal to him. Too many see nothing interesting about it and try to shun it whenever possible. The physician doing sanatorium work is often asked the question by visiting physicians, "How can you do this work? Don't you find it uninteresting and tiresome?" I admit that the work is discouraging when one sees the advanced condition of many patients before anything definite has been done to give them a chance for recovery, but to one who understands the disease and takes the proper interest in the work it will be far from uninteresting. No doubt he who looks upon the disease as uninteresting considers it a hopeless condition in which there is nothing to do but stand round and wait for the patient to die and at the same time administer a little or much cough medicine to help make the last days more comfortable.

When the old ideas regarding the disease have disappeared and the importance of an early diagnosis and what can be accomplished by proper treatment is recognized, it should prove interesting, not alone to the physician doing sanatorium work, but to every one practicing medicine.

The physician will have to realize the importance of an early diagnosis and what can be accomplished when such diagnosis is made. The public is waking up to the fact that the disease is curable in the early stages, and they are going to demand in the future an early diagnosis in order that the chances for recovery may be greater. They are not going

*Read before the Southwestern Minnesota Medical Society at its fourth annual meeting, Windom, Minn., May 13, 1920.

to be satisfied to wait until they have reached a hopeless stage before being told what is the cause of their illness. If instead of looking upon tuberculosis as an incurable disease, the importance of an early diagnosis is realized and the proper method of treatment instituted, the picture takes a different aspect. To diagnose the disease early is by no means easy in every case; in fact, its symptoms and physical signs are so varied and obscure that it is often most difficult. The old picture of emaciation, night sweats, bad cough and high fever should be turned to the wall and earlier and more obscure symptoms studied if an early diagnosis is expected. It requires patience and careful study to make a diagnosis when the disease is in its incipency. There is probably no condition that presents a more varied array of symptoms than incipient tuberculosis. These symptoms which are obscure and misleading are often present before physical signs in the lungs can be recognized, and when one discovers symptoms which point to no definite disease, it is well to keep tuberculosis in mind, for it is often lurking in the early stages.

Don't get the idea I am one who thinks everything is tuberculosis, for I am not. What I want to impress upon you is the importance of an early diagnosis and the patience and careful study often needed in making it. Mistakes are made both in omission and commission because of lack of effort and painstaking study. Don't think that because one member of the family has tuberculosis, every ailment developing in the family should be so diagnosed, and on the other hand don't feel that because one does not have a family history of tuberculosis it cannot develop. Those having the disease with a negative family history often offer a more unfavorable prognosis than those coming from a tubercular family. A number of patients have been referred to sanatoria for treatment when they did not have the disease, because some member of the family had died of it. One case coming under my care recently was that of a child with advanced diabetes, the condition being diagnosed tuberculosis because the mother died of this disease. Another was a patient suffering from lethargic encephalitis diagnosed tuberculous meningitis, the diagnosis being based largely on the fact that a sister of the patient was then undergoing treatment in a sanatorium for tuberculosis. There are many similar instances that might be mentioned, but these will show that too often a diagnosis is made as a result of an idea rather than from close and careful study. Taking the diagnosis of the disease alone into consideration, it should prove interesting to every general practitioner, for he is constantly coming in contact with it, and when he gives the patient what is deserved in the way of diagnosis, being careful not to fail both to make a diagnosis if the disease is present or call it tuberculosis on a superficial study when it is not present. I am sure he will not find it the uninteresting disease it is too often considered. Every physician prides himself on results in treatment; there is no disease in which the results obtained depend so much on an early diagnosis as in tuberculosis. The diagnosis is by no means easy in every case, and often may require that careful examination be made and the clinical symptoms closely studied be-

fore one can either rule out or confirm the presence of active disease. When tuberculosis is really present and a diagnosis of such has been made, the physician has by no means completed his work of diagnosis in many cases. The fact that he has tuberculosis does not rule out the presence of other diseases, and one does the patient an injustice when he attributes all the symptoms to tuberculosis. Often there are other conditions present more serious than tuberculosis, and every effort should be made to discover them. The patient's chances for recovery depend greatly upon how early they are discovered and how successfully they are handled. The associated conditions may be both tuberculous and non-tuberculous. Among the more common tuberculous complications are pleurisy, laryngitis, adenitis, fistula, meningitis, tuberculosis of the bones, joints, intestines, peritoneum, and other less common complications. Among the non-tuberculous probably the most common is syphilis, and when this is discovered and properly treated it greatly increases the patient's chance for recovery. Other conditions are diseases of heart, kidneys, nervous system, digestive system, and many other less common conditions that should be looked for and discovered as early as possible when present. The proper handling of the complications is of the utmost importance. Active tuberculosis is often due to these associated conditions which reduce the patient's general resistance so that the disease has a chance to become active. In handling a number of patients with tuberculosis, one has an opportunity to come in contact with a sufficiently varied array of diseases to make it interesting. When one is handling patients in a sanatorium, he has far more to do than simply treat the cases as though they were all suffering from uncomplicated tuberculosis. It is the early discovery of the complications and their proper treatment that offers the best chance to the patients for recovery rather than the treatment of tuberculosis alone.

When the diagnosis of tuberculosis has been made and the general condition of the patient carefully studied, the next thing is what is to be done with the patient to offer him the best chance for recovery. This is by no means the least of the physician's responsibilities. Many prefer not to tell the patient his condition, even after a diagnosis has been made, and let them down easy by informing them they have a slight bronchitis which will clear up quickly, when as a matter of fact they know it will not. Such a method cannot be condemned too strongly, and when a patient is found to have the disease he should be told at once, not only for his own good, but for the good of those with whom he comes in contact. It is not only necessary to tell him his exact condition as nearly as possible, but to impress upon him the importance of doing what he should to recover, and at the same time protect others. When being advised what is best, the patient will often ask: "Doctor, don't you think I can stay at home and get well?" It is here that the physician will often acquiesce to the patient's wishes with the result that he remains at home, thus endangering the other members of the family, some of whom will become infected, especially if there are young children in the home.

Even at the present time the old idea prevails

that the West is the only place in which one suffering from tuberculosis can recover, and the patient is advised to go there regardless of conditions. While some patients will do better in the West than in other places, many things should be considered, such as financial condition, whether the patient would become homesick, or whether the journey would do more harm than change of climate could possibly counterbalance. There is no climate that will suit every case, and there are other things that are of far more importance to the average case than climate alone. These conditions should be considered, and if too great a sacrifice must be made for climate it is better to do without the climate. Patients suffering from tuberculosis recover in any climate, but few will recover anywhere when they are discontented and the financial condition is such they cannot get the proper treatment. All these things should be carefully weighed before advising a patient what to do. The greatest thing is to live the proper life for recovery and learn to take precautions to prevent the spread of the disease. The active case is not dangerous when precautions are taken. There is no safer place for the healthy person than in a sanatorium where such precautions are taken, for there he can protect himself, while in the outside world he cannot, for he does not know when he is coming in contact with a patient in the active stage who is careless.

The use of drugs in the treatment of tuberculosis is of very little value, though occasions arise during treatment in which they may be of service in the relief of certain conditions. About everything in the pharmacopeia has been used, and no specific for the cure for the disease has been found. Fresh air, good food, rest and exercise properly used are of far more value than anything else yet discovered. When a patient is in condition to begin exercise it should be prescribed as carefully as a dose of medicine, for often overexercise causes a reaction which may prove disastrous. Many are those who have filled an untimely grave because of being advised to go to the country to camp and exercise in the fresh air.

These are a few of the many things which should prove of interest, not alone to the specialist handling the tuberculous, but to the general practitioner. When the disease is carefully studied both previous to a diagnosis and during treatment for the purpose of rendering the greatest good to the patient in particular and humanity in general, there should be much that would prove of interest to the physician from both a scientific and a sociological standpoint. In all its aspects it must be studied broadly, and every effort should be made not only for its discovery and treatment, but for its prevention as well, in order that this and future generations may be protected.

Incomplete Millard-Gubler Syndrome.—Ausset and Brassard report a case of this syndrome in a girl of 10 years. The course was subacute, there was no paralysis of the external motor oculi and the case ended in recovery after the establishment of a fixation abscess. The syndrome probably was a manifestation of encephalitis lethargica, despite the absence of ophthalmoplegia. In discussion Professor Comby regarded the case as one of subacute encephalitis of unusual location. He took occasion to deplore the practice of setting up curative abscesses.—*La Presse Médicale*.

AUTOTRANSFUSION FOR HEMORRHAGE.*

BY G. R. LOVE, B.S.

CHICAGO.

THE therapeutic value of blood transfusion to stop hemorrhage was discovered by the pioneers of blood transfusion, who observed that when the transfusion was performed for hemorrhagic anemia the hemorrhage itself was often checked. The clinical data to this effect are common. However, there is a considerable paucity of experimental data. Ottenburg¹ reports that in a case of hemophilia the coagulation time was reduced temporarily from one hour and twenty minutes to seventeen minutes by a 150 c.c. citrate transfusion. Bernheim² checked the hemorrhage of a duodenal ulcer with a 500 c.c. citrate transfusion where six doses of horse serum had failed.

The citrate for some time received the credit as the therapeutic agent in transfusion for hemorrhage. However, since the transfusion of whole blood, as by Lindemann's³ method, has the same effect in stopping hemorrhage, it is obvious that a therapeutic agent comes from the transfused blood itself. Although, as Bernheim⁴ has stated, this phenomenon has not been definitely explained, the fact that the blood is brought in contact with a foreign surface must be considered as a probable factor. It is well known that contact with a foreign surface hastens the coagulation time of normal blood, and we may assume that in such instances some substance concerned in normal coagulation is either activated or increased in concentration. According to the present terminology this substance would probably correspond to thrombokinase. Thus in a transfusion the recipient receives blood which is in a pre-coagulative state and therefore it will coagulate easier when exposed the second time, that is, at the point of hemorrhage. It is obvious that in hemophilia the deficient substances are supplied by the donor.

Lewishon⁵ observed that the coagulation time could be reduced even by autotransfusion, and states that a 300 c.c. autotransfusion on a dog reduced the normal coagulation time of five minutes to ten seconds. Although the author's results do not approach Lewishon's data, they point to the same end, and the difference may possibly be explained by the technique and methods used in testing the coagulation time. It has been our experience in this laboratory that blood which in ten seconds will form a visible coagulum was originally in the last stages of coagulation. In view of these facts autotransfusion was studied more extensively with an improved method of testing the coagulation time.

Technique of Autotransfusion. Any of the ordinary methods of transfusion of whole or citrated blood may be used for autotransfusion; however, the method which we have found the easiest and most applicable is as follows: A tourniquet is applied above the field and the vein is punctured with a short 15-18 gauge needle in the usual manner. The blood is aspirated into a 10-20 c.c. Luer syringe to the capacity of the syringe. The tourniquet is released and without disconnecting the syringe the blood is injected back again. Each

*Contribution from the Department of Chemistry of the Hahnemann Medical College of Chicago.

single aspiration-injection process should be performed in one to two minutes and they are continued until the total amount of blood handled is equivalent to or greater than an ordinary transfusion.* One syringe is used continuously for from three to five minutes and then it is rinsed in 5 per cent. sodium citrate or normal salt while the process is continued with a second syringe. About 2-5 c.c. of physiological salt solution should be injected at each change of syringes to insure a clean needle.

The manipulation of the tourniquet depends upon the circulation and its proper use is a matter of judgment on the part of the operator.

Experimental Data.—The following experiments were performed upon dogs under ether anesthesia by tracheotomy. The coagulation time was tested by the capillary tube method described by the author,[†] and by the test tube or Hayem's method.

Protocol, Dog 1, 10 kg. wt., blood withdrawn from femoral artery for testing coagulation time. External jugular used for autotransfusion. Temperature of room 20° C.

3:30 P. M.—Dog anesthetized.

3:45 P. M.—Coagulation time, capillary tube method, 7' 15".

Coagulation time, test tube method, 12'.

Aspirated and injected 100 c.c. blood with a 10 c.c. syringe in 12 minutes.

4:15 P. M.—Coagulation time, capillary tube method, 6' 35".

Coagulation time, test tube method, 15'.

Aspirated and injected 100 c.c. again in 15 minutes.

4:45 P. M.—Coagulation time, capillary tube method, 4' 45".

Coagulation time, test tube method, 9'.

Protocol, Dog 2, 8 kg. wt., blood withdrawn from femoral artery for testing the coagulation time. Autotransfusion in external jugular. Temperature 24° C.

2:00 P. M.—Dog anesthetized.

2:30 P. M.—Coagulation time, capillary tube method, 5' 45".

Coagulation time, test tube method, 16'.

Aspirated and injected 100 c.c. in 10 c.c. syringe in 15 minutes.

3:30 P. M.—Coagulation time, capillary tube method, 4' 55".

Coagulation time, test tube method, 15'.

Aspirated and injected 100 c.c. in 10 c.c. syringe in 12 minutes.

4:30 P. M.—Coagulation time, capillary tube method, 4' 10".

Coagulation time, test tube method, 10'.

Aspirated and injected 100 c.c. in 10 c.c. syringe in 14 minutes.

5:00 P. M.—Coagulation time, capillary tube method, 4' 10".

Coagulation time, test tube method, 8'.

Protocol, Dog 3, 12 kg. wt., blood withdrawn from the femoral artery for testing the coagulation time. Autotransfusion by Lewisohn's citrate method from femoral artery to femoral vein. Temperature 20° C.

3:15 P. M.—Dog anesthetized.

3:40 P. M.—Coagulation time, capillary tube method, 7' 50".

Coagulation time, test tube method, 18'.

300 c.c. blood withdrawn to 0.25 per cent. citrate (final concentration).

4:00 P. M.—Blood injected.

4:05 P. M.—Coagulation time, capillary tube method, 6' 35".

Coagulation time, test tube method, 15'.

4:40 P. M.—Coagulation time, capillary tube method, 4' 40".

Coagulation time, test tube method, 10'.

*The use of the word *autotransfusion* in describing this process is obviously a misnomer, although the slight difference in technique does not warrant a new nomenclature.

In the foregoing experiments the capillary tube and the test tube methods were employed because they represent two extremes. In the capillary tubes the area of contact of the blood with a foreign surface is very great, while in the paraffined test tube it is minimal. Consequently the percentage reduction of the coagulation time is greater in the test tubes than in the capillary tubes after the autotransfusion. However the test tube method is by no means accurate and the foregoing tests are the averages of triplicate tests.

Five other similar experiments were performed with the same general results, but there was some deviation in the duplicates, which should be expected in experiments with so many factors. It must not be overlooked that in the above experiments the actual hemorrhage in each instance would lessen the coagulation time. Several attempts were made to determine the actual bleeding time before and after autotransfusion by irrigated foot pads, lacerated wounds, and incised wounds. This type of experimentation was finally abandoned because no constant normal could be obtained for comparison. It should be pointed out in this connection that many factors, such as blood pressure, contractibility of the vessels, rigidity and tension of the surrounding tissues, size of the vessels, amount of laceration, etc., enter into the determination of the actual bleeding time. From this it may readily be seen that the bleeding time and the coagulation time are not related in any simple manner. However, it can be stated that in our experiments on bleeding time, wounds which would ordinarily have bled very severely were quite easily controlled after autotransfusion.

Since all of our experiments were upon normal blood the adaptability of autotransfusion for hemorrhage in cases where the coagulation time of the blood is abnormal is yet undetermined.

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2511 COTTAGE GROVE AVE.

A Male Pseudohermaphrodite With Well Developed Vagina.—Recently a case of this sort was reported by Schwartz in a Paris clinic and cited in the *MEDICAL RECORD*. A similar case has been seen in the clinic of Rochard and is reported by Constantini. The subject was apparently a woman of thirty-four with left inguinal hernia which was to be operated on. The sex was apparently feminine without reservation, but in the course of operation a testicle with epididymis and vas was encountered in the hernial sac. The author refused to remove such an organ without a better indication, for it definitely fixed the sex of the individual. The latter was married to a man but had never menstruated. All of the female secondary sexual characters were present. The external genitals and anus were distinctively feminine and the vagina was ample for copulation, but uterus and tubes were absent. Sexual relations with the husband were found to be normal and the couple were not told of the mistake in sex. The author mentions the cases of Schwartz and Guillaume, which were of the same type as his own.—*Le Bulletin Medical*.

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A NEW PROCEDURE FOR MEDICAL SOCIETY MEETINGS.

THE Association for Neurological Research which held its first meeting in this city last week has successfully inaugurated a new method of conducting medical meetings.

From the beginning of formal medical organizations, the procedure has been about the same: a paper is read or a case is shown, a discussion is invited, then another paper and more discussion. Or a symposium is prepared, with several important persons contributing to the different phases of a chosen topic. This procedure is meritorious and no doubt will continue to be used.

But the new method of the Research Association has certain special merits which obtained for it, prompt and quite enthusiastic approval: It may be called the commission or committee method and is really very much like that of a court procedure or more especially like that of a committee composed mainly of experts who set out to learn all there is to learn about a given subject.

In the present instance the object to be studied was "epidemic (lethargic) encephalitis." In the early part of last year (1920) various phases of this topic were assigned to those men thought best equipped to investigate and report upon them. A so-called commission of seven was appointed; and the papers to be presented were, just before the meeting, sent to the various members of the commission for examination. At the time of the meeting the author was called to the stand and he there presented his views in full or in abstract. He was then questioned and cross-examined by the commission, and by other members who sent in written questions. The papers were thus not so much discussed as constructively criticised and all possible points of view were brought out. The writers of the papers cooperated with the procedure; the interchange of views was very intimate and human, and practically very interesting. There was none of the casual or tiresome discussions nor airing of personal convictions and every moment of the two days' session was effectively used. As a result over twenty contributions, representing perhaps a year or more of study, were read or adequately presented.

A report containing abstracts of the papers and of the questionnaire will be published. Topics for December 1921 and 1922 have been assigned.

As the Association was represented by men of national reputation from the eastern and middle western States, it is likely that the commission plan of medical meeting will be widely discussed and adopted for at least certain kinds of scientific work. The old way of paper and discussion is not adapted to bring out effectively the best that is in the reader or the most that is in the subject.

THE CLINICAL ASPECTS OF LATE HEPATIC ABSCESSES, THE RESULT OF TROPICAL DYSENTERY.

DURING the long lapse of time between the initial attack of dysentery contracted in the tropics and the development of abscess of the liver no local or general reaction may occur. In other instances this long period of remission is marked by indefinite intermittent paroxysms of which signs vary from one case to another. These paroxysmal occurrences consist of gastrointestinal disturbances, attacks of fever without chill and uninfluenced by quinine, lasting for several days without interfering with the general health, which usually is good; intermittent and deep-seated pains in the epigastric region without any localization and giving the sensation of constriction.

Later on when the liver becomes irritable from the developing abscess, the symptomatology becomes more precise. There are emaciation, adynamia, and, in some cases, headache and insomnia. A more or less localized pain in the right hypochondrium will be complained of; it is intermittent and increased by palpation; superficial at first, it becomes deep-seated later on. In other cases the pain may radiate to the right shoulder, in about 17 per cent., according to Rouis. When the right pleura reacts to the process in the liver there are cough and dyspnea. There may be some evening rise of temperature with sweating, but no chill. The complexion is pale but icteric in only about one-sixth of the cases, according to Rouis. The sclerotics are waxy white, a characteristic symptom referred to by Sachs. There is irritability of the nervous system.

Inspection reveals a tumefaction in the right hypochondrium resulting from the hepatic hypertrophy combined with an outward spreading of the last ribs. Palpation reveals an enlarged liver, painful over a limited area of the surface of the organ. In the proximity of the abscess there is a hard, smooth, and even tumefaction, painful on deep pressure. Spreading of the right intercostal spaces may be observed. Perihepatic friction sounds, due either to edema of the liver (Hassler, Boisson) or to perihepatitis (Bertrand) are not constant. Percussion shows an increase of the liver dulness above, while below it extends several fingers' breadths downward from the costal border, and behind it extends to the tip of the

scapula and the tenth rib. The other viscera offer no change; the spleen is not enlarged, the heart and pulse are normal. In some cases there may be evidence of chronic pulmonary congestion. The urine is free from sugar and albumin, likewise urobilin, while the amount of urea is normal (Parker, Lecorché, Cayley).

Hematological examination shows a decrease of the red blood corpuscles (Léger) and hyperleucocytosis and polynucleosis (Boinet, Bertrand, Sardat, and Morel) of 73 per cent. Marchoux supposes that this polynucleosis indicates a bacterial infection of the abscess. The eosinophiles represent 2 per cent. of the count.

Roentgen ray examination in the case of large abscesses on the convex aspect of the liver will reveal the costodiaphragmatic sinus, the situation of the pus pocket and in some cases of abscess on the superior aspect of the organ, the rising up and immobilization of the right half of the diaphragm (Béclac).

A rectoscopic examination reveals apparently healed intestinal ulcerations in patients formerly afflicted with tropical dysentery and this datum may be useful in those instances where a former attack of tropical dysentery is wanting in the case history.

Puncture of the liver as a diagnostic measure is needless and is to be condemned.

PRESUMPTION OF TUBERCULOSIS FROM EXTERNAL STIGMATA.

QUEYRAT, apparently turning his back for the nonce on serodiagnostic and bacteriological tests, interests himself in the old-fashioned methods of diagnosis from deduction (*Le Progrès Médical*, November 6, 1920, xlviii, 45). The author enumerates in rapid succession the slenderness of the long bones, the defective development of the musculature and especially that of the thorax, where there is actually atrophy of some of the muscles which appears to result from the presence of a focus of disease in the apex of the affected side. However, in the case of these petty signs it is not always possible to distinguish between the candidate for phthisis and the early victim. Atrophy of the trapezius, great pectoral, etc., is one of the presumptions that a focus is already present. Percussion myoidema of phthisiologists is an induced phenomenon in the same muscles. But it should be borne in mind that myoidema is common to cachexias and is without specific significance. Pectoral myoidema (or myedema) was extremely common in an epidemic of cholera in 1835. It is common also in cancerous cachexia. Winglike scapulæ is due to atrophy of the serratus magnus and is seen in candidates and even in those who do not seem predisposed to the disease. Tall and slender subjects of the so-called "poplar" type are to be classed as candidates. The author mentions in passing the facies amabilis of old clinicians—with its long oval, its mobility, its thick eyebrows, long lashes, and bluish sclerotics. The eyes are

especially languishing and beautiful. Chlorotuberculosis is a special form, with various hypoplasias, including those of the genitals, which is said to be readily curable. Of other petty signs the author enumerates thickish skin, lively blush on the cheeks, thick lips, wide nose, chilblains, fissures between the cheeks and lobule of the ears, deceptive appearance in plump subjects because of the good nutrition, high color, and clear eyes.

Hippocrates, who presumably lived among a population containing a large percentage of dark-complexioned peoples, laid emphasis on red hair, clear skin, and blue eyes as predisposing to phthisis. But it is not so much the exclusively rufous subject who seems to invite the disease, for brunettes of the "erythristic" type suffer equally with the blondes and rufous. That is, in tuberculous subjects we often find a hybrid between brunette and red, as when black head hair is associated with red beard or pubic hair. Hirsute subjects, when this trait is not associated with the cave man proportions, are very suggestive of phthisis. This is shown in an old Latin maxim—"a hairy man is either strong or consumptive." Rather suspicious in girls are plump mammae with general lack of adipose. Smallpox scars in a subject suggest the old dictum that the victim of variola very often dies of or with tuberculosis, as shown by autopsy finds. Scars of old scrofula, scar keloid, and perhaps spontaneous keloid are all suggestive of tuberculosis, past or future. The author concludes with a long parade of the so-called paratuberculous dermatoses which have gradually increased in numbers to such an extent that they are often the only evidence which points to the disease.

THE DIAGNOSIS AND PROGNOSIS OF MUSHROOM POISONING.

THE accidents ensuing from the ingestion of poisonous mushrooms in some instances might at first sight lead to the diagnosis of a mere indigestion; in others the clinical picture is that of cholera or typhoid fever, occasionally delirium tremens, or even an acute suprarrenalitis. If the patient be questioned closely, however, one will learn that he has partaken of a dish of mushrooms. Besides these anamnestic data and the clinical picture offered, research for débris of these cryptograms and their spores in the vomitus and liquid stools should be made, and if a blood examination can be done the diagnosis will invariably be an easy matter. Should the clinical picture presented by the patient appear to be somewhat abnormal and therefore to cause hesitation, the physician will usually have the opportunity of finding a more or less typical one in one or several of the other members of the family or in friends, because mushroom poisoning generally assumes the character of a *collective* outbreak. It should also be recalled that each syndrome need not of necessity occur in a pure type, because the same plate of mushrooms may contain assorted

cryptograms, hence the possible combination of the resinoid, muscarine, and phalline clinical phenomena.

The prognosis *quoad vitam* is excellent in respect to the so-called suspicious mushrooms. In general muscarine poisoning is serious but not fatal. Death has been met with in only a few cases, in children or elderly people, and in adult subjects with cardiac, renal, or hepatic lesions. The rapid onset of the accidents, the suddenness of the vomiting and diarrhea—which together eliminate the *causa delictus*, the promptness of medical aid, and finally the nature of the poison, are the factors of the relative benignity in the circumstances.

The question takes on quite another aspect in poisoning from phalline. The tardy development of the accidents, vomiting, diarrhea, anuria, and pulmonary, gastric, and intestinal hemorrhages darken the prognosis. Stupor, somnolence and absence of vomiting and watery stools is of very bad augury. The mortality is about 80 per cent. in these cases. The prognosis is rather more assuring when the intoxication has not been too massive. In other words, when one is dealing with a vigorous adult in fine health, also when there has been a mixture of phalloid amanita with other poisonous mushrooms which produce vomiting, and lastly, when the physician is summoned without too great a delay. Taking all things into consideration the prognosis is generally extremely dark, and it is of utmost importance, regardless of our early and active treatment, to warn the *entourage* that the outcome may be fatal. This precaution having been taken, it remains with the attending physician to do the best he can, the therapeutics of this dire toxic being, to say the least, precarious.

POST-SERIC TETANUS.

THAT tetanus may develop despite preventive serum inoculations is well recognized and may mean defective technic or false conceptions of the actual conditions. The injections must have been made as early as possible, and it must be remembered that the protection may run out if the injections are not renewed periodically. A thesis on the subject of the University of Lyons (1919) by Vitu is briefly reviewed in the *Journal de médecine et de chirurgie pratiques* for July 25, 1920, xci, 14. The question is the direct outcome of the war and may not apply strictly to industrial and accidental tetanus. It is conceded that as soon as a subject has received a wound he should receive an injection of 10 c.c. of serum and that this should be repeated on the eighth day. If this *modus vivendo* fails to protect, it will usually be due to latent microbism and there should be no surgical intervention in these subjects—in connection with the original wound area at least—without a special additional injection. One should in addition never forget that the serum used may not come up to the desired standard and only the best and freshest supply available should be used with all aseptic precautions. There are two types of post-seric tetanus, precocious and late. Characteristic of post-seric tetanus is its mild

course, and a severe and fatal early case following injection may be regarded as *prima facie* evidence that the serum has been inert; but no cases of this sort are known to have occurred. Precocious seric tetanus is attenuated and localized, but in the late form we do not see this attenuation and the protection seems to have expired; so that early trismus, hyperthermia, sweats, etc., develop as in cases in which no preventive injections have been used.

MONTÉGIA'S DISLOCATION.

A CASE of this rare accident was reported by Clap to the Paris Anatomical Society (*Bulletins et mémoires de la Société anatomique*, 1920, xvii, 7). The patient was knocked down by an automobile and, though conscious, was unable to rise, and was taken to the Saint-Antoine Hospital, where he was seen by Professor Lejars. In addition to numerous minor injuries which need not be detailed his right hip was found to be immobilized in the position of almost complete extension with marked external rotation. There was a shortening of two finger breadths and a slight prominence in the external portion of the groin, while in the rear there was a larger prominence. The fold between the ischium and the trochanter was shortened. In all the localities mentioned there was tenderness on pressure. The radiogram showed a dislocation of the hip with the head of the femur in the shadow of the trochanter and almost completely out of contact with the acetabulum. The patient was placed under chloroform and the luxation readily reduced by traction, flexion to 45 degrees, and internal rotation. The chief interest of this dislocation is its close resemblance to fracture of the neck of the femur. Technically it is only a variation of the ordinary iliac dislocation in which the head of the femur is directed in front instead of behind. The position of the lesser trochanter in the radiogram showed that the head was situated forward.

News of the Week.

Conference on Venereal Disease.—The All-America Conference on Venereal Diseases and Social Hygiene, held in Washington during the week of Dec. 20, 1920, was the first of a series of conferences planned by the International Health Conference in Cannes, France, in April, 1919. The conference was presided over by Dr. William H. Welch and attended by representatives of the allied nations that fought in the war. The second conference will be held at Copenhagen, Denmark, in May, 1921, and will be attended by delegates from all the Scandinavian countries, and from Holland and Great Britain. Later in 1921, conferences will be held at Paris and at London. The conference in Washington was conducted along lines somewhat different from those usually adopted for medical conventions in that there were fewer set papers and the delegates were divided into committees each of which considered different problems. The results of such deliberations were then submitted to the general conference. The manner in which some of the questions have been answered is illustrated by the following resolutions adopted by the Conference: In reply to a question as to the establish-

ment of immunity to gonorrhea and syphilis, the Committee presented the following resolutions: "With reference to gonorrhea, there is no evidence of the establishment of any immunity to the disease beyond that of a more or less temporary immunity in the case of existing, individual infections. Such a temporary relative immunity may be lost either as the result of disturbed relations between the infecting organism and the host through the introduction of a new gonorrheal infection. With reference to syphilis, there is no evidence of an absolute and permanent immunity to syphilis unless it be that due to an existent infection. There is evidence to show that infection may exist without obvious manifestation of the disease. The immunity ensuing in such an infection may extend even to the degree of a commensal or symbiotic adaptation." With respect to the Wassermann reaction, it was resolved that: "The blood Wassermann should not be used as a sole guide to the duration of syphilitic infection. The blood Wasserman reaction should not be used as the sole evidence of the effectiveness of a particular drug or method of treatment. The blood Wassermann reaction should not be used as the sole evidence of 'cure' no matter how many times repeated." Another resolution states that: "The complement fixation test has not yet been shown to be of value in the diagnosis of doubtful cases of gonorrhea. It is possible, however, that the precipitin test recently reported by Meader and Robinson may be of great value." Exhibits and demonstrations were features of the work of the Congress. Among the four hundred delegates in attendance were representatives from Argentina, Brazil, Chile, Ecuador, Cuba, Honduras, Mexico, Paraguay, Porto Rico, Canada, Czecho-Slovakia, and England.

Prohibition Gets Credit for Decrease in Insanity.

—According to a report submitted by Dr. Horatio M. Pollock, chief statistician of the New York State Hospital Commission, there has been, since the advent of prohibition, a considerable decrease in the number of persons committed to the State hospitals for the insane. The data gathered by Dr. Pollock shows that a considerable percentage of the cases of insanity in the State was caused by the excessive use of alcohol. In 1909, for instance, 10.1 per cent. of the persons committed had become insane due to excessive use of alcohol. During the year 1920, the percentage of insanity cases caused by alcohol was only 1.9. In this connection the report mentions that the increase in drug addiction predicted by some as the result of prohibition has not made itself felt in statistics dealing with insanity. Narcotic drugs are lesser factors in this respect today than ever before in the history of the State. Among those suffering from insanity induced by alcoholism, it is found that the men far outnumber the women. This situation is reversed when it comes to drug addiction. Here the women lead the men at a ratio of about four to three. During the past twelve years there have been only 234 first admissions of known cases of insanity due to narcotic drugs, while for the same period 15,625 first admissions are attributed to alcoholic excesses.

Spain Restricts Doctors.—A dispatch from Madrid announces that a royal decree has been issued giving foreigners the right to practise medicine in

Spain in the event their countries give reciprocal treatment to Spanish physicians. This decree follows a recent outcry from Spanish members of the profession against an influx of foreign physicians who were permitted to practise without passing the Spanish medical examinations.

Smallpox in New Jersey Town.—According to the New Jersey State Department of Health, there are at least eight cases of smallpox in Keyport. The State Department of Health has warned other communities in that district against welcoming visitors from Keyport. As the disease assumes a mild form it is suspected that a number of unreported cases exist.

New Hospital Ship.—The largest and most completely equipped hospital ship in the world was placed in commission as a United States Naval auxiliary at the Philadelphia Navy Yard, on Dec. 28. The vessel is called the *Relief* and is the first vessel constructed by any government exclusively for naval high seas operation, as an auxiliary unit of the battle fleets. In addition to a bed capacity for 500 patients the new hospital ship has an "out-patient" department similar to the dispensary and clinical service of a city hospital. One of the novel features of the equipment is a machine for making fresh milk and cream from ingredients carried in concentrated form. It is pointed out that this device is of inestimable value in caring for the sick in the tropics where it is impossible to obtain fresh milk. The ship is equal in capacity to a hospital serving a population of 30,000.

Promise of New Medical School for Columbia University.—Speaking at the annual luncheon of the Columbia Club recently, W. Barclay Parsons, Chairman of the Board of Trustees of Columbia University, announced that plans had been formed for raising \$10,000,000 to be used in erecting and endowing a new medical school which would supplement the present College of Physicians and Surgeons. Of the \$10,000,000 fund \$5,000,000 is to be used as an endowment. Mr. Parsons expressed himself as confident that during the next year substantial progress will be made toward the realization of this project.

The Health of New York During 1920.—The mortality statistics of New York City for the first eleven months of 1920 show that there have been 67,693 deaths reported during that period, as compared with 68,728 deaths during the corresponding period of 1919. The death rate from Jan. 1 to Dec. 1, 1920, was 12.01 per 1000 of the population, as compared with a rate of 12.51 in the first eleven months of 1919. A noteworthy feature of the mortality during the year has been the increase in the death rate among children and among the aged, as compared with the mortality of the year 1919. Among infants under one year of age there were 697 more deaths, which is partly explained by the increased number of births, there being 2479 more births during 1920 than during 1919. Of every 1000 infants born during the past year 86 died, as compared with 83 for the year 1919. There were 1598 more deaths of children under five years of age during the year 1920 than during 1919. This increased mortality among children was due to the epidemics of measles and whooping cough which prevailed from January to June of 1920. There was

also an increase of 220 deaths from gastrointestinal diseases during the year. The report shows a decrease of 1340 deaths from influenza; 686 from diseases of the respiratory organs, and 1317 deaths from all forms of tuberculosis, as compared with 1919. During the year there was an increase of 851 deaths among those 65 years of age and over from the so-called degenerative diseases, such as organic heart and kidney disease, cerebral apoplexy and arteriosclerosis. The mortality from homicides increased from 279, in 1919, to 323, in 1920; the death rate from this cause, however, remained practically the same for the two years under consideration.

British Death Rate Falls.—The annual report for 1919 of the Registrar General for England and Wales shows that the probable loss of births attributable to the war may be somewhere over half a million, or very similar to that of deaths on active service. By way of compensation the report shows the lowest death rate yet recorded for measles and whooping cough during 1919, and that the former low death rate from diarrheal diseases has been bettered. The excess of infant deaths in London over the average for the country which was noted as an exceptional feature of the reports of 1917 and 1918 figures has disappeared.

French Birth Rate Increases.—According to the *Journal Officiel*, the year 1919 was characterized by a great increase in marriages, a slight increase in births, and a marked falling off in deaths. The number of marriages for 1918 was 177,822; for 1919, 458,363. The number of births reported for the year 1918 was 399,041, while that for 1919 was 413,379. There were during the year 1919, 615,694 deaths as against 788,616 for 1918. The report states that to these may be added the figures from Alsace-Lorraine, where the marriages numbered 23,977; births, 28,192, and deaths, 25,556.

Smallpox in Chicago.—One hundred cases of smallpox have been reported up to Dec. 31 from the town of East Chicago, nine cases from Gary, and seven have been found in the East Side district in South Chicago. It is said that the disease got its start through the wrong diagnosis of a case of smallpox by a physician, who mistook the disease for chickenpox and told the patient there was no need for his remaining at home. Quarantine in East Chicago is being enforced by squads of special policemen.

Hiccough Epidemic Appears in New York.—According to the Department of Health, the number of cases of hiccoughs reported throughout the city shows that the complaint has reached the stage of a general epidemic. More than 150 of the inmates of the Tombs Prison have been affected by hiccoughs.

Red Cross Program for 1921.—The New York County of the American Red Cross announces that it intends to devote its energy to the development of several kinds of health work in Manhattan during the coming year. Child health stations are to be conducted in various parts of the city where undernourished school children will receive expert care. In cooperation with the City Health Department the organization is undertaking experimental work at Public School 43, where several nutrition classes will be conducted and where a dental clinic will be

established and dental hygiene taught. A health information bureau is to be established at Greenwich House, 27 Barrow Street, where lectures will be provided for mothers' clubs, shops, settlements, and other organizations wishing such instruction. During the past eight months 34,650 persons have attended lectures given by the bureau. A diet kitchen will be conducted at 24 Fifth Avenue, where wholesome home cooked food for invalids may be obtained at cost. It is hoped eventually to transport this food to the homes of the sick. The New York Chapter will continue to give help to ex-service men.

Digitalis Tests Not Cruel to Cats.—An advertisement by E. R. Squibb and Sons for cats, for the purpose of conforming with the government regulation requiring that digitalis must be tested on animals before it is sold, resulted in calling out in force the New York branch of the American Antivivisection Society, which is greatly concerned lest the Squibb cats are not being treated humanely. In order to settle the question the New York Society for the Prevention of Cruelty to Animals has made an investigation of the method employed by the Squibb Company, and reports that the cats are humanely chloroformed and then used to determine the strength of digitalis, and that no cruelty is exercised toward the animals.

Hospitals and Institutions Asked to Make Complement Fixation Tests.—The New York State Department of Health has asked that all hospitals make a complement fixation test of the blood as part of their routine examination of patients. A survey of hospitals, both state and private, has been made, and where this practice has not already been instituted the authorities have been asked to adopt it. In order that some institutions, such as orphanages, tuberculosis and state hospitals, may better carry out this work in the future the Department has offered to assist them in taking the specimens from their present resident population. Thirty-four institutions have accepted and received such assistance prior to Sept. 1, 1920, and eighteen others have asked for it. Less than 2 per cent. of the persons thus tested were found to have a definitely positive reaction with both antigens, while more than 40 per cent. showed suggestive reactions with one or the other antigen.

Medical Service in Rural Districts.—The *Monthly Bulletin* of the New York State Health Department reports that during the past year information has been received from 76 rural districts in 36 counties of the State of New York that medical service is either inadequate or not procurable. More than half the informants were residents not serving in any official capacity; public officials and physicians made up the balance. The population of these districts varied from 500 to 6000, the nearest physician being from five to ten miles distant. Forty-seven districts have been supplied, while 29 communities are still in need of medical service.

Relief Unit for Eastern and Central Europe.—A relief unit of twenty American specialists, sanitarians, dentists, and pharmacists, under the direction of Dr. Harry Plotz, medical adviser of the Jewish Joint Distribution Committee, will sail for Europe on Jan. 15. The unit will serve for one year in the war stricken countries of Eastern and Central Europe. The unit will furnish medical

supplies, surgical instruments, etc., to local doctors and hospitals which now lack all supplies. It will also cooperate with the governments in fighting epidemics, principally typhus, conducting educational campaigns, building baths, furnishing soap and fuel, and organizing boards of health in each community so that the work will be continued after the unit leaves Europe. The Joint Distribution Committee has appropriated \$2,000,000 for the unit's work.

Dr. James J. Walsh of New York was recently elected president of the American Catholic Historical Association.

Needs of the American Hospital in Paris.—Subscriptions to the American Hospital in Paris totaled more than 10,000,000 last year toward the 16,000,000 francs required for the construction of a 100 bed addition and the improvement and maintenance of the institution. During the next year the hospital fund officials will concentrate their efforts toward obtaining 4,000,000 necessary for the addition and will apply all donations for that purpose.

Larger Staff for Ellis Island.—Owing to the fact that thousands of immigrants are waiting on ships and on Hoffman Island for examination before being admitted to the country, the Secretary of the Treasury and the Secretary of Labor have been asked to increase the staff of doctors and inspectors at Ellis Island.

The Late Dr. Meltzer.—At a special meeting of the Council for the New York Society for Thoracic Surgery, the following resolutions were adopted upon the death of Dr. Samuel J. Meltzer: *Whereas*, on Nov. 7, 1920, death removed from the roll of this Society our distinguished colleague, Dr. Samuel J. Meltzer, and *Whereas*, during his membership in this young association Dr. Meltzer had been an active worker and an ardent and enthusiastic supporter of the objects which called the Society into being; and *Whereas*, by his formal communications as well as by his illuminating discussions, in fact by his mere presence, he had been a continuous source of inspiration to its members; and *Whereas*, his important discovery of overcoming the dangers of acute operative collapse of the lung by means of his world renowned "intratracheal insufflation" is an epoch-making contribution to thoracic surgery, and *Whereas*, Dr. Meltzer was honored with the office of "First President of the American Association for Thoracic Surgery," the offspring of this Society; therefore, be it *Resolved*, that in the death of our colleague the New York Society for Thoracic Surgery has lost one of its most valued and beloved fellows; and be it further *Resolved*, that these resolutions be spread upon the records of this Society and a copy be forwarded to his bereaved family and to the medical journals. Howard Lilienthal, M.D.; Willy Meyer, M.D.; William H. Luckett, M.D.; Carl Eggers, M.D., Secretary.

Obituary Notes.—Dr. LOUIS JACOBS of New York, a graduate of the College of Physicians and Surgeons, New York, in 1904, died suddenly at his home on Dec. 30, at the age of forty years. Dr. Jacobs was a member of the New York Academy of Medicine, assistant laryngologist to the Montefiore Home and Bedford Sanatorium, laryngologist to the Tuberculosis Clinics, and chief of Ear, Nose and Throat department of Mt. Sinai Dispensary.

Correspondence.

THE RÔLE OF THE MEDICAL PRACTITIONER IN PREVENTING DENTAL CARIES.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—Your editorial, "The Cause of Dental Caries" (October 9, 1920) suggests, by its appeal for a solution, a splendid opening to professional fame and fortune for any dissatisfied medical practitioners. If they will take a post-graduate course of two years in dentistry and add D.D.S. to their degree of M.D. they will be a welcome acquisition to our ranks.

As you truly state, ". . . It is undoubtedly an extremely serious problem in all civilized countries, for it is only when primitive people receive the perhaps doubtful blessings of civilization that dental caries is introduced." Dental caries and diseases of the gingiva are as truly scourges of civilization as either tuberculosis or cancer. Fundamentally, caries of teeth and dentoalveolitis are nutritional problems. True pyorrhea alveolaris is a progressive disease from its early gingivitis to maturity. It is almost invariably associated with gastrointestinal disturbances—and personal neglect of mouth hygiene. Blood circulation enters into its clinical consideration, and this feature may be checked up by the size and resiliency of the arteries. These features suggest corrective measures to prevent further congenital transmission. Hepatic insufficiency, which allows an excess of toxins in the gingival tissue, may prove to be the exciting cause of this dental disease. Any excess of glycogen in the mouth tissue cannot be regulated by dental treatments. The interpretation of these problems must be popularized.

The public will be awakened to this truth only by the active and persistent appealing to each individual to practise the laws of self-preservation. The jealous guarding of the economic features of this law was apparent in the recent political election; therefore there is hope that the personal health warning will gain a response.

The dentist and the physician should become live wires on the public platform. The vital interests of our country demand progressive business administration in all departments, and to perpetuate these high principles we must consider the children as our future citizens. Every day practice of body and mouth hygiene must be made pleasantly intelligible.

The Children's Bureau of the Department of Labor, like our public State and local boards of health, is founded on the basis of *prevention*. If the trained minds of the M.D.'s will qualify in the specialty of dentistry, the chances will brighten for a more rapid reduction of the 97 per cent. of dental caries in the teeth of our school children. The 20,000,000 children of our country will have better teeth and their children be immune from dental caries because the combined scientific, organized, nutritional work of the Children's Bureau, public health, dietitians, and mothers, led by the progressive medico-dental profession, will direct body and mouth hygiene from gestation to puberty. The "changes must be rung" until every parent in every hamlet of this rapidly neighboring country will un-

derstand that the vitamines, antiscorbutic, antineuritic elements must be retained in their daily food, by proper cooking and preparation, to insure mouth comfort. Body and mouth hygiene should be taught as being concurrent with the daily elimination of intestinal waste without the aid of drugs.

Your subscriber has observed that athletic children and those children whose food is cooked in vegetable oil rather than in animal fats (with their fatty acids) have better teeth because both of these agents assist nutrition, athletics by intestinal exercise and oil by lubrication.

One of the big problems to solve is the daily cleaning of the teeth and mouth of the school children. The valuable children of the poor must depend upon popular subscription to buy their tooth brushes and dentifrices, for it is a well-known fact that many parents refuse to buy tooth brushes as they need the money for the children's food. It is a well-known fact that the children of the poor are suffering from malnutrition. That means poor teeth. It is a well-known fact that such an object as a "family tooth brush" is a reality among thousands of so-called households. It is a well-known fact that the overworked tooth brush, with the usual laxity of replacement, is one of the principal causes of the diseases of the gums—which include pyorrhea alveolaris. It is a well-known fact that much reinfection is traceable to the abuse of this "product of civilization." It is a well-known fact that the Japanese use their fingers as a medium to massage their gums and teeth and sell us their tooth brushes. It is a well-known fact that cheap tooth brushes are faulty in construction and their loosening bristles cause serious lesions in mouth and throat.

It is an accepted fact among those who have studied mouth hygiene for many years that fruit acids are ideal cleaners of the mouth and teeth. The canned tomato with its sweet acid juice is a splendid stimulant to the mucous membrane and salivary glands of the mouth, and is also a notable antiscorbutic when swallowed. Vinegar, produced from either wine or cider, when well diluted with water is an excellent mouth and teeth cleaner. Tooth pastes and dentifrices are not as popular in Italy, Spain, and France as in the United States, for their native wines are more acceptable as a mouth lavage.

The first action in the mouth of the above by-products of the fruits or of the citric fruit acids stimulates a copious flow of alkaline saliva which holds a full proportion of ptyalin as a medium to convert the starchy foods remaining on or between the teeth into maltose—a form of sugar which readily washes away with the saliva. Clinging particles of meat may annoy one and are summarily removed, but the dangerous starches from bread and soft foods adhere without warning between the teeth and about the gum margins. If not promptly removed the food residue will generate ammonia in the breath which will cause the lime salts of the saliva to be precipitated as calculus irritants to the gingival margins.

We call for medical practitioners to help us. They will gain fame in preventive dentistry and fortune with contentment.

ALBERT WESTLAKE, D.D.S.

500 FIFTH AVENUE.

THE HEMOSTATIC PROPERTIES OF METHYLENE BLUE.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—I note an editorial in the *MEDICAL RECORD* of Nov. 27 on Methylene Blue. Its principal virtue as a drug was omitted. It is the best hemostat in the materia medica. It stops bleeding immediately when all other measures fail. In this same article you state that the "pathogenesis of cancer is unknown." This statement is now over six years out of date. I published the cause and pathogenesis of cancer in July, 1914, in the *Medical Council*. I offered an article to the *MEDICAL RECORD*, but it was declined by the editor. The formula "I don't know" has outlived its usefulness in cancer as in many other subjects. It is an overworn excuse for ignorance.

E. M. PERDUE, M. D.

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OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, Dec. 10, 1920.

Fighting Tuberculosis.—The International Union Against Tuberculosis which has provisional headquarters in Paris, has now issued to the various national associations for the prevention of tuberculosis the following recommendations, which were unanimously adopted at the recent international conference in Paris: (1) Both doctors and laymen require to be educated in regard to the prevention of tuberculosis. (2) Information should be obtained as to the amount of tuberculous infection, both latent and active, existing in different countries, and especially in relation to the age, sex, and occupation of the population. (3) Accurate figures are required as to the mortality and clinical varieties of tuberculosis in each country. (4) Tuberculosis dispensaries should be established in sufficient numbers, and should be staffed by specially trained doctors, nurses, and health visitors. (5) Adequate provision should be made for the treatment of early cases in sanatoriums and for the isolation of advanced cases. (6) Facilities are required for diagnosing the early signs of infection in infants, for open-air schools and for foster homes in which healthy children born from tuberculous parents may be reared from birth and so preserved from infection. The recommendations quoted above are good. Nothing, however, is said regarding colonies, industrial and agricultural, and village settlements for consumptives. It appears to be the opinion now that sanatorium treatment has failed in so far that it is inadequate. Too much was expected of it. It is said that colonies and village settlements answer the purpose in a satisfactory manner and it certainly is for the good of the community at large that the tuberculous should be segregated as much as possible. An international movement against tuberculosis should have the result of, at any rate, checking the spread of the disease and its progress will be watched with the most intense interest everywhere.

The League of Health.—Reference has been made previously to the League of Health, a body

composed of medical men and civilians to spread the gospel of health throughout the country. Recently, in the public press, the league has published some startling statistics which have been issued by the Governmental Department with regard to the health of the United Kingdom. During 1919 61,715 infants died in the United Kingdom. These did not live for a year; 93,639 children under five years of age, dying during 1917 (no later figures are available), were so mentally and physically defective as to be unable to derive reasonable benefit from the education provided by the rate-payers. In 1918 there were 58,073 deaths from tuberculosis in this country. In 1919 77,616 fresh cases of tuberculosis were reported. The Royal Commission on venereal disease estimates that 10 per cent. of all inhabitants of the large towns in England and Wales have been at some time or other infected with syphilis; 400,000 casualties in the British fighting force from venereal disease would be a moderate computation. All cases of general paralysis and more than 25 per cent. of the blindness in the country are due to this disease. The result of medical examination under the Military Service Acts proved that in this country only one man in three was normally healthy and that one man in every ten was a physical wreck. Four million working weeks are lost in every year through sickness among insured workers in Great Britain. There are more than half a million houses short and among those now occupied are innumerable unsanitary dwellings. Serious and gross overcrowding spell inevitable disease and degeneration of the race. The communication ends with the statement that all these ills are preventable if not curable, if only the people are told how. In the face of such terrible evidence of national evils it is obvious that no patriot can stand outside the great work of disseminating the knowledge which the People's League of Health is undertaking and which alone can mend matters.

Gift to Middlesex Hospital.—The announcement has just been made that the sum of £20,000 has been given by an anonymous donor for the endowment of the University Chair of Physiology at the Middlesex Hospital Medical School. The gift is intended as a mark of appreciation of the importance of study and research in physiology as the very foundation of medical science and practice. It is also interesting to know that Professor Swale Vincent, at one time professor of physiology at the University of Manitoba, now occupies that chair at Middlesex Hospital. It is interesting because Swale Vincent a short time ago gave an address in which he deplored the fact that science, and perhaps medical science in particular, was starved in this country. He pointed out that in America rich men were lavish in their gifts to medical science, but that the wealthy here were chary of giving for this purpose. His remarks seem to have borne fruit, as it is something more than a coincidence that shortly after his speech this gift should have been made for the endowment of the very chair he occupies. It may be mentioned that there are now six professorial chairs in connection with the Middlesex Hospital.

A Nursing Scheme for Manchester.—A meeting

was held in the Manchester Town Hall on November 29 last, attended by about 130 representatives of approved societies, at which a great nursing scheme was initiated and approved. In March last a resolution was passed in favor of the extension of the nursing institution in Manchester "with a view to supplying nurses for the Public Health Office and to meeting any calls from the Insurance Committee and from the Approved Societies for the Nursing of Insured Persons . . . and that grants be made . . . to maintain the additional staff necessary for these purposes." The extension would entitle a doctor attending an insured person to call for a fully qualified nurse to look after the case. The extended organization has now been made, the Manchester Insurance Committee having approved a donation of £1,000 and the Public Health Committee a grant of £500, and the scheme was presented for the approval of the representatives. As it is designed for the benefit of the societies' members, and as the Nursing Association's income must be largely augmented by contributions from the societies, their approval was required. The scheme involves a local contribution of 3d. per insured person, which would bring in about £3,000 a year. This amount would enable the staff of nurses to be adequately increased and properly paid. The draft scheme was passed unanimously, and it was decided that the representatives should recommend to their societies the payment of 3d. per insured person to the association. In this connection it may be pointed out that, while the scheme is an excellent one, the supply of fully qualified and well-trained nurses is not nearly equal to the demand in this country. Owing to the poor pay and to a regulation which exists in the principal hospitals that a person may not commence training until the age of 23, few are coming forward to join the nursing profession. The situation is extremely awkward, as although the hospital authorities allow that nurses are underpaid, the financial conditions of the hospitals is such that they cannot afford to pay more.

Conference on the Care of Cripples.—A joint conference of the Invalid Children's Aid Association and the Central Committee for the Care of Cripples was held in the Guildhall, London, on November 16 and 17. Among those who spoke on the second day was Mr. Douglas McMurtrie, president of the Federation of Associations for Cripples in New York City. Mr. McMurtrie's speech was greatly appreciated by the audience. He said in part that in New York they had started a district nursing association exclusively for crippled children. These nurses were soon found to be the best agency for the early discovery of such children. Recently they had also arranged for certain mothers of crippled children to notify the association of any children living within their area whom they suspected of having a deformity, a fee of 25 cents being paid for each case; the child was then visited by the nurse. Through the newspapers they had organized a corps of voluntary teachers for home-bound children; this work, he was pleased to say, had been taken over by the city education authorities. The difficulty of find-

ing employment for these cripples confined to their homes had been successfully tackled; they were taught to carry out a subdivided process, often of some little known trade. Very few were self-supporting, but the work they were able to do meant a lot to them. The association found that their employment bureau was in one way almost as good as a training school. It had been used to make a survey of occupations and processes available in New York for cripples, and in experiments of employment of cripples in different processes.

He thought that the provision for cripples by public authorities in England was better than that made in America, but considered that a campaign to educate the public to accept the cripple as a worker would be of service to us. Mr. R. C. Elmslie said that his criticism was that institutions provided by education authorities in England were not founded for combined surgical treatment and education. Much improvement had taken place in this respect but there was still a lack of appreciation of what can be done for certain deformed children. He urged that convalescent homes should be placed under proper surgical and educational inspection. He wanted the Ministry of Health or the Board of Education to ask for adequate surgical inspection of such institutions.

Obituary.—On December 2 last, Sir Frederick Taylor, Bart., M.D., F.R.C.P., passed away at the age of 73. He became a member of the Royal College of Surgeons in 1868, and received the degree of M.D. of London University in 1870. He took the membership of the Royal College of Physicians in 1872 and was elected a Fellow in 1879. He was appointed to the staff of Guy's Hospital early in life, and at the time of his death was one of the consulting physicians. The two chief appointments of his later life were the presidency of the Royal College of Physicians and the presidency of the Royal Society of Medicine. Perhaps he was best known, at least outside his own country, as the author of "The Practice of Medicine," a true medical classic, the eleventh edition of which appeared in 1918.

Progress of Medical Science.

Boston Medical and Surgical Journal.

December 23, 1920, clixviii, 26.

1. Clinic on the Diagnosis and Treatment of Neurosyphilis. H. C. Solomon.
2. A Contribution to the Knowledge of Cysts of the Jaws. Kurt H. Thoma.
3. The Minor Role of the Conduction Apparatus in Slowly Progressive Deafness. Francis P. Emerson.
4. A Case of Hair-Ball in the Stomach. Wynan Whittemore.
3. The Minor Role of the Conduction Apparatus in Slowly Progressive Deafness.—Francis P. Emerson holds that there is always a nerve element in every case of so-called conduction deafness of the progressive type. The prognosis in regard to restoration of hearing is dependent upon the perception and not upon the conduction apparatus. Toxic deafness and that due to beginning nerve degeneration cannot be differentiated by any aural examination. Silent areas or islands of deafness are quite common in chronic catarrhal otitis media. The etiological factor is usually active in the lymphoid tissue as a chronic infection with acute exacerbations. In some cases of long-standing deafness it would seem necessary to reeducate the aural perception centers by exercises, after all sources of infection have been eliminated.

New York Medical Journal.

December 25, 1920, cxii, 26.

1. Variation in the Rate of Infant Mortality in the United States Birth Registration Area. Raymond Pearl.
2. The Infant Mortality in the City of Watertown, N. Y. Isaac W. Brewer.
3. Unappreciated Agencies in the Defective Development of Children. Charles Gilmore Kerley.
4. Middle Ear Disease in Children. Joseph Friedman and Samuel D. Greenfield.
5. The Mental Health of the Child. C. Edgerton Carter.
6. Lumbar Puncture in Diseases of Children. H. Apfel.
7. The Weak Foot in the Child (Concluded). H. Scheimberg.
8. The Physical Signs of Pneumonia in Children. Samuel A. Blauner.
9. Congenital Megacolon (Hirschsprung's Disease). Joseph Hopper.
10. A New Site for Smallpox Vaccination. I. H. Goldberg.
6. Lumbar Puncture in Diseases of Children.—H. Apfel gives the following indications for lumbar puncture in a child: (1) For the relief of pressure symptoms. (2) For the purpose of differential diagnosis. (3) For the purpose of administering therapeutic aid intraspinally. Under the first group come a large number of conditions, in both infancy and childhood—notably hydrocephalus; meningitis due to some type of organism against which there is no specific antidote; acute infectious diseases, pneumonia for example, complicated with serous meningitis, or so-called meningismus. Considering the second group, every time one is called upon to make a differential diagnosis between an acute disease complicated with meningismus and purulent meningitis, or when one is confronted with the problem of deciding whether the condition is tuberculous meningitis or poliomyelitis, whether a given case may present symptoms of cerebral lues, calling for colloidal gold and Wassermann tests on the spinal fluid, then one's mind immediately reverts to lumbar puncture. As for the third group of indications, one need only refer to the difference in the mortality rate of cerebrospinal meningitis previous to 1890, and at the present time to convince the most skeptical as to its benefits as a therapeutic measure. The operation is simple, with practically no danger to the patient. Its usefulness for diagnostic purposes is indispensable, and it should be resorted to early in the course of the illness. The technique should be learned by all physicians.
8. The Physical Signs of Pneumonia in Children.—Samuel A. Blauner holds that the diagnosis of either pneumonia or empyema, as a rule, is not difficult. It is only necessary to unlearn some of the false teachings of textbooks and to remember that to obtain bronchial breathing one must have a uniform consolidated area extending to the hilum of the lung or in communication with a bronchus, and that the apparent variation in the physical signs results from the failure of the original tracheal breathing to reach a uniform consolidated area and be transmitted unchanged.
10. A New Site for Smallpox Vaccination.—I. H. Goldberg considers the inner and back side of the arm as the ideal location for the inoculation of smallpox virus, for the following reasons: (1) It leaves no visible scar. (2) It does not keep children from having their daily tub bath while the vaccination is passing through its various stages. (3) There is little or no exposure to infection from outside sources of infection. (4) It minimizes possibilities of trauma. (5) There are no infiltrations, extensive indurations, sloughings, or extensive scars.

Journal of the American Medical Association.

December 25, 1920, lxxv, 26.

1. The Nature of Arthritis and Rheumatoid Conditions. Ralph Pemberton.
2. Cerebral Thrombosis and Abrupt Stopping of the Cerebral Circulation. Thomas G. Inman.
3. Prophylaxis of Syphilis with Arsphenamin. Leo L. Michel and Herman Goodman.
4. Salicin as a Local Anesthetic for the Female Urethra. Arthur D. Hirschfelder and H. M. N. Wynne.
5. The Surgical Treatment of Typhoid Carriers. Edwin Henes, Jr.
6. Solitary Amebic Abscess of the Liver: Report of a Case Occurring Thirty Years After Residence in the Tropics. William J. Mallory.
7. An Extraordinary Case of Situs Inversus Viscerum Totalis. Paul E. Linebuck.
8. Interventricular Cardiac Aneurysm with Heart Block. Alfred Friedlander and Raphael Isaacs.
9. Malignant Adenopathy of Bones of Foot, Probably of Thyroid Gland Origin. Herbert R. Brown.
10. Reconstruction of Hard Palate with Cartilage Transplant. W. T. Coughlin.

1. **The Nature of Arthritis and Rheumatoid Conditions.**—Ralph Pemberton presents in this communication certain points of a clinical nature not included in a previous report (*Archives of Internal Medicine*, March, 1920, 231) based on the study of 400 cases of chronic arthritis in the army. Certain theoretical aspects are also discussed in the effort to narrow the conceptions of the problem, and hence of the field studied. Although the importance of focal infection was abundantly illustrated and is not in any sense to be minimized, the subjects of this study showed an interesting and large independence of it. It became clear that, in these younger subjects, focal infection played an analogous but lesser rôle as compared with its relation to the bulk of cases encountered in civil life. Added importance was given to the view that with chronicity the results of the removal of focal infection become less noteworthy, although there are important exceptions to this. It is pointed out that in a regrettable number of chronic cases, and in some early instances, the removal of focal infection may be of no avail whatever. The important rôle, as shown by the statistics of the series, played by exposure and wet, and the evidence adduced by studies of the sugar tolerance, strongly suggest that this disease is not infrequently referable to causes other than focal infection. Many instances in the series were caused by dysentery, influenza, pneumonia, and other conditions which added importantly to the appreciation of the fact that infections of diffuse types may inaugurate the same results, although the most frequent type is that resident in teeth, tonsils, and so on. It is clear, however, from some of these cases, that the arthritis may be referable not solely to the apparently originating factors of dysentery, influenza, or exposure, because some cases in which these were the well punctuated causes made a later significant improvement when demonstrable foci were removed. It therefore appears that foci otherwise inoperative may be made operative by a severe illness. The only alternative to that is that they themselves have been actually produced as the result of this illness. The probable mechanism here is that the original disease or exposure induces the situation which in other cases foci themselves may cause; on the basis of this situation, foci then act to perpetuate conditions for which they were not originally responsible. Various questions involved in what the writer calls the "substratum of pathology" are discussed. For example, it was found that in 20 per cent. of the cases basal metabolism was below normal. The relation between the intake of food and the incidence and perpetuation of the symptoms of chronic arthritis was studied. Although the respective rôles of the three foodstuffs, protein, fat, and carbohydrate, have not been entirely worked out, the evidence strongly suggested that at least carbohydrate was caught up in some important way in this connection. Arthritides show a lowering of sugar tolerance more or less proportional to the severity of the disease. There was found in all these observations experimental corroboration of the premises on which the dietetic therapy is based. Among other phases of the subject discussed are the cause of delayed onset; significance of frequency with which muscles and joints are affected; factors affecting the oxidative function; a working hypothesis, and general line of treatment. Treatment should be postulated on the removal of the exciting cause first, when this is possible. One of the outstanding lessons derived from the study of arthritis among large numbers of soldiers was to the effect that various accessory lines of treatment could be profitably combined, although often unavailing alone.

5. **The Surgical Treatment of Typhoid Carriers.**—Edwin Henes, Jr., from the study of 183 patients who had contracted typhoid fever at the detention camp for interned alien enemies at Hot Springs, N. C., who were sent to U. S. General Hospital No. 12 at Baltimore, N. C., where he was on duty at the time, the following conclusions are drawn: (1) Cultural examinations of the duodenal contents are indicated in all cases during convalescence from typhoid fever. (2) Cholecystitis is a frequent complication of typhoid fever. (3) Persistent infectiousness following typhoid fever is usually the result of cholecystitis. (4) A gallbladder may continue to be infectious without the usual manifestations of a cholecystitis. (5) Cholecystectomy, with complete

excision of the cystic duct, will cure the great majority of typhoid carriers. (6) Radical (surgical) treatment of complicating cholecystitis is to be considered. The likelihood of a carrier state is thereby greatly diminished, and the probability of future gallbladder trouble obviated. 7. Examination of the duodenal contents should imply an examination of the contents periodically aspirated and cultivated during the course of twelve or twenty-four hours. Three such consecutive, negative examinations, made at weekly intervals, are the criterion of a cure of persistent infectiousness. (8) Typhoid fever is a preventable disease. The incidence of the disease has been astoundingly decreased by the use of prophylactic inoculation, and more can be accomplished along these lines. But endemic typhoid will continue to exist just so long as there is failure to detect persistent infectiousness. The researches at Biltmore show conclusively that the gall bladder is the seat of continued infectiousness, and an intelligent cultural examination of the duodenal contents can definitely detect infectiousness. No case of typhoid fever is to be judged free from infectiousness until it can be conclusively shown that the gall bladder and its contents are free from typhoid bacilli. In the event of persistent infectiousness, the indication is definite and absolute—cholecystectomy.

The Lancet.

December 4, 1920, excix, 28.

1. Some Aspects of Mental Hygiene. E. Farquhar Buzzard.
2. The Influence of the Great War on Modern Surgery. Charles F. M. Saint.
3. Commentary on a Case of Hystero-Epilepsy with Delayed Puberty Treated with Testicular Extract. T. C. Graves.
4. Milk in the Tropics. R. J. Blackham.
5. Medicine and the Public: Their Proper Relationship. N. Howard Mummary.

1. **Some Aspects of Mental Hygiene.**—E. Farquhar Buzzard, in his presidential address delivered to the Section of Psychiatry, Royal Society of Medicine, on November 9, discusses the value of psychoanalysis; the origin of "nerves," the confusion of ethical and psychological issues; the creation of environment for the advancement of mental hygiene; multiple factors in mental hygiene, and the value of rest and thought. In recapitulating he calls mental hygiene a young plant which is worth cultivating, and which is full of promise. Its growth, he holds, must be promoted: (1) By no longer misnaming mental disorders as nervous. It is perhaps time to be courageous and to call institutions hospitals or clinics for minor mental disorders in preference to functional nervous disorders; (2) by getting rid of the confusion between ethical and medical principles as they affect health; (3) by teaching elementary principles of psychopathology and psychotherapy to students in order that the general practitioner may take a prominent part in maintaining the mental health of individuals; these subjects, being more important than much that the student is called upon to know, should be introduced into the syllabus for examinations and questions set upon them; (4) by obtaining general recognition for the multiplicity of factors concerned in producing mental as well as other disorders; (5) by giving due prominence to fatigue as a factor in psychopathology and to rest in psychotherapy; (6) by encouraging education in thinking as an important preventive measure.

2. **The Influence of the Great War on Modern Surgery.**—Charles F. M. Saint recapitulates the beneficial influences of the war on modern surgery as follows: (1) The chief benefits arising from the popularization of already existing procedures are blood transfusion, nitrous oxide and oxygen anesthesia, bone and nerve surgery, and orthopedic constructive work. Though bone surgery has been merely referred to, mention must be made of the Thomas splint, which achieved a well-earned and well-deserved popularity. (2) Among the "re-births" might be included a considerable portion of the present views of shock, the ligature of the bleeding point in arrest of hemorrhage, secondary suture of wounds, and excision of wounds and primary suture. (3) Finally, of "new discoveries and their applications" one has referred to bipp, flavine, ambrine, and the calipers employed for extension in cases of fracture. It will be readily seen, therefore, as the writer postulated at the outset, that the chief benefits in civil prac-

tice attributable to war surgery are intimately associated with that branch of civil surgery which is comparable to that of war—namely, injury, in its various relationships.

3. **Commentary on a Case of Hystero-Epilepsy with Delayed Puberty Treated with Testicular Extract.**—T. C. Graves reports a case observed in a male twin, emphasizing the association of the two conditions and the combination of physical and psychological factors in the causation of mental disturbance. Undoubtedly a practical joke (being tumbled out of a hammock while asleep) was the starting point of his "escape reaction," inducing fear processes which subsequently operated whenever associations were aroused, e.g. at eventide or when placed in company with strangers. One would deduce that on these occasions a hypersecretion of adrenaline occurred not equilibrated by the internal secretion of the gonads owing to their lack of development. In this case a real psychotherapeutic effect appears to have been produced, especially when one notes the placebo effects of drugs given prior to admission, and evidently the psychophysical vicious spiral has been broken—the gain in weight alone testified to this. The intermittency of the medication and the use of one and then two tablets was deliberate. Although the difference in dosage is small, it is noteworthy that two observers found the same thing—namely, a diminution in the intensity of the symptoms when one tablet was administered and a non-recurrence of the condition when fully under the influence of two tablets. These observations, together with the loss of muscular weakness of the right limbs and the rapid clearance of all the neurological signs, are held by Graves to be hardly the results of a mere coincidence.

British Medical Journal.

November 20, 1920, II, 3125.

1. Remarks on Orthopedic Surgery in Relation to Hospital Training. Sir Robert Jones.
2. Ulcerating Granuloma of the Pudenda Cured by Intramuscular Injections of Antimony Tartrate. H. Lovett Cumming.
3. Seven Cases of Essential Pentosuria. P. J. Cammidge and H. A. H. Howard.
4. A Note on the Treatment of Cutaneous Erysipelas with Brilliant Green. Joseph E. Adams.
5. On Intravenous Protein Therapy in Epilepsy. F. H. Edgeworth.
6. The Pathology of Dementia Praecox. Sir Frederick Mott.
7. Lethargic Encephalitis; Clinical Aspects. E. Farquhar Buzzard and J. G. Greenfield.
8. Sensory Disturbances in the Hand Following Injuries of the Cerebral Cortex. Henry Head and George Riddoch.
9. Degeneration and Regeneration of Peripheral Nerves. J. G. Greenfield.
10. Inscriptions of Speech. Edward W. Scripture.

1. **Orthopedic Surgery in Relation to Hospital Training.**—Sir Robert Jones suggests the following group of cases which the modern orthopedic surgeon should be prepared to treat: Fractures—recent, malunited, and ununited; congenital and acquired deformities of the extremities; paralysis of the extremities; diseases, derangements, and disabilities of the joints, including the spine, wry-neck, and those conditions included under the general term "bone-setting." According to the scheme which he suggests for the orthopedic department of a general hospital, (1) the definition of orthopedic surgery on the lines suggested should be adopted. (2) The general surgeon should be allowed to treat any of such cases as he desires. (3) The work of the orthopedic surgeon should be strictly limited by the definition. (4) No orthopedic department should be confined to the treatment of outpatients; it should be a complete unit with beds commensurate to outpatient demands. The staff should consist of an orthopedic surgeon, an orthopedic registrar, a house surgeon, dressers, and clinical assistants. Because of the time required to train nurses for orthopedic work, they should be given security of tenure. In a hospital of 300 surgical beds 40 should be reserved for orthopedic cases. These beds should be segregated, and beds in the country should be provided for children. Both undergraduate and post-graduate instruction in orthopedics should be part of the training of those who would practise this branch.

4. **A Note on the Treatment of Cutaneous Erysipelas with Brilliant Green.**—Joseph E. Adams does not at-

tempt to present scientific data to confirm his clinical impression as to the usefulness of brilliant green in cutaneous erysipelas. Nevertheless, since his observations are fairly numerous, he does not hesitate to recommend this simple method. In a dozen cases treated the average time for subsidence of the attack was just five days. There has been no mortality in the whole series, though recrudescence occurred in two cases. The obvious objection to the use of brilliant green is that it stains whatever it comes in contact with, whether it be the skin of the patient, the hands of the nurse, or the bedclothes. As far as he is aware brilliant green possesses no toxic properties. Both iodine and picric acid are open to objection on this ground. The method employed has been to paint the affected area with a 5 per cent. aqueous solution once a day in mild cases and twice a day in severe cases. No dressing has been applied except a piece of lint on some parts of the body to prevent staining of the bedclothes. When the eruption has subsided the discoloration can be removed in three or four days by vigorous washing, preferably with ether soap. Possibly it would be wise to apply the solution over rather a wider area than that actually involved—for, say, an inch outside the advancing edge—but so far he has not done this.

British Medical Journal.

November 27, 1920, II, 3126.

1. The Diagnosis and Treatment of Some Diseases of the Endocrine Glands. Professor George R. Murray.
2. A Fatal Case of Malignant Tertian Malaria Contracted in the North of England. Professor Ernest E. Glynn and J. C. Matthews.
3. Miner's Nystagmus: Suggestions for Its Prevention. D. Lechmere Anderson.
4. Coal Miner's Nystagmus and Its Predisposing Causes. A. J. Martin.
5. Treatment of Rheumatoid Arthritis by Vaccines. H. Warren Crowe.
6. A Diphtheria Carrier of Unusual Type. John Allen and D. R. Wood.
7. Life-History of Ascaris Lumbricoides. F. H. Stewart.

3. **Miner's Nystagmus: Suggestions for Its Prevention.**—D. Lechmere Anderson calls attention to the two types of nystagmus which occur in miners, namely, the minor, latent or transitory, mild in character, and degree, and the major, incapacitating, grave type. In each there are two principal personal factors in production: (a) Refractive errors, structural and other defects of the eye; (b) abnormalities of the neuromuscular mechanism of the eyeball. When the conditions are slight the minor type as a rule results, when marked, the major type. Great improvement has been made with respect to defective illumination, one of the exciting causes, but no advance has been made in the removal of the personal predisposing cause of the disease, and without this one can hardly hope for success. It seems essential to establish a refraction standard for miners, and thus prevent men from taking up a form of employment totally unsuited to their physical powers. By this means could be eliminated the major cases of disease from the mines, and although the minor types may occur they will be reduced in severity and in frequency. The standard which the writer suggests for admission to pit life is the ability to read Snellen 6/18 at twenty feet with each eye separately, or Snellen 6/12 (at least three letters) with both eyes at twenty feet. In the event of failure to pass the above tests the man would be referred to the certifying factory surgeon, who should have a knowledge of eye work. With a considerable amount of hypermetropia or myopia (which might be arbitrarily fixed at 1 D) the man's attention would be directed to the abnormality, and such abnormality noted on the register. Although he might not be excluded from work as a miner, he would be advised to seek other employment, and to wear suitable glasses. If the error of refraction exceeded 1 D hypermetropia or myopia, or if astigmatism was present, the man would be excluded from work as a coal miner. These suggestions as to standard are only intended as provisional, and could be modified in the light of experience.

5. **Treatment of Rheumatoid Arthritis by Vaccines.**—H. Warren Crowe bases this communication on observations in one hundred and forty-three cases. The basis of the treatment in this series was the hypothesis which

the writer put forward in 1914, to the effect that rheumatoid arthritis was primarily due to an organism, the *Staphylococcus epidermidis albus* (var. *deformans*); that, just as in tuberculosis, there were present in the majority of cases secondary infections, with or without a local focus; that it was these secondary infections where the radical treatment of a local infective focus, with or without vaccines, resulted in amelioration or cure of the disease, the explanation was that the system, relieved of some of its microbial enemies, had then been strong enough to overcome the primary organism; and, finally, that *M. deformans* or its toxin acted primarily on the nervous system and was responsible for the neuropathies which are the predominating, if not the sole, symptom of uncomplicated rheumatoid arthritis. All the cases were treated, without exception, on this hypothesis, and no other treatment was given to any of the successful cases, with the exception of simple symptomatic measures, such as occasional aspirin for the relief of pain and latterly some mild hydrotherapy. Deformans vaccine was given in every case. Although some nine years have elapsed, the same vaccine is still in use with no apparent deterioration. It was prepared originally from two strains. This vaccine was either combined or given alternately with autogenous vaccines when a definite infective focus was found, or if the urine was infected. When the symptoms were such as to suggest a coincident rheumatic infection, then a streptococcus vaccine was also given, prepared from a large number of strains isolated from severe cases. None of the strains were isolated from joints, but from such conditions as acute nephritis with joint swellings and strepto-bacteriuria, and acute tonsillitis and rheumatism. No pyogenic streptococci were combined in the vaccine, but all conformed to one or other of the alimentary types. Among the sixty-two cases of which the notes are fairly complete, only 21 per cent. failed to respond in some degree. Other 95 per cent. improved but slightly or relapsed early; 7.0 per cent. may be said to have been cured for the time being as far as cure was possible, and of these it is known that 15, or 25 per cent. of the total, still maintain their position. From recent experience it is suggested that those who have relapsed would have regained their health under further vaccines, and only the war, in the majority of cases, prevented this. No other method of treatment, in the writer's opinion, can show anything like these results in rheumatoid arthritis.

British Medical Journal.

December 4, 1920, II, 3127.

1. A Lecture on Psychopathology and Dissociation. William Brown.
2. Observations on Subacute Infective Endocarditis. Thomas F. Cotton.
3. On the Action of Tartrate of Antimony in Intravenous Injections: The "Permeability" of Bilharzia Ova and Some Protozoal Organisms. J. B. Christopherson.
4. Antimony in Leprosy. F. G. Cawston.
5. Two Cases of Double Glioma Retinae. A. R. Moodie.
6. The Treatment of Ascites by Drainage. Sir John O'Connor.
2. Observations on Subacute Infective Endocarditis.—Thomas F. Cotton states that there are in the United Kingdom about 80,000 men receiving pensions for some cardiovascular affection. In the London area there are, roughly, 8000 pensioners with some cardiac disability, and 1200 to 1500 of these have structural disease of the heart. All of them come before the Resurvey Boards for re-examination and assessment at intervals of nine to twelve months. They are called up on special days, and all those with signs of structural disease are seen by a heart specialist. During the past year the writer has acted as heart specialist at two Resurvey Boards. Such cases as required treatment or further examination he referred to the Cardiographic Department at University College Hospital. At this clinic they receive outpatient treatment or are admitted to the wards of the hospital. Here he has been able to observe during the past year and a half a large number of selected cases presenting signs of structural disease of the heart. The most striking clinical feature of this clinic has been the large number of subacute infective endocarditis cases. From September, 1919, to June 1, 1920, there were admitted as outpatients 159

pensioners presenting signs of aortic regurgitation, 136 with signs of mitral stenosis, and 65 with mitral stenosis and aortic regurgitation. In 30 of these the diagnosis of subacute infective endocarditis was made, and 11 were suspected as having this disease—that is, 8 per cent., and possibly more, of 360 patients with gross valvular disease had subacute infective endocarditis. The observations recorded in this paper are based on a clinical study of 15 of these cases, together with a larger group of 40 patients with subacute infective endocarditis, whom he has had under his care while in charge of the clinical services at the Sobrão Military Hospital, Colchester. From this study he concludes that subacute infective endocarditis is not a rare disease. It is seen in 8 per cent. of patients with signs of gross valvular disease attending a special heart clinic. The signs are easy to recognize. In the diagnosis chief reliance should be placed on the following signs: Gross valvular disease, pallor, enlarged spleen, and clubbing of the finger-tips. Aortic regurgitation is the type of valvular disease usually seen in this disease; it is rare to find the mitral valve alone involved. The course of the disease from the onset of symptoms is usually less than fourteen months; death may occur within two months of the onset of symptoms. A bacteriological examination of the blood is useful in confirming the diagnosis. Without such an examination the diagnosis may be made with certainty. The disease is always fatal.

4. Antimony in the Treatment of Leprosy.—F. G. Cawston reports the further experience in the treatment of leprosy by means of intramuscular injections with Oppenheimer's colloidal preparation of antimony (oscol stibium), remarkable improvement having been noted in some patients thus treated. Two lepers treated by this method form the basis of this report. On admission both were showing active signs of the disease, with numerous ulcers on the fingers and toes. Although no further treatment had been given for over a month, there had been no recurrence of the signs of leprosy, and the ulcers had completely dried up.

American Medicine.

November, 1920, vol. xxvi, 11.

1. Medicine as Practised in Porto Rico. J. Reguero.
2. Our Heritage. William P. Cunningham.
3. The Importance of Extending Knowledge Concerning Child Hygiene. Richard A. Bolt.
4. The Economics of Health. Ira S. Wile.
5. Cancer of the Rectum—Preparation of the Patient for Operation. Charles J. Drueck.
6. The Evacuation of Kiev. Henry Altmus.
7. The Etiology and Treatment of Gastric Ulcer. John F. Van Paig.
3. The Importance of Extending Knowledge Concerning Child Hygiene.—Richard A. Bolt calls attention to the fact that eighty private or semi-private organizations, purporting to be national in scope, have announced in their programs that they are touching "child welfare" at some point. The very term "child welfare" has become a fetish which organizations, numerous and diverse, are invoking to command public sympathy and support. Propaganda, good, bad and pernicious, has been sent out from practically all the so-called "national organizations." Newspapers and magazines have sensed the popular demand and supplied a miscellaneous assortment of articles bearing on child welfare. The Government departments have put out a considerable amount of valuable material on child welfare, but this at best reached only a fraction of the people who should be reached. It is true that an ever-increasing number of medical men are beginning to appreciate the importance of socio-medical work for children, but the writer asks the question, "Why is it that public health nurses, social workers, dietitians, psychoanalysts, health crusaders, health fairies and health clowns have secured such a wide and attentive hearing in imparting lessons of child health, while physicians have remained content with private interviews in their offices and hurried instructions at child welfare centers?" It is an untenable position for the medical profession to take, Dr. Bolt says, that important instruction, even in the most simple matters of child hygiene, should be left entirely to those outside the profession.

Book Reviews.

ELECTRICAL TREATMENT. By WILFRED HARRIS, M.D., F.R.C.P., Senior Physician and Lecturer on Neurology, St. Mary's Hospital. Third Ed. New York: William Wood & Company, 1920.

In contrast with the earlier editions, the subjects of radium therapy and x-ray treatment have been omitted. Only nominal space is devoted to high frequency circuits, and this in the chapter on static electricity. The aim is thus realized of writing a book to deal almost exclusively with the galvanic, faradic and sinusoidal currents and the affections in which they are indicated. The number of pages of the abridged work is 354, of nearly solid text, the illustrations being limited to 24. The amount and variety of work which is practicable with a portable galvanic or faradic battery or an apparatus of the multostat type for office use and operated by the street current, may be visualized by a survey of the contents of the book.

RETRAINING CANADA'S DISABLED SOLDIERS. WALTER E. SEGSWORTH, M.E., Formerly Director of Vocational Training, etc. Ottawa: J. de Labroquerie Taché, 1920.

The more technical chapters in this volume are devoted to curative workshops, ward occupations, interviewing, industrial retraining, industrial surveys, medical aspects, care of the blind, results and after care. Others deal with the scope and history of the movement, the organization, statistics and costs. There are appendices devoted to work of the same class in other countries, selected bibliography, the hours per day or week required for training, and the pay and allowances during training.

THE LINK BETWEEN THE PRACTITIONER AND THE LABORATORY. A Guide to the Practitioner in His Relations with the Pathological Laboratory. By CAVENTISH FLETCHER, M.B., B.S., M.R.C.S., L.R.C.P. and HUGH MCLEAN, B.A., B.C., D.P.H., M.R.C.S., L.R.C.P. New York: Paul B. Hoeber, 1920.

This is a small book which is intended to suggest what laboratory procedures are best suited for the diagnosis of various diseases and to inform the practitioner as to the most desirable methods for securing specimens and sending them to the pathologist. There is placed first an alphabetical list of diseases and conditions under each of which is given the examinations recommended. As a rule the suggestions are admirable. There are a few omissions and in some instances the English practice is apparently different from ours. The authors recommend the use of 50 per cent. alcohol for the preservation of tissue for histological examination while we are much more apt to use 10 per cent. formalin. The determination of the uric acid content of the blood is not mentioned under gout though that of the urine is. Under the heading of asthma there is no mention of the tests for the detection of hypersensitiveness that are being done so extensively at the present time. Under the heading of pleural effusion there is no mention of the liability of these fluids to coagulate. It is of great advantage to add a small amount of sodium citrate to these specimens in order to prevent the formation of the fibrin clot. The authors apparently have more faith in the Cammidge reaction than is found in this country. This is a very handy little volume and might prove of a good deal of assistance to many practitioners especially when they are situated a long way from a laboratory.

PATHOGENIC MICROORGANISMS. A Text-Book for Physicians and Students of Medicine. By WARD J. MACNEAL, Ph.D., M.D., Professor of Pathology and Bacteriology and Director of the Laboratories in the New York Post-Graduate Medical School and Hospital, New York. (Based upon Williams' Bacteriology.) Second Edition. Philadelphia: P. Blakiston's Son & Co., 1920.

The second edition of this work has been extensively revised and somewhat enlarged but its old friends will find that its plan has remained unchanged. To those who are unfamiliar with the book it may be said that it is a rather condensed though very complete presen-

tation of the subject of bacteriology suitable for the use of the student or practitioner. It perhaps may not be sufficiently detailed and extensive for the bacteriologist but it contains all of the information that the average physician is apt to need. It is a very convenient and satisfactory work.

PUBLIC HEALTH LABORATORY WORK (CHEMISTRY). By HENRY R. KENWOOD, C.M.G., M.B., F.R.S., D.P.H., F.C.S., Chadwick Professor of Hygiene and Public Health, University of London. Seventh Edition. New York: Paul B. Hoeber, 1920.

WITH the development of the importance of bacteriology in Public Health work it has been found necessary to treat the subject in a separate volume. Therefore in this edition, this volume deals almost exclusively with the chemical side of the subject. It is announced that a companion work dealing with microbiology is being prepared. The topics presented in this book are the examination of water, sewage, sewage effluents, soil, air, food and disinfectants. This edition has been amplified and advantage has been taken of the recent advances in the subject. The methods have been well selected and described and there are numerous illustrations. The work will be a great help to anyone doing this type of investigation.

INTERNATIONAL CLINICS. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles by Leading Members of the Medical Profession Throughout the World. Edited by H. R. M. LANDIS, M.D., Philadelphia. Volume II. Thirtieth Series, 1920. Philadelphia and London: J. B. Lippincott Company, 1920.

IN this number of the Clinics there are eighteen contributions which go to make up a volume of over three hundred pages. Five clinic reports present a number of interesting cases for the consideration of the readers. L. Thompson has a complete and profusely illustrated article on the skin lesions of syphilis. Magnuson and Coulter have contributed an article under the title of Industrial Surgical Clinics that presents in a very striking manner the problems which such clinics are called upon to solve and the importance of the proper method of handling the patients. A number of other contributions offer topics of general interest.

MATERNITAS. A BOOK CONCERNING THE CARE OF THE PROSPECTIVE MOTHER AND HER CHILD. By CHARLES E. PADDOCK, M.D., Professor of Obstetrics, Chicago Post-Graduate Medical School. Chicago: Cloyd J. Head & Co., 1920.

THIS volume of 210 pages consists of two parts devoted respectively to the mother and the infant during the first two years of life. It is intended to be placed in the hands of the prospective mother as a guide during the gestational and lactation periods. It is not at all intended for the practitioner. Although not announced on the title page the book has already gone through two editions. There are numerous unnumbered original illustrations. Recipes of various kinds are given in an appendix. The present edition has been much improved by incorporating new data.

THE NATURE OF ANIMAL LIGHT. By E. NEWTON HARVEY, Ph.D. Philadelphia and London: J. P. Lippincott Company, 1920.

THE author is professor of physiology in Princeton University and the volume is one of a series of monographs on experimental biology. There are seven chapters devoted respectively to light-producing organisms, luminescence, physical nature of animal light, structure of luminous organs, chemistry of light production (2 chapters) and dynamics of luminescence. No doubt the interest of the public will center largely on the relation of animal luminescence to electronic phenomena under which fluorescence and phosphorescence are placed by some authors and which are excited in inert matter of bombardment with cathode rays. Animal luminescence, however, is seen in many unicellular organisms as bacteria and fungi. The claim that light rays from animals can pierce opaque objects and affect a photographic plate has not yet been proved and the author expressly states that animal light is simply ordinary light save that it is more intense and has a more extensive spectrum.

Society Reports.

SOUTHERN MEDICAL ASSOCIATION.

Fourteenth Annual Meeting, Held at Louisville, Kentucky, November 15, 16, 17, and 18, 1920.

THE PRESIDENT, DR. E. H. CARY, OF DALLAS, TEXAS, IN THE CHAIR.

Fluid in the Pleural Cavity.—Dr. W. W. RUCKS of Oklahoma City drew the following conclusions: (1) The pleura bears a close analogy to the peritoneum, inasmuch as its major involvements are secondary to disease in the underlying organs. (2) The character of pleural effusion is determined by the nature of the primary infections in the lungs. (3) There is a selective time for its removal by operation, which is not upon its immediate formation, but a lapse of sufficient time should be allowed for the formation of resisting bodies, improvement or recovery from pneumonia, and the protection by adhesions of the remainder of the breathing space from the effect of atmospheric pressure when the chest wall is opened.

Direct Aspiration of the Contents of the Biliary Tract Through the Duodenal Tube.—Dr. SIDNEY K. SIMON of New Orleans stated that among the 30 cases upon whom he had employed this method to date, in 10 there was a prompt amelioration of pain and other local symptoms, along with the removal of toxic features. In one case the temperature curve receded from a height of 103° to normal after the second aspiration. (This case, incidentally, had remained free of further disturbances for a period of three months.) In one other case coming under his observation—a lady who had been a victim of chronic arthritis for several years and who had been deprived in due course of teeth and tonsils without effect upon the arthritic condition—a ten day nonsurgical drainage of the gall tract produced immediate and apparently permanent relief. Other illustrations might be cited of clinical benefits derived among the series of 30 cases, did time permit. The purpose sought at this time, however, was merely to focus attention upon the diagnostic and therapeutic possibilities involved in the method, with the hope that a more general interest and a wider application of the procedure might be stimulated among the profession at large. In seven of the cases followed by him, autogenous vaccines were prepared by Dr. Lanford and applied in the usual manner. His experience with the vaccine therapy in this field did not appear promising, although he did not feel justified as yet in formulating any definite conclusions in this regard.

The Treatment of Neurosyphilis.—Dr. ALBERT KEIDEL of Baltimore, Maryland, said that intraspinal therapy was made necessary by the inaccessibility of foci of infection to substances in the blood stream. The treponemas appeared to elect situations remote from blood stream influences. They were tissue organisms because the cultural conditions in the lymphatic system, particularly the intercellular spaces, were more favorable to their existence. Herein lay the main obstacles to successful treatment. The added factor of vascularities and perivascularities induced by the presence of the organisms greatly increased this difficulty. In general, it might be stated that failure of general intensive treatment to cure neurosyphilis might be due to the degree of perivascularitis present at the time treatment was begun, which explained the greater success in that form of treatment early in the disease. It was also probably due to this factor that differences of opinion arose as to the relative merits of ordinary antisyphilitic treatment and the more direct methods of the intraspinal type. If the personality of the vessel wall was not too greatly interfered with by the perivascular reaction, substances in the blood might escape into the tissues in sufficient concentration to reach the treponemas and obliterate them. If this were not the case, no amount of intravenous medication would suffice. The application of intraspinal therapy, therefore, should be restricted to those early cases which proved refractory to treatment by the ordinary routes early in the infection, and to all cases with organic pathological changes produced by long contact of the organism with the tissues. Among these later cases treatment

by the ordinary routes would often succeed in obliterating serologic abnormalities, with marked clinical improvement, but the possibility of isolated foci of infection remaining undisturbed in areas not involved in the clinical picture made the addition of intraspinal therapy desirable as an adjunct to the general treatment. In estimating the degree to which intraspinal treatment should be resorted to, one should be guided by the differential diagnosis and by the amount and rate of response to ordinary treatment.

Neurophilic Myelocytes in the Cerebrospinal Fluid of a Patient Suffering from Myeloid Leucemia and Their Significance for the Diagnosis of Myelocytic Infiltration of the Leptomeninges.—Dr. LEWELLYS F. BARKER of Baltimore drew the following conclusions: (1) In a single case it has been possible during life to demonstrate in the cerebrospinal fluid the presence of cells of leucemic origin (myelocytes and perhaps myeloblasts). (2) In no other case thus far reported has the presence of leucemic cells in the cerebrospinal fluid been described during life. (3) In the few instances in which lumbar puncture has been done in leucemia, the cerebrospinal fluid has been negative, or has shown merely a trace of blood or an increase of globulin. (4) The presence of cells of leucemic origin in the cerebrospinal fluid probably indicated a leucemic infiltration of the leptomeninges. (5) The majority of nervous complications in leucemia are not due to a leucemic leptomeningopathy, but to epidural infiltration, to infiltration of the nerve roots or of nerve ganglia, to infiltration of the nervous axis itself, or to hemorrhages or degenerations, or inflammations.

Etiology and Diagnosis of Nephritis.—Dr. J. B. McELROY of Memphis gave the diagnostic features as follows: (1) Nephritis occurred most frequently from 40 to 50 years of age and in men. (2) The good general condition of benign hypertension rapidly declined and soon presented the characteristic cachectic condition of chronic nephritis. (3) The disease ran its course as a cardiovascular renal disease. The cardiovascular symptoms, as compared with benign hypertension, were characterized by a tendency to greater severity. (4) The blood pressure from the beginning was high and constantly maintained, showing the highest values. (5) The cardiac hypertrophy was marked, came on early, and here was found the largest hearts. (6) Edema, when present, was of cardiac origin. (7) The blood showed marked secondary anemia in contrast to benign hypertension. (8) There was mycturia, with day and night polyuria, and the urine showed a low specific gravity, albuminuria, and cylindruria of moderate grades. (9) Papillitis and neurorinitis were the rule and afforded a certain indication that the case did not belong to the type of benign hypertension, although the kidney functional test might show little or no impairment. (10) Impairment of kidney function was the chief characteristic of this type. This varied from the slight to the most severe, similar to the last stage of chronic diffuse glomerulonephritis with kidney insufficiency. (11) If death did not occur earlier from the cardiovascular component of the disease or a pulmonary complication, the end results were from true uremia as in the end stage of chronic diffuse glomerulonephritis. Eclamptic equivalents were prominent as in benign hypertension, the psychical symptoms tending to be more severe. Eclamptic uremia might rarely occur.

The Importance of Eye Examinations in Nephritis.—Dr. ADOLPH O. PRINGST of Louisville emphasized the frequency of retinal involvement in nephritis, especially in the chronic interstitial type of cases, though he would stress the point that negative ophthalmoscopic findings in cases of suspected renal disease would in no way exclude the possibility of the presence of an incipient renal disease. The frequent use of the ophthalmoscope in all cases in which kidney trouble was suspected should be encouraged, as well as a careful inspection of the retina of every presbyopic patient who presented himself to the oculist for the correction of refractive errors, as early retinal changes were often visible in general arteriosclerosis and chronic nephritis even before a uranalysis would reveal anything to indicate a kidney lesion. Through the early detection of retinal changes and the institution of hygienic, dietetic, and therapeutic measures, the general condition of the patient might be improved and so-called prealbuminuric

retinal changes might clear up. In the well developed cases of reinitis with effusions, with or without hemorrhages, an ophthalmoscopic examination was important on account of the prognostic significance of nephritic reinitis both as regards the life of the patient and the ocular function.

Nephritis in Childhood.—Dr. L. R. DEBUYS of New Orleans said that the chronic cases of nephritis during their acute exacerbations were treated just as were the acute cases of nephritis. Otherwise, they received the same treatment as did the cases of chronic nephritis in the adult. Two factors stood out in the treatment of chronic nephritis in children, (1) to treat the etiological factors properly so as to eradicate the cause or retard the progress of the disease, and (2) to remove the conditions which predisposed to the acute exacerbations. Regulation of rest, exercise, and diet and the proper administration of tonics were of prime importance in the treatment of the chronic cases of nephritis. In those cases in which dropsy was present a salt-free diet was indicated; the other symptoms were treated as in the acute cases. In cases resisting treatment and growing progressively worse decapsulation of the kidney might be practised. This was often followed by relief, which, however, was liable to be only temporary, though complete recoveries had been recorded.

Treatment of Chronic Nephritis.—Dr. W. H. WITT of Nashville stated that in a general way the prognosis in a nephritic was a composite of a chemical study of the blood and urine, color elimination, sustained or varying specific gravity of the urine, the blood pressure, and, not least, the willingness of the patient to accept advice as to diet and mode of living. It was a disease that was compatible with years of usefulness if discovered in its early stages. It was one that must not be over-treated, but rather managed or directed. We should not overrate its seriousness nor put a too high estimate on what we could do to modify its course. There was hardly any disease in the management of which the personality of the physician counted for more, especially when it came time to curtail the patient's privileges—when he came to a full realization that he had a disease from which he could not hope for recovery. Consequently one could often say to a nephritic that his disease was compatible with many useful years, depending largely, of course, on his status when the diagnosis was made.

Thrombosis of the Coronary Arteries.—Dr. J. E. PAULLIN of Atlanta said that early diagnosis was of the greatest importance. Absolute rest in bed for days and weeks was necessary. The only hope for recovery lay in securing for the infarcted area as rapidly as possible an adequate supply of blood through its collateral circulation; the ability to do this depended on the condition of the unobstructed artery, the extent of the anastomosis and the size of the infarct. Miller and Matthews had clearly shown in their experimental work that the death rate in dogs following ligation of the coronary artery was much lower where the animal received digitalis or strophanthus, and that these drugs were useful in promoting and increasing the collateral circulation. Might one not assume, then, that the same condition would obtain in man and that by the administration intravenously or hypodermically, either of strophanthus or digitalis, that we were helping the heart to establish this collateral circulation. He believed this procedure was of great value in one of his cases. To be of value this remedy must be used early and in sufficient dosage to get a quick effect. He had seen no good result from the use of nitroglycerin or the nitrites. Morphine in sufficient dosage to relieve pain was absolutely necessary.

The Significance of Vertigo.—Dr. DOUGLAS VANDERHOOF of Richmond, Va., stated that we must thoroughly understand that the labyrinth was the sense organ of equilibration. Vertigo, from whatever cause, was essentially an ear study, and was always due to some disturbance of the vestibular apparatus. Disturbances of the vestibular apparatus could be definitely analyzed by means of the new ear tests devised by Bárány and his associates. The ear tests would always show either abnormal or normal responses; if the responses were abnormal, the tests would help to determine a lesion either within the ear or within the brain. If the responses were normal, one had then narrowed the diag-

nosis down to (1) a cardiovascular disturbance, functional or organic; (2) an ocular disturbance; or (3) an evanescent toxemia, the source of which should be sought.

The Early Diagnosis of Gastric and Duodenal Ulcer.—Dr. SEALE HARRIS of Birmingham, Ala., said that the diagnosis of ulcers of the stomach and duodenum was often delayed for years by the McBurney or button-hole incision for the syndrome of symptoms usually diagnosed as chronic appendicitis. It was almost the rule for chronic ulcer patients to give a history of operation for chronic appendicitis, without relief, or only temporary amelioration of the symptoms for which the operation was performed. With an experience covering thousands of patients who had had their appendices removed, and who later had digestive symptoms, he was convinced that the surgeon was remiss in his duty when he removed an appendix in which there were no demonstrable macroscopic lesions, without extending the incision and exploring the gall-bladder, stomach, pancreas, and kidneys. While in his opinion the serious operation for gastric or duodenal ulcer should in no case be performed until the patient had had a month or six weeks' dietetic and medical treatment, without relief of symptoms, he believed that the person of cancer age should have the benefit of an early exploration of the abdomen, if medical treatment failed to give complete relief in a few days. He also believed that if there was a recurrence of symptoms, even after months of euphoria following the rest and a modified Lenharz or Sippy treatment, an exploratory operation should be performed. In many such cases the ulcer would have been found to be healed, but there was a recurring appendicitis or there were gallstones or gall-bladder, pancreatic, or even pelvic conditions that were associated with the ulcer. It was not possible in every case to diagnose ulcer without an operation, though in the large majority of cases an accurate diagnosis could be made without resorting to surgery. In a large number of cases in which he had advised operation for the relief of ulcer of the stomach he could recall only two in which the ulcer was not found to be present.

Chronic Myocarditis and Its Management.—Dr. HENRY A. CHRISTIAN of Boston, Mass., said that the guiding signs for the treatment of chronic myocarditis lay mainly in the effects on symptoms and on edema, pulse, and respiration. Little change, except slowing in rate, would be noted in the heart. Physical examination of the heart was the least important thing in guiding the treatment of a cardiac case. A course of treatment should not be ended until the patient was free from edema in his legs, over the sacrum, and at the bases of his lungs. Until then he needed the judicious mingling of rest and digitalis. Often it was advisable to prolong digitalis treatment for many weeks by continuing small doses after a definite digitalis effect had been obtained from larger doses. He knew of no condition in which the immediate results of treatment were more satisfactory than in chronic myocarditis. Eventually the heart would give out, for it was a progressing disease whose advance one knew not how to stop. Relapses were inevitable; how one managed the patient would have much to do with the frequency of relapses; how one treated the patient in the relapses would have much effect on their severity and greatly influence the comfort of the patient. On both depended the lease of life and comfortable efficiency of the patient.

A Consideration of the Clinical Features of Epidemic Encephalitis.—Dr. LEWIS M. GAINES of Atlanta said that epidemic encephalitis was a new disease profoundly affecting the nervous system. It had been prevalent in all parts of the United States for at least two years, occurring in both urban and rural communities, affecting both sexes and all ages. The disease was probably a general infection, with its principal localization in the central nervous system, and most frequently in the periaqueductal region of the midbrain. However, no part of the nervous system appeared immune. On account of the variety of localization, the symptoms were unusually varied and complex, but certain general symptoms were comparatively constant. Epidemic encephalitis should be suspected if two or more of the general symptoms of the disease were present. These symptoms were a state of somnolence or lethargy, marked

asthenia, fever of irregular type, and cranial nerve palsies. If, in addition, the spinal fluid showed a lymphocytosis with an increase of globulins this might be regarded as confirmatory evidence. In many atypical cases the diagnosis was difficult, and might be only a surmise. Treatment was empirical and symptomatic. Spinal drainage had appeared of distinct value. Arspenamin had appeared to benefit some cases in the absence of any indication of syphilis. The mortality of the disease had shown wide variation in the reports of different observers. There were no deaths in the six cases herewith reported. Hall had no deaths among his 16 cases. Abrahamson reported the mortality of 10 per cent., while others reported a mortality rate of 40 per cent. or higher. Mix concluded that the cases which had occurred in the United States had, on the whole, appeared to be milder than those which had occurred abroad. Among recovered cases a certain proportion were left with residual defects.

Ununited Fractures.—Dr. ALONZO MYERS of Charlotte, N. C., said that in the treatment of fractures following injury the question arose as to whether it was better to attempt to restore extremely traumatized parts in normal position, or to allow the inflammation to subside. Jones was emphatic in insisting on securing return of parts as soon as possible to normal position. If this was not done patients presented extraordinary difficulties later on. One never could hope for good operative position later on. The problem, then, was whether drainage first, or secure normal position, or both together. A standardized method treatment was best in which the bones were brought into line and held there, and function of the surrounding joints and nutrition of the muscles and soft parts were maintained. Such procedures tended to limit the number of delayed nonunions.

Treatment of Fractures and Dislocations.—Dr. F. G. HODGSON of Atlanta stated that continuing to use the fracture of the femur as an example, the muscles of the thigh and leg and the circulation of the entire limb could be kept in much better condition by judicious use of massage and electrical stimulation. The patient could be taught to move his patella up and down by voluntary muscular contraction and while in no way disturbing the fracture, keep the thigh muscles in good condition. In the same way he could move the muscles of the leg and foot and prevent atrophy and stiffness in the ankle and foot. After three weeks, careful movements of the knee joint might be begun by the surgeon himself. This should never be delegated to anyone else. When a case so treated was ready to get up and walk, his leg would not show the atrophy, the stiff joints, the contracted tendo-Achillis, and swollen, stiff toes so often observed after the customary treatment. Often some special form of apparatus might be required to maintain a fracture in the best position. Anyone would admit that the orthopedist was the best one to look after these cases. In the after care of some fractures, e.g. Pott's fracture of the ankle, a brace should be worn to prevent the development of deformity after the fracture had healed. Also cases of fractured femurs might be allowed to walk sooner if a brace was used. So it seemed to him that he had reached a stage in the progress of the treatment of fractures and dislocations, when the most satisfactory results might be obtained by putting these cases, from the very beginning, in the care of competent orthopedic surgeons.

Nonunion of the Humerus; Repair by Means of the Bone Graft.—Dr. M. S. HENDERSON of Rochester, Minn., drew the following conclusions: The massive graft had been more successful clinically than either the inlay graft or Albee or the intramedullary graft of Murphy. The rapidity of the establishment of solidity with the massive graft had led him to believe that perhaps Ollier's theory, that the graft might maintain the vitality and function, was correct. Contrary, however, to Ollier's theory, he believed, this was not due to the periosteal layer, but to the firm contact of the endosteal layer of the graft with the endosteal layer of the bone to which it was transplanted. A body cast with a trough for the arm supplied a few days before operation provided the best postoperative fixation that he had been able to provide. A splint should be worn during the period of convalescence after the removal of the

cast. The time at which this could be substituted for the cast differed in each case and should be decided on clinical evidence and roentgen ray examination.

Ligation of the Superior Thyroids in Patients with Exaggerated Toxic Symptoms.—Dr. EDWARD G. JONES of Atlanta said that the plan of ligating a part of the thyroid pole with the vessels was somewhat more popular than any other plan. Probably as good results followed ligation outside the pole. It was apparently not necessary to use nonabsorbable ligature material nor to sever the tissue between ligatures. A completely satisfactory explanation of the remarkable improvement was lacking. Certain patients were too good for ligation and too bad for bilateral thyroidectomy. They should have the resection done in two stages, one side at a time.

The Incidence of Kidney Infection in Acute Appendicitis.—Dr. R. M. HARBIN of Rome, Ga., drew the following conclusions: (1) While mechanical conditions of the appendix may be at times a causative factor, these observations warrant the belief that there are metastatic infections of the appendix and kidneys that seem to have a selective action and point to the existence of some common focus. (2) A greater danger lies in assuming that the actual symptoms of appendicitis are of kidney origin, and in suspicious cases extreme caution should be practiced before excluding the diagnosis of appendicitis in the presence of evidence of renal pathology. (3) The characteristic first day's clinical data with an increasing leucocytosis with moderate temperature would tend to prove the existence of an acute appendicitis in the presence of albumin, blood, and casts in the urine. In order to avoid contamination, it is important that specimens of urine should be obtained by catheter. (4) In the absence of violent symptoms of appendicitis, there may be cases of doubt in which it is prudent to deliberate for twelve to twenty-four hours for additional leucocyte readings, which are usually progressively higher in appendicitis.

Appendicitis in Children.—Dr. ROY ROBERTSON of Durham, N. C., drew the following conclusions: (1) In children the symptoms of appendicitis often are scanty, irregular, and misleading. (2) Appendicitis is more frequent in children than is generally believed, and is more severe. (3) All abdominal pain in children should be looked upon with suspicion, and the physician should be careful about administering purgatives as a routine before the diagnosis is established. (4) All such cases coming under observation should first have a thorough history taken, thorough physical examination made, and all necessary laboratory examinations resorted to. (5) The prognosis is very favorable if the diagnosis is made early and the operation is done early, but after the first twenty-four hours the prognosis is more serious.

The Kondoleon Operation for Elephantiasis; a Report of the End Results.—Dr. W. E. SISTRUNK of Rochester, Minn., said that in the Kondoleon operation we had at our disposal a measure which seemed to control definitely the progress of elephantiasis. The best results were obtained in patients treated by two or three weeks' rest in bed, with elevation and firm bandaging of the limb preliminary to operation. When operating it was necessary to bear in mind the fact that a large amount of skin, subcutaneous fat, and aponeurosis must be removed in order to obtain the best result. It was necessary that the limb be bandaged, when the patients were up and about, for an indefinite period, and oftentimes permanently, following the operation. Before operating a definite understanding should be made with patients regarding the fact that the operation was to be done for the purpose of controlling a disease which, if left alone, usually grew progressively worse; that a perfectly normal limb was not to be expected as a result of the operation, and that it would be necessary for bandages to be worn following the operation. Second, operations in which portions of hypertrophied skin were removed might be done upon patients in whom considerable deformity still resulted after the first operation, with expectation of further improvement.

Impressions Derived from 130 Neurosurgical Cases Studied During Twelve Consecutive Months.—Dr. CHARLES E. DOWMAN of Atlanta drew the following conclusions: (1) Patients referred for neurosurgical operations present such a variety of neurological mani-

festations as to make it necessary for the neurosurgeon to be thoroughly trained in neurology. (2) The chances of relief are often sacrificed by the tardy recognition of intracranial disorders. (3) Chronic headache, vomiting, or disturbance of vision should suggest immediately the possibility of an intracranial lesion. (4) In the absence of these symptoms of increased intracranial pressure there are often so-called focal symptoms which indicate grave brain disease. (5) Prolonged antisyphilitic treatment in the absence of positive evidence of syphilis is unwarranted and dangerous. (6) Where choked discs are present an operation for the relief of increased intracranial pressure should be performed immediately, even though an exact diagnosis has not been made, as delay will often sacrifice the patient's eyesight. (7) Decompression should be performed in cases of brain syphilis with choked disc before antisyphilitic treatment is instituted. (8) Preliminary irritation of the meninges and choroid plexus, followed by arsphenamin intravenously causes rapid improvement both clinically and serologically in many cases of neurosyphilis, and seems to be a method of distinct value in the treatment of such conditions. (9) The use of local anesthesia in operations of a neurological nature has, in properly selected cases, many advantages over the use of general anesthesia.

Acute Diffuse Septic Peritonitis.—Dr. A. L. BLESCH of Oklahoma City drew the following conclusions: (1) The cause of peritonitis of the septic type is most often due to a leak somewhere in the plumbing system of the body. (2) Absorption of toxins and endotoxins is facilitated by upward extension, peristalsis, and diaphragmatic action. (3) Since absorption is facilitated by the factors mentioned above, all of said factors should be minimized to the utmost first by positioning the patient always upon the first suspicion of intra-abdominal inflammation, while waiting for a diagnosis. As soon as the diagnosis is made operation should be planned, peristalsis controlled, and diaphragmatic action limited. (4) It is imperative to withhold purgatives in all cases suspicious of intraabdominal inflammation from the very beginning. (5) The treatment is surgical, and must be clean and incisive. So-called thorough work, which is time consuming, is to be avoided. It consists in simple drainage without fumbling and mauling of the tissues.

Static Difficulties of the Lower Extremities as Influenced by Circulatory Disturbances.—Dr. THOMAS MADDEN FOLEY of Washington, D. C., drew the following conclusions: (1) Clinical evidence shows that many unrelieved orthopedic conditions are due to circulatory disturbances, and may be relieved by proper treatment. (2) A close study of cases to follow up results of treatment will often disclose complicating circulatory conditions which may cause pain. (3) Deep varices in vena comites and atypical angioneurotic diseases of the lower limb are more frequent than are usually thought. (4) Appropriate systemic treatment for central circulatory disturbances must not be neglected.

Seminal Vesiculitis; a Study of 1000 Cases.—Drs. EDWARD WILLIAM WHITE and R. B. H. GRADWOHL of Chicago presented this paper, in which they affirmed that in order of comparative frequency their cases had been attacked surgically, first, for the relief of pain; second, for the evacuation of pus vesicles, and, third, for the removal of hard, indurated fibrous vesicles of long duration which were productive of much discomfort. In their opinion no undue haste need be exercised in advising operations until all palliative measures had been thoroughly exhausted. They had had cases under observation for years characterized by recurrent attacks of acute exacerbation, which were finally cured by persistent efforts at palliative measures. Contrary, however, to the foregoing, many cases of long standing failed utterly to obtain any material benefit by conservative methods, but were absolutely cured following operation. Vesiculectomy was certainly the operation of choice in the hard sclerotic vesicles; whereas, vesiculectomy and drainage had been entirely satisfactory in pus cases and acute catarrhal forms. It had been found that the following classes of cases were all surgical possibilities: (1) Acute catarrhal cases with marked general and urinary symptoms. (2) Chronic fibrous, sclerotic cases, unrelieved by treatment. (3)

Pus and blood after massage, or with ejaculation. (4) Vesical cases causing any obstruction to the higher urinary tract.

Ureteral Calculi.—Drs. A. J. CROWELL and RAYMOND THOMPSON of Charlotte, N. C., drew the following conclusions: (1) Practically all recently impacted ureteral calculi can be removed under local ureteral anesthesia by cystoscopic methods with less fatalities and less injury to the kidney function than that obtained following surgical operative procedures. (2) The success of the method depends upon complete ureteral anesthesia and dilatation, the skill of the operator and persistence in his manipulations. (3) An effort should first be made to remove the stone by this method, since no harm is done the patient by it, and surgery can be resorted to at any time necessary. (4) If crowned with success the fatalities are far less, much time and suffering saved, and a return of the condition less liable.

Ureteral Stricture in the Male.—Dr. ALBERT E. GOLDSTEIN of Baltimore read this paper, of which the following were the conclusions: (1) Nontuberculous acquired ureteral strictures in the male are more than an entity. (2) The ureterogram and pyelogram will demonstrate the lesion. (3) A diagnosis is made principally from the history, the ureteropyelogram and wax bulb hang. (4) The etiological factor concerned is some focal infection, usually the teeth or tonsils, and rarely a Neisserian infection. (5) Accurate technique will assist in differentiating other suspicious lesions.

Kidney Tuberculosis.—Dr. CHARLES E. BARNETT of Fort Wayne, Indiana, read a communication with the following conclusions: (1) Nonoperative cases should include all cases diagnosed or suspected as having tuberculosis who improve following tuberculin, hygienic, and correctional metabolic kidney functional treatment. (2) All abscessed kidneys, whether tuberculous or nontuberculous, should be removed surgically. (3) The glomerulus, with its stasis blood pool on account of its smaller venous outflow than the arterial intake, with an all time two million chances for bacterial lodgement, would seem to make it the most likely portal of entrance. If that be true a cortical invasion should heal the quicker on account of a profuse blood supply. (4) Kidney drainage perfection, with the exception of Henle's loop, is much like a tree. The sap always drains toward the body (pyramids), and finally into the roots (papillary ducts). (5) Agglutinations of the glomerular and convoluted tubules might short-circuit the infective drainage down the distal tubules into the medullopapillary zone, thus accounting for the major habitat of found tuberculous foci. (6) The nonoperative curability of kidney tuberculosis, without a mixed infection present, appears rational and possible. Proof positive is hard to give, but it will finally come through the results of case recoveries from non-operative treatment.

Factors That Lower the Mortality Rate of Suprapubic Prostatectomy.—Dr. GEORGE R. LIVERMORE of Memphis stated that the two-step operation should be performed in every case because: (1) The bladder would be cleaner than when drained through a retention catheter, thus diminishing the possibility of sepsis. (2) The kidneys were better prepared to stand the removal of the prostate as the back pressure was entirely relieved and was prevented from recurring as the drainage was continuous. (3) The bladder was at rest and had become accustomed to the suprapubic tube. (4) The congestion of the prostate had been relieved, thus diminishing the hemorrhage and making its control easier. (5) Through the suprapubic wound there was a certain amount of absorption of toxins, and hence by the antibodies thus produced the patient was rendered less susceptible to infection.

Hemorrhage from the Kidney.—Dr. H. A. FOWLER of Washington, D. C., said that the treatment of these cases was directed primarily toward the control of the hemorrhage. The experience of the past few years had added little that was new. The nature of the treatment to be employed in any given case depended naturally upon the character and amount of hemorrhage. In general where the hemorrhage had not continued over a long period, where the patient's general condition was good, and the demand for immediate control of bleeding was not urgent, conservative meas-

ures should be given a thorough trial before resorting to radical surgical intervention. Bleeding ceased at times after simple ureteral catheterization. Numerous cases of this kind were reported. He had observed this result in a number of instances. Considering the underlying pathology one should expect the result of such simple treatment as the irritation from ureteral catheterization to be only temporary. In his experience the bleeding usually recurred. Injection of the pelvis was often followed by cessation of bleeding. He had used various solutions, such as argyrol, collargol, adrenalin, horse serum, and silver nitrate. His best results were obtained by silver nitrate in 1 per cent. strength. He had employed the intramuscular injections of horse serum with varying results. If conservative measures failed to stop bleeding, and the patient's condition justified it, nephrotomy or decapsulation might be done, provided the kidney on exposure revealed no gross pathology. Equally good results appeared to have been obtained by both of these operations. In cases of severe uncontrollable hemorrhage where bleeding must be properly controlled, nephrectomy was the only operation to be considered.

Transplantation of Cartilage.—Dr. W. T. COUGHLIN of St. Louis stated that for transplantation into the skull in cranioplasty one should be certain to have the transplanted portion thick enough. A thin piece could not afford very much protection. He removed the whole thickness of a costal cartilage as long as was necessary, and then he split it in coronal plane into two halves. He never tried to remove the perichondrium, but always tried to remove the cartilage with its perichondrium intact. This was not because he feared that the graft would not grow without its perichondrium, but because when split the piece curved with its perichondral surface concave. It did this better when the perichondrium was attached. This curving was often of advantage, always so in cranioplasty, for then the concave surface was placed toward the brain and so the cartilage conformed more to the contour of the skull. There had never been any accident in getting the cartilage—neither bleeding, nor opening of the pleura, suppuration, nor lung or chest complications. The patient was never obliged to stay in bed because of the chest wound. In fact, in all the cases in which he had obtained it for purpose other than cranioplasty, the patient was not confined to bed at all. When cartilage was used for cranioplasty it was to be remembered that the cartilage rested on the outer aspect of the skull. The periosteum was reflected back for half an inch all around the margin and pieces were beveled at the expense on their outer surfaces and fastened to the periosteum with catgut. The periosteal flap was thus sutured on to the outer aspect of the cartilage. It had been said that the cartilage united with the bone as it did in life. He had not seen this occur, but he had found elsewhere the cartilage firmly adherent through fibrous tissue. He had never known a piece of cartilage to slip from its moorings or to fracture. He had never drained after a transplantation, but he always established as nearly perfect hemostasis as he could, and only the minimal amount of ligature and suture material and that, always quickly absorbable, was buried in the wound. Around the mouth, nose, and eyes, suppuration was very hard to avoid, and in using free bone grafts aseptic healing was almost imperative with free cartilage. However, his experience was in accord with that of many others. Even though the wound suppurated, free pieces of cartilage, often surprisingly large, healed in the course of five to eight weeks if good drainage was maintained. He had not used it to take the place of loss of an entire segment of the lower jaw. Mostert at first claimed success with cartilage in overcoming such defects. He later, however, was not overenthusiastic for it, but almost everywhere else about the head he had used it always with the greatest satisfaction.

Postoperative Thrombophlebitis.—Dr. FRANK K. BOLAND of Atlanta stated that the treatment of thrombophlebitis consisted in rest, elevation of the part, and the application of cold during the acute stage, and heat afterwards. Opium was often necessary to relieve pain, although he found that the administration of such drugs as aspirin in 5 grain doses every four hours, not only seemed sufficient to give the patient

comfort, but also lowered the temperature, caused profuse diaphoresis, and apparently shortened the course of the disease. It was well for nurses to know that postoperative pain in the legs should not be subjected to massage until the cause of the pain was known. Such well intended, but misdirected treatment, might produce pulmonary embolism. As Binnie said of ventral hernia, the best treatment of postoperative phlebitis was not to have it. While it had been shown that the complication would occur in spite of irreproachable surgery, a consideration of its etiology must suggest that the incidence of the disease might be reduced by closer attention to the details of the operation, which meant sharp, clean dissections, the gentler handling of tissues, and always striving for an improved aseptic technic.

The Combined Examination of the Urinary Tract by the Urologist and the Roentgenologist.—Drs. HOWARD E. ASHBURY and ALBERT E. GOLDSTEIN of Baltimore drew the following conclusions: (1) By the combined method of examination our results show only 1.6 per cent. of failures. (2) Urological lesions were demonstrated frequently by aid of the x-ray where they were doubtful in the two examinations individually. (3) In over 50 per cent. of the cases in which the plain x-ray was negative pathological conditions were found by the combined method of examination. (4) The plain x-ray findings should in all cases be verified by the urologist before a conclusive diagnosis is given. (5) The combined method is the ideal procedure in the diagnosis of urological conditions.

(To be continued.)

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA.

Seventieth Annual Session, Held at Pittsburgh, October 4, 5, 6 and 7, 1920.

(Concluded from page 33.)

Concerning Acute Traumatic Surgery of the Abdomen.

—Dr. LEVI J. HAMMOND of Philadelphia read this, saying that every injury to the abdomen, however slight it might appear at the time, should be considered and treated as if known to be grave, for death might ensue from apparently slight blows. About 10 per cent. of the serious injuries affecting the body involved the abdominal viscera. A blow which did not produce a visible injury to the abdominal wall might contuse or rupture organs within. The immediate and serious effect of these concealed injuries was hemorrhage and rupture of hollow viscera with infection. Shock also occurred. Median laparotomy was the only certain means of ascertaining the extent of the injury and source of hemorrhage. In punctured wounds of the abdomen the seriousness depended upon the degree of injury to the viscera. Early operation was the safest to follow, even though the abdomen might at times be needlessly opened. Leucocytosis in hemorrhage was not, as claimed by some, a reliable factor.

Dr. JOHN O. BOWER of Wyncote, Pa., said that he agreed with Dr. Hammond that every abdominal injury should be considered a surgical case potentially. He had had a different experience with the leucocyte count in practical diagnosis. In every case that had come into the Samaritan Hospital in the past 10 years a leucocyte count had been made. In every instance the degree of hemorrhage had been commensurate with the amount of leucocytosis. There was only one case in which a leucocytosis was found in which operation was not done and that was in a ruptured spleen. The patient was treated expectantly for 48 hours. At the end of that time he was given a bottle of citrate by mistake and within an hour his abdomen was filled with blood. In a rupture of hollow viscera in the abdomen they did not depend upon the leucocyte count because that would cause delay.

Dr. SAMUEL D. SHILL of Chambersburg said that injuries of the abdomen produced conditions that were harder to diagnose than almost any other condition in surgery, and among the injuries the penetrating wounds were the ones that required most attention because there was apt to be perforation of almost any part

of the viscera. In treating penetrating wounds of the abdomen an operation should be done immediately if the patient could be got into the hospital at once. Blows and contusions of the abdomen could be studied a little while longer than the penetrating wounds.

Dr. WILLIAM L. ESTES of South Bethlehem said that these cases of injuries to the abdomen interested him very much, and he had seen a great many of them, usually in industrial establishments. He wished to emphasize the importance of making early determinations by opening the abdomen at an early stage. There was no doubt what ought to be done in a penetrating wound of the abdomen if below the epigastrium, whether from gunshot or entrance of a pole there was always more or less injury to the contents of the abdomen. There would be hemorrhage and frequently very large perforations of the viscera. He had found in the observation of a large series of cases that leucocytosis varied very much. He had made it a rule, and there was a large series, to have a leucocyte count made almost immediately, and where there was a good deal of hemorrhage there was a relative diminution of the red corpuscles and increase of the white. In some cases there is an almost immediate increase in the leucocytosis, but it varied so much that he had learned almost to entirely disregard it. He would counsel everyone who had to deal with these injuries to watch carefully for persistent stasis of the intestines and if there was vomiting and persistent distention of the abdomen and signs of shock he would always advise that the abdomen be opened at once.

Dr. HUGH E. MCGUIRE of Pittsburgh wished to say a word in regard to morphine in abdominal injuries. He had a rule in the hospital that no man was to receive morphine until they knew what was wrong with him. If there was a small area of contusion and the temperature went to 100°, the abdomen was opened. If one waited until vomiting and all the symptoms of ruptured bowel set in nine-tenths of the cases were going to die. One could open the abdomen and obtain information. He would rather open a case and be mistaken than have the man die. He made it a rule to open these cases in the first six hours, if possible.

Dr. JOHN P. GRIFFITH of Pittsburgh said that this paper was a very important one, particularly for men who saw considerable of these cases. They taught their interns and medical students, even in a case of fractured clavicle, to always examine the abdomen. Almost invariably there was one sign of peritoneal trauma, that was the greatly reduced peristaltic action. In a rupture of any of the viscera, even if there is not much escape of contents, very shortly after the injury there would be almost a complete cessation of peristalsis. The next valuable point in the diagnosis was the tenderness at or near the site of trauma. In his surgical work one sign elicited properly had helped him in more cases than any other thing. A hemorrhage that will diffuse over the peritoneal cavity might not produce much shock, but it would produce a cessation of peristalsis within 5 or 6 hours of the trauma.

Dr. RICHARD J. BEHAN of Pittsburgh said that one factor in traumatism of the abdomen was cessation of abdominal respiration. He had examined many cases of abdominal injuries and that was one of the first things that was absent. It came on as quickly as did the rigidity of the abdominal muscles.

Early Diagnosis of Perforated Gastric and Duodenal Ulcer.—Dr. WILLIAM L. ESTES, JR., of South Bethlehem read this paper, saying that early diagnosis of perforation of a gastric or duodenal ulcer could be made in the vast majority of instances by the severe, sudden pain of onset, history of previous indigestion, boardlike abdominal rigidity, and marked retraction of the upper abdomen sufficient to cause a transverse line just above the level of the umbilicus. In atypical cases radiogram of the abdomen for the detection of gas along the diaphragmatic line and a shifting tympany over the liver in the lower axilla might serve to identify a perforated digestive ulcer.

Technique of Gastroenterostomy.—Dr. HAROLD L. FOSS of Danville, Pa., read this paper, saying that gastroenterostomy, though one of the most valuable of operations and, in point of results, the most satisfactory treatment for duodenal ulcer, yet occasionally was followed by disappointment often due to faulty

technique or mechanical defect in the operation. Among the commoner untoward results were vicious circle, gastrojejunal ulcer, reactivation of the original ulcer, the production of new ulcer and malignant degeneration in a gastric ulcer already established. Of the mechanical defects the commonest were to be found in the use of the Murphy button, bobbin, or similar devices; the formation of a long jejunal loop; the Roux or Y technique; such complex procedures as that of Ehrlich or Vulliet; use of the anterior operation; failure to properly locate the stoma; failure to make an opening of sufficient size; the use of nonabsorbable suture; failure to properly funnel the stomach through the transverse mesocolon; infection during the operation with formation of adhesions; the performance of gastroileostomy; failure to combine with surgical careful postoperative medical treatment; operation without sufficient lesion or lack of thoroughness at operation such as removal of remote sources of infection.

Dr. CHARLES H. FRAZIER of Philadelphia said that a point which ought to be emphasized and was not at many surgical clinics was regulation as to the care of the patient after the operation. So little was known about ulcer that one could not be very exact in prescribing medicines or diets for the post operative period. At the same time it seemed to him that common sense dictated that a patient who had had an ulcer and a gastroenterostomy could after a considerable period resort to a diet which the person was accustomed to who had a perfectly normal stomach, and where food passed through the natural outlet. We were justified in recommending the administration of alkalies repeatedly throughout the day and it was to the patient's advantage for a considerable period after the operation had been performed to restrain his diet in regard to quantity and resort as far as possible to frequent feedings—light breakfast, something between breakfast and lunch, something between lunch and dinner, and then perhaps a little when the patient went to bed. In other words, he should have, instead of three feedings, six, and the use of alkalies before each feeding and perhaps in the interval between.

Dr. ROBERT T. MILLER of Pittsburgh said that the paper of Dr. Estes seemed to him particularly timely. These cases about which he spoke, practically all of them, did without treatment. Mayo Robson estimated that of those patients who came to operation twelve hours after perforation one-third died within twenty-four hours, and of those who came after forty-eight hours practically 100 per cent. died. It was obvious that early diagnosis was essential. The only criticism he would make of Dr. Estes's paper was that it had been read in the wrong section. The difficulty was not with the surgeon, the difficulty lay with the man who first saw the case, who temporized, used a little morphia, a hot water bag, letting the family down easy. The surgeon operated as soon as he saw it. He must have the case early if he was to do very much good. His paper served in particular to emphasize the thing that was essential, namely, to go after the early diagnosis in the hands of the man who saw the case and not to think of this thing as a surgical problem. It was a problem in internal medicine primarily.

Dr. DONALD GUTHRIE of Sayre said that there was one point in Dr. Estes's paper he would like to mention: that was, he spoke of the early history as being a factor in the diagnosis of perforation of acute ulcer. He had noticed several times in his work that he had what he believed were acute and septic ulcers, not old chronic ulcers which had perforated, but acute septic ulcers which had perforated without any previous history of indigestion. He had not taken the patient's word that they had never had stomach trouble previously because it was hard to get a history from one so acutely ill as these cases, but he had gone to the families of these patients and tried to get a history of former stomach trouble. He had had six cases of this in his experience. He spoke of it for the reason that one should not rely upon the history of chronic indurated ulcer in order to increase his assurance that the case under consideration was a perforated duodenal ulcer. He thought Dr. Frazier had led us on the right track. It seemed to him that there was no class of cases where the surgeon should cooperate with the internist more than in these cases. Perhaps the jejunal ulcer might be prevented

by giving these patients large, frequent and heavy doses of alkalis immediately after operation, continuing these alkalis and being sure that the diet be regulated under the direction of a live, well-informed medical man and that the alkalis be continued for many months following the operation.

Dr. J. STEWART RODMAN of Philadelphia said that he recalled one case in which there had been entire absence of shock and that had been the only one in the series. It was a soldier who had walked to his tent two hours after perforation, his pain had continued and he came to the hospital three hours after he had perforated. He had made a good recovery. The rest presented rather severe shock. One case in which the shock had been so severe when the patient reached the hospital it was impossible to do anything. The patient was in *extremis* and died an hour and a half to two hours after admission to the hospital. Whenever there was perforation of a hollow viscus we would invariably get a loss of peristalsis and that was the almost infallible diagnostic sign, coupled with other symptoms which we would get in these cases. He agreed heartily with Dr. Guthrie. As far as one could lay down a rule he believed it was better not to do a gastroenterostomy in these cases. As far as Dr. Foss's paper was concerned he believed there was a good deal being said about the failure of gastroenterostomy and it was interesting to hear Dr. Foss recount his experience because he has had considerable experience in abdominal surgery. Gastroenterostomy had been first proposed as a palliative procedure and it had remained that for gastric ulcer up until the present time and always would. It was a curative procedure so far as duodenal ulcer was concerned, but unless it was combined with destruction of the ulcer in gastric ulcer it was certainly nothing but a palliative procedure.

Dr. W. WAYNE BABCOCK of Philadelphia said that when a gastroenterostomy was done it cured about 85 per cent. of duodenal ulcers. When the ulcer was in the stomach and up along the lesser curvature, the percentage of cures by gastroenterostomy dropped very low. The normal antidote to the acid chyme was the bile. Owing to this fact, about a year ago he had stopped doing gastroenterostomy for ulcer and took the gallbladder and planted it into the ulcer bearing area. If the ulcer were in the stomach the ulcer was excised and the gallbladder implanted in the orifice that was left. This gave a normal alkali which was supplied by the body for the rest of the patient's life. In several x-ray studies there was found no food or bismuth regurgitating into this gallbladder. In some 200 cases the evidence during the first two years had been that secondary complications were rare and the patients lived very comfortably with the bile running into the stomach. The patients got rapid improvement and got along just as well as they did after gastroenterostomy.

Dr. MOSES BEHREND of Philadelphia said that it had been his custom to do gastroenterostomy in every case of perforation. Recently he had tried the operative procedure of not doing a gastroenterostomy. The results were just as good, but time was still too short to compare these cases in which he did a gastroenterostomy and those in which he did not do it. It seemed whatever method was used, if one had a proper technic, that cases will get well. He did not believe that a non-absorbable material was responsible for the gastrojejunal ulcer.

Dr. EMORY G. ALEXANDER of Philadelphia said that in the Episcopal Hospital they were most fortunate and had had some 50 cases of perforation of duodenal ulcer in the last 10 years and had found in the great majority of these cases they gave a distinct history of stomach trouble. Frequently if one questioned the patient at the time of the first examination he was generally suffering and was unable to collect himself sufficiently to give you accurate data on that subject, but if you would visit him some days after the operation and question closely, you would find out. He would say "Oh, yes, I have had stomach trouble," and probably he would say he had had it for years. The symptom to lay stress on was the sudden onset and rigidity of the right rectus; absence of liver dullness he had always thought of some value. The majority of surgeons, however, did not believe that to be of any marked

value because one did not know the normal liver dullness for that patient.

Postoperative Complications and Sequelæ of the Respiratory Tract.—Dr. H. RYERSON DECKER of Pittsburgh read this paper saying that on the average one person in every 45 operated upon developed a respiratory tract complication and one case in every 200 died from such complication. Pneumonia was by far the commonest complication, chiefly the croupous type. There had been in their series of 5976 cases 10 of pleurisy and 7 cases of bronchitis, 2 cases of embolism of the pulmonary artery had been observed. Latent tuberculosis might be lighted up or an active lesion aggravated by operation, especially if inhalation anesthesia was used. Exposure of the patient before and after operation to unaccustomed conditions was an important predisposing cause of respiratory trouble, likewise various infections pre-existing in the body.

The Problems of Modern Chest Surgery as Met by Physiological Drainage.—Dr. LEVER F. STEWART of Clearfield, Pa., read this paper saying that the dictum in surgery was to drain in the presence of infection and in lung surgery to keep the pleural cavity drained and free from air. This was made possible by the use of the one-way valve used in the Army box gas mask which met the physiological requirements. This had been first suggested to him by Yates in 1918. He had attached this valve to the Brewer tube, modified its application so as to continue indefinitely the protection of the pleura from the air and at the same time permit the use of Dakin's solution. To the distal end of the tube the gas mask was attached. The outer flange of the tube was placed under the skin which was sutured over it with catgut.

Dr. FREDERICK B. UTLEY of Pittsburgh said that it was common for a man on the medical service to transfer a man to the surgeon for operation and he said, "Oh, very well, I shall operate on the patient to-morrow morning," then he thought no more about the patient until he appeared in the operating room, having had no examination as to the ability of the patient to take an anesthetic or what would be the best anesthetic. It was of more importance at the time to determine whether the patient could take an anesthetic from the standpoint of the respiratory tract than to take the measure of the circulatory system. It would seem to him wise to have all patients in the hospital a few days if possible before operation. He had seen two or three chests this spring in which Dr. Stewart's method had been used and it had been amazing to see how completely the pleural cavity had filled with the expanding lung.

Dr. A. RALSTON WELLS of Philadelphia said that the prime thing in Dr. Decker's paper was the importance he placed on the anesthesia used. All inhalation anesthesia, of course, made the lung work to a fuller extent. It would, therefore, cause a passive hyperemia of that lung and would therefore give a better opportunity for culture of any bacterium that happened to be present. The nitrous oxide was the least harmful of all the inhalation anesthetics. He would like to advocate the advantage of a spinal anesthetic which was moderately safe. With spinal anesthesia given by a person who was familiar with its use it appeared to him that would overcome a great many of the difficulties experienced in chest surgery. The drainage tube of Dr. Stewart was very apt and would lessen mortality to a great extent.

Carcinoma of the Breast, with a Study of the Results Obtained in 218 Cases.—Dr. WALTER E. SISTRUNK of Rochester, Minn., read this paper saying that it was based upon the results obtained in 218 consecutive cases in which primary radical amputation of cancer of the breast had been performed from 5 to 8 years previously and who recently had been traced. The recurrences had been found to occur largely in late cases and evidently came because cancerous tissue had been left in regions inaccessible to the knife while the highest percentage of cures and the infrequent recurrences had been found in those operated upon early in the disease before glandular involvement could be demonstrated. The end results were probably better than those in any other types of cancer except the basal called epithelioma of the skin and cancers of the lip. When the public was better educated

as to the necessity of seeking surgical aid early for all breast tumors and when it was generally recognized by the entire medical and surgical profession that the day of watching breast tumors was past it seemed likely that the formation of many cases of malignancy would be prevented and that 75 to 80 per cent. of patients with cancer would obtain 5 to 8 year cures.

Dr. MOSES BEHREND of Philadelphia said that in order to get results it was absolutely essential to clear out all diseased tissue and it was of special importance to clear out the glands that one could feel and see.

Dr. DONALD GUTHRIE of Sayre said that if one would recall Dr. Sistrunk's statistics he would see the great difference between the number of patients who remained well without axillary involvement as compared to the number who had recurrence following axillary involvement. It all meant that the tumors must be gotten to the surgeon earlier. The three-year period, as Dr. Sistrunk had said, was not time sufficient for us to draw any optimistic conclusions; neither was the five-year period. The importance of giving x-ray treatments to these patients after operation he was glad to touch upon. Following the suggestions of Dr. Wainwright of Scranton he had for the past few years been having these x-ray exposures to the field of operation before closing the skin. The x-ray experts told him many of the rays were filtered out by the skin and that a valuable way to attack cancer cells was at the time of operation before the skin flaps were closed.

Dr. WALTER E. SISTRUNK of Rochester, Minn., said that Dr. Behrend brought up the question about the glands in the axilla; he did not think we felt the glands in any but a few of the cases in which they were found to be involved. The glands that were felt were under the scapula; high up in the axilla it was hard to feel them. He was interested in Dr. Guthrie's remark as to x-ray and the preliminary treatment of these cases with x-ray, and he thought that was a good measure and after hearing Dr. Clark's paper here to-day he felt that it would be a very good plan to treat these cases with heavy doses of radium or x-ray before as well as after operation.

Treatment of Complicated Cleft Palate.—Dr. JOHN B. ROBERTS of Philadelphia read this paper, saying that delay in starting the operative treatment of congenital clefts of the oronasal partition beyond the first month or two of life was usually an error of judgment. If the child's condition did not permit completion of the operation, the harelip could be given attention about two weeks after the osteoplastic work had been done. The wire in the maxilla should not be disturbed for 4 or 5 months. In bilateral clefts the protruding intermaxilla was forced back into place but should never be removed. Two or more operations might be needed to entirely close the defect. No routine method of uranoplasty or staphyloplasty could be successfully used. Any residual defects might be corrected in the second or third year.

War Surgery of the Face and Jaws Applied to Injuries in Civil Life.—Dr. ROBERT H. IVY of Philadelphia read this paper, saying that bone grafting in ununited fractures of the mandible with loss of substance was an established procedure. This was especially adapted to cases in which a whole segment of the bone was lost through osteomyelitis or necrosis or those in which a part of the bone had been removed on account of a tumor. Formerly these had been unsatisfactorily treated by prosthetic appliances. The best adapted graft was that obtained from the crest of the ilium. If attachment to bone could be obtained for the graft at only one end, a graft consisting of a part of the rib with its cartilage attached was most suitable because if bone was implanted into soft tissues it underwent rapid absorption.

Dr. A. KALSTON MATHENY of Pittsburgh said that some of these cases had such a hopeless deformity and the operation was so formidable that he had found it feasible in a few cases to close the lip first and not touch the palate. With lateral pressure for 5 minutes 3 or 4 times a day over a period of 8 months to a year a hopeless condition was changed to a very easily operable one. He had seen a cleft of an inch or more reduced in this way to one-eighth of an inch. There was in the market a very useful nipple with an obturator

attachment that rested against the roof of the mouth.

Dr. M. BEHREND of Philadelphia said that it has been his custom to operate upon these cases within the first 48 hours because the babies would lose weight and strength owing to inability to take food properly. He closed the palate first by the Brophy method and closed the lip some weeks later.

Compound Fracture of the Femur.—Dr. DANIEL A. WEBB of Scranton read this paper saying that in 1916 the mortality of thigh wounds in the British army was 80 per cent. In 1917 the Thomas splint was issued to stretcher bearers. Then cases arriving at the Casualty Clearing Station instead of being shocked and moribund were ready for immediate operation. The death rate for thigh wounds dropped to 15 per cent. The end results had greatly improved under the use of the Thomas splint. The teaching of the principles of treatment of fractures and their practical application must be vastly improved if ordinary justice was to be done to fracture cases in the future. A Thomas splint ought to be part of the equipment of every ambulance and internes should be taught its use.

Dr. WILLIAM L. ESTES of South Bethlehem said that before the war we had been accustomed to use the Thomas splint, but we used it without the combination of the Balkan frame and with that properly adjusted it makes almost an ideal dressing for fracture of the femur. While we said it was necessary perhaps to learn from one who had done a great number of fractures, yet each fracture was an individual study. No one who attempted to treat a fracture by the same sort of apparatus, even though it might be as perfect as this, was going to get as good results as the surgeon who studied and adapted his apparatus to the fracture itself, not to the fact that it was a certain kind of fracture of the femur or of the tibia, or that sort. There were things about the Thomas splint which lent themselves to fracture of the femur. Treating of fracture was not simply to get union of bone. It was that, of course, but much more it was getting back of function of the part and getting back a measure of usefulness that would make the man perfectly capable again.

Dr. JOHN H. GALBRAITH of Altoona said that his experience with the Thomas splint has been limited almost entirely to the straight Thomas as used at Liverpool and in line work in France. Even at a big base center they had had no ice tongs. He had seen one pair there which had been applied at another hospital. He heartily agreed that all cases should have the ice tongs applied, except in fractures close to the condyles. It seemed to him the use of the adhesive old-fashioned traction straps would answer just as well. The few cases he had seen where the ice tongs had been used the patient complained bitterly.

Dr. JOHN B. LOWMAN of Johnston said that just as the author had said, the Thomas was the ideal first aid splint. After application of the Thomas splint at the front they did not get these cases in severe shock as they did before. He thought it was an admirable splint to be used in all industries at the present time. They had adopted it and taught the application to their first aid men by moving pictures. If the ice tongs was applied properly there was not so much pain. A good deal of pain was caused by a little exudate under the periosteum.

Dr. JOHN D. V. SINGLEY of Pittsburgh said that he had been very much interested in the method of treatment of fracture of the femur by the method of Pearson's bed and calipers. This interest had been mainly aroused by Dr. Slocum who had had a wide experience with it. He had had a small experience, but sufficient to emphasize several points in connection with it. In the first place the results were immeasurably superior to any other method he had been familiar with previously. Second, it was much more comfortable to the patient. He could not confirm the statements that the calipers were painful. He had seen cases in which the patients complained, but he believed it was probably due to faulty application of the calipers.

Bone Necrosis with Special Reference to Tuberculous Lesion.—Dr. MARVIN W. REED of Bellefonte, Pa., read this paper in which he said that tuberculosis of bone began usually as an infection of the epiphysis and, while it might burrow through the cortex and periosteum,

teum and discharge as an abscess, the usual process was to extend into the joint. Early symptoms might be very indefinite. The treatment was hygienic with active surgical intervention in suitable cases.

Dr. ALEXANDER ARMSTRONG of White Haven said that the thing that struck him first was the infrequency of bone and joint conditions in tuberculous cases. He might say on an average of 300 cases which they had at White Haven he could count only 5 cases of bone or joint tuberculosis. He would refer to the work of Rollier of France, in reference to the sun bath treatment. With free pus the sun bath with x-rays and violet rays would give astonishing results, would give a joint with function. He had a case like that now in which the patient had gone from surgeon to surgeon and they all had simply thrown up their hands and said, "We can do nothing for you except amputate," and after a year's treatment by sun baths he had gotten complete healing.

The Diagnosis and Treatment of Carcinoma of the Rectum.—Dr. DAMON B. PFEIFFER of Philadelphia read this paper saying that carcinoma of the rectum was a common disease ranging next in frequency to carcinoma of the stomach. The mortality of cancer of the rectum unoperated was the same as that of cancer of the stomach, namely, 100 per cent. Yet strenuous efforts were made to diagnosticate and operate upon cancer of the stomach while general apathy existed concerning the disease in the rectum in spite of the fact that chances of cure in the latter were better. Diagnosis was easy but could be made only by examination. The index finger was the only instrument needed. Fully 90 per cent. of rectal cancers were readily palpable with the finger and those higher up could be diagnosed by signs of obstruction. Operation was the only treatment. The prejudice against the permanent colostomy often required was not well founded. Patients get along nicely and for years lead active lives with permanent colostomy.

Dr. J. ELMER PORTER of Pottstown said that an examination of the rectum with the gloved finger or speculum or both should be made in every patient coming with symptoms of rectal disease. This would present in many instances the hopeless condition appearing in the surgeon's office. Another valuable thing was the exploratory median abdominal incision which permitted an examination of the rectum and adjacent organs, also the liver for secondary involvement.

Spontaneous Rupture of the Gallbladder.—Dr. EVAN W. MEREDITH of Pittsburgh read this paper saying that operation was indicated as the reported cases showed the usual time and mortality ratio that obtains in other perforative lesions in the abdomen. The grave condition of many of these patients would limit surgical interference to the minimum and cholecystostomy with free local drainage would be the procedure of choice. Rubber tissue with or without gauze in the form of a cigarette drain would satisfy all the drainage requirements. Suprapubic drainage was seldom necessary.

Repair and Anastomosis of the Bile Passages for the Relief of Chronic Jaundice.—Dr. MOSES BEHREND of Philadelphia read this paper saying that the manner in which most surgeons performed cholecystectomy could not but be fraught with danger to the common duct, injury of which might lead to cholemia. Such injury could be prevented if during operation the structures within the gastrohepatic omentum were exposed to the eye. A careful operation showed that there were 25 per cent. of variations in the relation of the ducts to each other and to the blood vessels. Where the common duct had been destroyed the best procedure was the anastomosis of the hepatic duct to the duodenum or stomach. When jaundice was due to tumors of the pancreas or an irremovable tumor at the papilla of Vater great relief could be given the patient by the anastomosis of the gallbladder or common duct to the stomach or duodenum. Every case of chronic jaundice should be operated upon as quickly as possible. They were usually held too long by the internist.

Dr. JOHN J. GILBRIDE of Philadelphia said that in anastomosing the various ducts of the gall bladder he believed we should retain as far as possible the physiological function and not anastomose the gall bladder to the stomach except under extreme urgent necessity

where one could anastomose the parts to the duodenum. The duodenum was closer and better results would be obtained by anastomosis of the gall bladder or duct directly into the duodenum. That was where the bile belonged and where it performed its function.

Dr. A. RALSTON MATHENY of Pittsburgh said that Dr. Meredith had mentioned the analogy between the acute appendicitis and acute cholecystitis. His cases of perforation were cases of acute cholecystitis. The analogy was well placed because the condition must be handled exactly the same way as in acute appendicitis.

Dr. M. BEHREND of Philadelphia said that attention had been called to the fact that the gallbladder should, if possible, be anastomosed to the duodenum instead of the stomach. Sometimes mechanical difficulties were so great where adhesions had bound down the duodenum that it was safer to anastomose the gallbladder to the stomach instead of the duodenum. It was remarkable how the stomach would tolerate bile. In several of these cases no vomiting occurred after operation where the gallbladder had been anastomosed to the stomach.

The Value of Subtotal Hysterectomy in the Treatment of Fibromyomata of the Uterus.—Dr. F. HURST MAIER of Philadelphia read this paper saying that in determining the respective value of total and subtotal hysterectomy in the treatment of fibromyomata we could ignore the facts that true carcinoma of the cervix was present in at least two per cent. of the cases and that there was a definite percentage of malignant disease associated with cervixes retained after the supravaginal procedure. The personal equation of the operator must be the deciding factor in the choice of operation. For the class of surgeon whose mortality in subtotal hysterectomy was only 2 per cent. this should be the operation of choice as this represented the best percentage of mortality in total hysterectomy. In hands not especially skilled the subtotal operation gave the greatest safety.

Dr. HERBERT B. GIBBY of Wilkes-Barre said that Dr. Maier had opened up a question which was of extreme importance. End results were really what the surgeon was after and the surgeon who had a very high mortality in his operation certainly did not get good end results. He had given us a very fair presentation of the incidence of malignant disease in the services associated with fibroid uteri. The possibilities of radium treatment it seemed were something that was going to prove of great value in the future.

Dr. EDWARD A. WEISS of Pittsburgh said that he had always felt that the cervix had a very distinct function to perform. He always felt that the cervix was to the pelvic contents what a cork was to an inverted bottle. It was a distinct plug for the pelvic contents and its preservation was of decided benefit.

The Practical Aspects of Antenatal Hygiene.—Dr. EDWARD A. SCHUMANN of Philadelphia read this paper in which he said that antenatal hygiene was divisible into three groups: (a) The sociological factors, housing, sanitation, food, and occupation as applied to the pregnant woman, or, better, to the woman in whom pregnancy was a possibility. (b) Eugenics and the care of the woman and her fetus from the standpoint of prevention of infection, recognition and treatment of disease, if present, and those prophylactic measures against toxemia which were so generally understood. (c) The prevention of birth traumatism by careful estimation of the capacity of the maternal passages, the relative size of the pelvis and fetus, and the conduct of labor in such fashion as to secure the best possible results for mother and child. Maternal fever above 104 deg. F. was highly dangerous to fetal life, so special care should be taken in febrile diseases to keep the temperature below this point. The pregnant woman should be seen and carefully examined by her physician early in pregnancy.

Some Practical Aspects of the Care of a Parturient Woman and Her Child.—Dr. EDMUND B. PIPER of Philadelphia read this paper saying that any time during the first two weeks of the puerperium we frequently saw a sudden rise in temperature, even up to 104 deg. F., perhaps with a real chill. Our first thought was sepsis, and should be, but there were many other conditions, such as engorgement of the breast or retained lochia, which may cause it. The lochia might be brought

back to normal by the use of the Fowler position. The intrauterine douche might be used to wash out necrotic material and induce drainage. The final step was examination of the mother six or eight weeks after her delivery, so as to detect any ill effects of the confinement.

Factors in Fetal Mortality.—Dr. WILLIAM H. GLYNN of Pittsburgh read this paper, saying that in obstetrics careful examination of the patient to enable us to make an accurate diagnosis of abnormal conditions was very essential. Fetal mortality in cases of posterior occiput was still very high. If it was recognized early and proper methods applied, many children would be saved. The insistence upon relief of pain in childbirth had brought into use poisonous drugs, especially morphia, which were dangerous to the fetus. The use of pituitary extract was responsible at times for fetal death. The dose should be small and repeated if need be. A toxic state of the pregnant woman was a matter of grave concern as to fetal life. In grave toxemias where the child was viable labor should always be induced.

Ovarian Pregnancy. Report of a Case with a Six Months' Dead Fetus.—Dr. SIDNEY A. CHALFANT of Pittsburgh read this paper saying that the case of ovarian pregnancy reported had been in a woman of 40 who had had two children, the youngest 9 years of age, menstrual history normal. There was a smooth tumor in the midline half way to the umbilicus. On operation a dead fetus was found within the right ovary. The right tube and ovary were removed without difficulty. Recovery was uneventful. This case conformed to the criteria of Spiegelberg.

SECTION ON MEDICINE

Dr. M. HOWARD FUSSELL, PHILADELPHIA, IN THE CHAIR.

Practical Points in Heart Diagnosis.—Dr. S. CALVIN SMITH of Philadelphia read this paper saying that the heart reflected disturbances and alterations in other structures of the body; many heart affections were secondary to infective processes elsewhere in the body; it was not possible in study or in treatment to dissociate the circulatory system from other systems of the body. A clinically satisfactory diagnosis could not be based on instrumental examination alone nor on physical signs alone; such evidence must be correlated with a study of the family history, the personal history, the presenting symptoms, the evidence afforded by the clinical laboratory, and, where possible, with a study of the heart response to exercise.

Errors and Oversight in the Use of the Blood Pressure Apparatus.—Dr. GEORGE E. HEIN of Pittsburgh read this paper saying that factors not necessarily due to pathological changes in anatomy of the cardiovascular system, but those producing changes in the arterial tension were often not sufficiently taken into consideration. Variations in pressure produced by mental reactions or emotion were especially apt to lead to the wrong impression. A vicious circle might be set up in a neurotic patient by the knowledge of changes in his or her arterial tension. A wider limit for normal was necessary for the interpretation of both systolic and diastolic pressure than generally accepted. Each individual set his own standard.

Pericarditis.—Dr. GEORGE E. HOLTZAPFLE of York, Pa., read this paper in which he stated that there were few infectious diseases in which pericarditis might not occur; it might be the only disease discoverable. In every case of rheumatism, tonsillitis, pneumonia, or pleurisy the heart should be examined for pericarditis. In attempting to diagnose pericarditis one must keep in mind other conditions which might occur in the chest wall, the mediastinum, below as well as above the diaphragm. It might be mistaken for a painful condition of the stomach.

Some Suggestions for the Treatment of Hyperthyroidism.—Dr. FREDERICK B. UTLEY of Pittsburgh read this paper saying that the normal function of the thyroid gland was believed to be its control over cell growth, calcium metabolism, katabolism, antitoxic and immune bodies. The continued response of the thyroid gland to abnormal stimulation finally resulted in hyperthyroidism with its various symptoms. An early recog-

nition of any abnormality of the function of the thyroid gland was essential, and all possible etiological factors, nutritional, toxic and psychic should be eliminated as promptly as the patient's condition permits. Surgical procedures should be directed toward the etiological factors and not the gland proper except in those cases where it was expedient to spare the patient at once from the drive of the over-active thyroid when the removal of foci should follow the surgery on the gland. Further treatment consisted of rest in bed with suitable surroundings and diet, and the administration where indicated of the neutral hydrobromide of quinine, calcium chloride, sodium phosphate, intestinal antiseptics and the syrup of the iodide of iron, the latter in small, properly guarded doses.

Dr. LAWRENCE FITCHFIELD of Pittsburgh said that in cases in which symptoms of hyperthyroidism predominated, if the usual treatment by adrenal therapy and x-rays failed to give satisfactory results we must advocate removal of part of the gland. In hyperthyroidism we must feed thyroid gland or its derivatives. X-ray treatment should be well tried before submitting to the surgeon. It had been demonstrated that simple goiter in school children could be prevented and removed by the very moderate use of the iodides.

A Method of Distinguishing from Among Various Microorganisms Present in a Patient Those that Are and Those that Are Not Acted on by that Patient's Whole Blood.—Dr. MYER SOLIS-COHEN and Dr. GEORGE D. HEIST of Philadelphia presented this paper saying that when several microorganisms were present in a culture from a patient's nares, nasopharynx, throat, ear, sputum, urine, or feces, if they were incubated in the whole blood of that patient, some would disappear while others would grow luxuriantly. Varied evidence pointed to the existence in such a patient of a high degree of immunity to those organisms that disappeared from his blood and of susceptibility to those organisms that grew in it. These phenomena had been utilized in preparing autogenous vaccines that contained only those organisms that grew in the patient's blood and did not contain those organisms which the patient's blood already had the power of destroying or inhibiting.

The Effect of the Influenza Epidemic on Tuberculosis. Dr. CHARLES H. MARCY of Pittsburgh read this paper, saying that in this series there have been collected 533 cases the onset of whose symptoms was referred to an attack of influenza. The number of patients known to have had tuberculosis prior to the onset of influenza was comparatively small. In the majority of these cases the influenza had reactivated old quiescent lesions. In 34.3 per cent, of the series studied the onset of tuberculosis dated from the influenza. A large number of cases in the series showed other conditions which were nontuberculous, though they simulated tuberculosis.

Postinfluenza Chest.—Dr. ARTHUR C. MORGAN of Philadelphia read this paper saying that the pathology of the chest following influenzal pneumonia differed from that usually found in the ordinary postpneumonic chest. Because of this confusion, there was a difficulty in diagnosis, and mistakes had been made in the interpretation of physical signs present. Primary location of a tuberculous lesion was in the apex, extending downward by continuity. The usual pneumonia pathology affected the lower lobe or a portion thereof; therefore, delayed resolution, effusion, pleurisy, localized empyema or pericarditis might be manifest in any part of the chest, giving rise to the physical signs described.

Psychotherapy of Tuberculosis.—Dr. HENRY M. NEALE of Upper Lehigh, Pa., read this paper saying that many of the therapeutic measures adopted in treatment of tuberculosis for the past century were therapeutically antagonistic to each other, and yet all had met with a certain degree of success. All therapeutic action was more or less subject to mental conception or expectation. Tuberculosis was more controllable by the mental attitude than any other disease. The mentality of all tuberculous patients must be carefully analyzed before commencing any definite line of treatment. Autosuggestions played a most important part, especially in the treatment of incipient cases. In necessary medical treatment to be instituted, great care and judgment should be used. All measures should be carefully explained. Considerable study was necessary to formu-

late a line of action best adapted to one's own personality, but, after it was once understood and put into practice, often the most surprising results would be obtained.

The Results of Sanatorium Treatment for Tuberculosis.—Dr. H. R. M. LANDIS of Philadelphia read this paper saying that if the tuberculosis sanatoria were confined in their efforts to those for which they were originally intended, that was the care of early cases, the number of individuals progressing into the advanced stages of tuberculosis would be rapidly diminished and in this way the infection of others would be correspondingly reduced. As it was the sanatoria cared chiefly for advanced cases which were apt to relapse after leaving the institution. This led many to conclude that sanatorium treatment was not very effective. If he were to single out the one great advantage which the sanatorium offered he would unhesitatingly say "rest." The greatest disappointment from sanatorium treatment was the tendency of those so treated to relapse; but it must be borne in mind that one of the chief characteristics of tuberculosis was to relapse. Given the type of case which offered a chance of being improved he thought it could be said safely that the well conducted sanatorium did all that had been claimed for it.

Gastric Disease and Relation to the Glands of Internal Secretion.—Dr. TRUMAN G. SCHNABEL of Philadelphia read this paper saying that with dysfunction of the ductless glands there was sometimes found dysfunction and pathology in the stomach. The relationship of the ductless glands to the stomach had some evidence in its favor. Perhaps the internal secretions influence the stomach directly. Organotherapy should be tried in gastric disease especially those of the functional type, for it might be successful in a small number of cases.

The Diagnosis of the Functional Capacity of the Kidneys in the Various Types and Stages of Nephritis.—Dr. ROY R. SNOWDEN of Pittsburgh read this paper saying that the urinary findings in nephritis was no indication of functional capacity of kidneys. Large amounts of albumin, casts and even blood might be present, and yet kidneys excreting all waste products normally. On the other hand, cases in which there was serious retention might show only a trace of albumin and a few casts. Since it must be borne in mind that one must never judge the functional capacity of kidneys on evidences found in the urine alone, diagnosis of the ability of the kidneys must rest on (a) clinical symptoms and (b) functional tests. Functional tests were the best indices of excretory ability, as they revealed early changes which preceded the development of clinical symptoms. Clinical symptoms were also of importance, especially since their significance was now well understood in the light of modern chemical metabolic knowledge.

Our Concern in Plague Prevention.—Dr. EDWARD B. KRUMBHAR of Philadelphia read this paper saying that the present pandemic of plague, which had caused millions of deaths in the past 26 years, would be a constant threat to this country for another half century. Experience in this country for the last 15 years, and in the epidemic now prevailing in the Gulf States, comprised the opinion that antiplague measures should be directed chiefly against the rat, principally in the form of rat-proofing and rat survey.

Apoplexy.—Dr. CHARLES S. PORTS of Philadelphia said that many physicians believed that the lesion of cerebral apoplexy was always hemorrhage. This was not the case. By apoplexy we meant the occurrence of sudden paralysis, sometimes accompanied by unconsciousness, due to a lesion of the vascular system. This might be hemorrhage, the blocking of a vessel by a thrombus or an embolus, or closure due to spasm or to lacunar degeneration. Thrombosis or embolism was more common than hemorrhage. Sometimes it was impossible to determine the nature of the lesion. The fact that apoplexy was not infrequent in early life did not seem to be generally recognized. It was more frequent during the first decade of life than any other except the fifth. Syphilis was a frequent cause in young adults. Hemiplegia was not always present in apoplexy, the speaker said, for regions of the brain other than the motor might be involved.

Books Received.

The MEDICAL RECORD is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.

VENEREAL DISEASES. By J. E. R. McDONOUGH, M.D. 419 pages with illustrations. Published by William Heinemann, London.

BÆRETNING TIL INDENRIGS-MINISTERIET OM RATIONER-INGENS INDVIRKNING PÅ SUNDHETSTILSTANDEN. ved M. HINDHEDE. (The Influence of Rationing on the Health.) 107 pages. Published by Jacob Lund, Copenhagen, 1920.

SCURVY PAST AND PRESENT. By ALFRED F. HESS, M.D. 279 pages with illustrations. Published by J. B. Lippincott Company, Philadelphia.

AMEBIOB MOVEMENT. By ASA A. SCHAEFFER, M.D. 156 pages with illustrations. Published by Princeton University Press, Princeton.

TEXT-BOOK OF NERVOUS DISEASES. By CHARLES L. DANA, M.D. 566 pages with 262 illustrations. Published by William Wood and Company, New York.

THE SERBIAN EPIDEMICS OF TYPHUS AND RELAPSING FEVER IN 1915. By WILLIAM HUNTER. 153 pages with maps and charts. Published by John Bale, Sons & Danielsson, London.

HISTORY AND BIBLIOGRAPHY OF ANATOMIC ILLUSTRATION. By LUDWIG CHOULANT. 435 pages with illustrations. Published by the University of Chicago Press, Chicago.

OLD AT FORTY OR YOUNG AT SIXTY. By ROBERT S. CARROLL, M.D. 147 pages with illustrations. Published by The Macmillan Company, 1920.

LE LAIT CONDENSÉ. By Dr. P. LASSABLIÈRE. 151 pages. Published by A. Maloine et Fils, Paris.

HELPING THE RICH. By JAMES RAY. 107 pages. Published by Brentano's, New York.

CONTRIBUCION AL ESTUDIO DE LA AUTO-INTOXICACION INTESTINAL. By Dr. CARLOS JIMENEZ DIAZ. 138 pages. Published by Ruiz Hermanos, Madrid.

DIABETES. By PHILIP HOROWITZ, M.D. 196 pages with 27 text illustrations and 2 colored plates. Published by Paul B. Hoeber, New York.

THE SURGICAL CLINICS OF CHICAGO, October, 1920, Volume 4, Number 5. 231 pages with 46 illustrations. Published by W. B. Saunders Company, Philadelphia.

LES MUTILÉS DE LA GUERRE. By DOUGLAS C. McMURTRE. 188 pages. Published by Masson et Cie, Paris.

WARFARE IN THE HUMAN BODY. By MORLEY ROBERTS. 286 pages. Published by Eveleigh Nash Company, Ltd., London.

LE DIABÈTE SUCRÉ. Dr. MARCEL LABBÉ. 374 pages. Published by Masson et Cie, Paris.

MANUEL D'URETROSCOPIE. By ROBERT HENRY AND ANDRÉ DEMONCHY. 113 pages with illustrations. Published by Masson et Cie, Paris.

THE COURSE OF OPERATIVE SURGERY. By VICTOR SCHMEIDEN, M.D., and ARTHUR TURNBULL, M.B. 349 pages with illustrations. Published by William Wood and Company, New York.

THE COMMUNITY HEALTH PROBLEM. By ATHEL CAMPBELL BURNHAM, M.D. 149 pages. Published by the Macmillan Company, New York.

THE RADIOGRAPHY OF THE CHEST. By WALKER OVEREND, M.D. 119 pages with illustrations. Published by C. V. Mosby Company, St. Louis.

THE ROCKEFELLER FOUNDATION ANNUAL REPORT, 1919. 447 pages with illustrations. Published by the Rockefeller Foundation, New York.

A LABORATORY MANUAL OF ORGANIC CHEMISTRY FOR MEDICAL STUDENTS. By MATTHEW STEEL, M.D. 284 pages. Published by John Wiley & Sons, New York.

INSTINCT AND THE UNCONSCIOUS. By W. H. R. RIVERS, M.D. 252 pages. Published at the University Press, Cambridge.

56TH ANNUAL REPORT OF THE TRUSTEES OF THE BOSTON CITY HOSPITAL. 101 pages.

THE MAJOR SYMPTOMS OF HYSTERIA. By PIERRE JANET, M.D. 345 pages with illustrations. Published by the Macmillan Company, New York.

Miscellany.

Feeding Starving Children in Vienna.—The American Relief Administration, preliminary to undertaking its work of giving a noon meal six days a week to the school children of Vienna, made a medical examination of 207,000 of its prospective wards. As a result of this examination they separated the school children of the Austrian capital into four categories of health, as follows:

Sufficiently nourished	7,000
Undernourished	20,000
Badly undernourished	83,000
Badly undernourished and diseased...	97,000

Of 58,849 children examined at Dr. von Pirquet's infirmary during 1918, only 4,637 were judged to be of satisfactory health. The necessary food minimum to maintain vitality is about 2,000 calories per capita per day. Last spring Vienna's daily ration, according to a schedule furnished the American Red Cross by Dr. von Pirquet, was as follows:

Bread	6½ ounces	360 calories
Flour	2 "	180 "
Sugar	1 "	98 "
Potatoes	2¼ "	60 "
Fat	¾ "	152 "
Beef	½ "	24 "
Horse Flesh	⅓ "	6 "

Daily total 13 ounces 880 calories

The American Red Cross, working in conjunction with other relief agencies, has done and is doing heroic work in the effort to relieve this deplorable state of affairs, especially among the children.

Doctor Francisco Valles, Spanish Precursor of Bacon and Descartes.—Under the title "The Golden Age" Garcia del Real published a serial article in *La Medicina Ibera* which is completed in the issue of June 19, 1920, xi. 1. The number is devoted to Doctor Francisco Valles, physician, the first edition of whose large volume on philosophy appeared in 1587. A copy of this edition is to be found in the San Isidro library at Madrid. The work is ostensibly a rational commentary on the Bible and is regarded by the author as a superior contribution to Spanish science. Bullon, a modern Spanish writer, includes Valles among the Spanish precursors of Bacon and Descartes. The latter is said to have borrowed freely from both Valles and Gomez Pereira, a fact noted at the time by Huet, bishop of Avranches. Pelayo also showed that Descartes had quoted Valles almost verbatim without giving credit. The character of the matter which Descartes borrowed was psychological, such for example as the wisdom of doubting in approaching a given problem. Valles was a mechanistic philosopher, like his successor, and instead of antagonizing scriptural claims, which would have been impossible in Spain, he sought to sustain his contentions by scriptural quotations. He insisted that psychic force does not dominate the physical organs of the body, which obey a force proper to themselves, and hence he would be termed a Christian materialist. He cites in his book the success of Ponce in teaching congenital deafmutes to converse. In regard to Bacon, Valles wrote a work published in 1564—"Controversiae

medicæ et philosophicæ"—when the English philosopher was but three years old, in which the excellencies of the experimental method are systematically proclaimed. The author, however, does not accuse Bacon of having borrowed from him.

Childhood of Laennec.—The current French periodicals still contain numerous accounts of Laennec with especial reference to the lesser known phases of his biography. This publicity is well merited, for a study of the life of the pioneer shows that he lacked no single element of greatness as a medical man. Thus far he has not received his due from the "encyclopedists" and does not there rank among the very greatest medical men, but this omission will doubtless be made up to him in the future. *La Presse Médicale* for October 6, 1920, xxviii, 72, contains an account of Laennec's childhood. In 1788, with a younger brother, he was sent by his widowed mother to a paternal uncle at Nantes, who was a well known physician and who deserves full credit for the initiation of his nephew into the medical profession. Guillaume Laennec, uncle, was no ordinary man, for he was rector of the Medical School at Nantes. At this period the future diagnostician was but 7 years old and was placed in succession in a boys' school and the College of Oratory, where he made a brilliant record. The French Revolution was then in the air and appeared to confer a special license on the younger Laennec, who gave free vent to his heart's desires. He indulged in all permissible activities but at this period was but 12 years old and of course quite irresponsible. The Revolution came to Nantes and the uncle was placed in charge of the Military Hospital, improvised from the old city institution. It was at this juncture that the nephew elected the medical course in place of the Polytechnic School, which in peaceful times he would doubtless have chosen. The Revolution had suppressed the Faculties, but two earnest students improvised courses in dissection, and here the youthful Laennec, at the age of 15, began his medical studies. He also took upon himself the study of minor surgery, and soon after received his appointment as military surgeon in the Revolutionary Army.

Abuse of Medical Charity.—The *Drug Trade Journal* calls attention to the abuse of medical charity, using New York City as the basis of computation. The 46 hospitals not maintained by the city reported, last year, that they provided 600,000 persons with free treatment for a total of 1,203,728 treatments, for which neither the beneficiary nor the city paid a cent. Many other cities reported similar conditions. If statistics were available from the clinics and hospitals of the entire country, they would show that, despite universal employment at the highest wages the world has ever known in the history of man, from 3,000,000 to 5,000,000 inhabitants of this Utopian nation last year beat the doctor out of his bread and butter by seeking and receiving free medical and surgical treatment at these dispensaries of medical and surgical charity. Figuring an average of two treatments to a case at only \$1 a treatment, we have lost \$5,000,000 to \$8,000,000 we ought to have had. No other business or profession, the *Journal* holds, tolerates such a loss without making a concerted effort to check it.

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THE DELICATE, NERVOUS, AND BACKWARD CHILD AS A MEDICAL PROBLEM.*

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THE normally effective adult, functioning physiologically, and in harmony with his environment, is the exception in modern life and, consequently, the activities of the medical profession are largely concerned with supplying crutches to the "lame ducks" of society. We admit with the melancholy Dane that "the times are out of joint" and will allow the blame for the situation to rest upon capitalism, labor, prohibition, the war, woman's suffrage, the League of Nations, or the Democratic party, as our personal interest or bias dictates, but the solution does not lie in the elimination of any of these.

One of the few beneficent results of the world cataclysm from which we are emerging is a realization of the physical and mental shortcomings of a large portion of the population and a growing consciousness of the necessity for the cultivation of sound physical, nervous, and mental health in those whose shoulders must bear the burdens of the civilization of the future. It is truistic to state that the efficiency of the individual depends primarily upon the condition of his health, for while effective constructive work has been performed by those who were physically far from robust, if not actual sufferers from disease (Stevenson, Darwin, Spinoza, Bacon, Descartes, Kant), and much that is best in civilization is due to those whose mental health, at times at least, was by no means sound (Cromwell, Lord Clive, Luther, Goethe, Dean Swift), these sporadic cases of genius are exceptional; such individuals are the inspiring forces of civilization, but it is those with *mens sana in corpore sano* who furnish the dynamic impulse for progressive growth.

The medical profession, in the field technically known as that of preventive medicine, and through its conventional function of the treatment of diseased states, is doing much to fit the environment to the individual, and to return him, when afflicted, to his accustomed status in as sound a condition as possible. There is one function of preventive medicine, however, that has not received the attention it deserves from the profession generally, *i.e.* the prevention and correction of variations in physiologic and mental functioning in early life, before serious deviation becomes established.

*Read by invitation before the Medical Society of the District of Columbia, October 27, 1920.

The majority of neurotics, psychopaths, and physical ineffectives are characterized by an inferiority of constitution which is the end result of a series of factors initiated in early childhood and even before birth. Were these factors recognized sufficiently early and the proper steps taken to correct or counteract them, many lives of misery, dependency, and inefficiency would be saved.

Tuberculosis, the authorities tell us, affects both robust and delicate, the robust if they continue a hygienic mode of existence, recover, often in ignorance of their infection; the delicate, those with the physical habitus so often described, succumb. Exophthalmic goiter and other forms of thyroid and ductless gland disturbance occur, usually, in individuals who have shown in early life definite signs of constitutional inferiority relating to the endocrine system. The gastric neuroses, as the histories of patients so afflicted show, have their inception in some manifestation early in life. Other forms of neurosis, the psychoses as well, and various both well-defined and vague, functional and somatic abnormalities may be included in the list of diseases and conditions which show their danger signals early in life, at a time when the intelligent application of the principles of modern scientific medicine may accomplish much in the way of both prevention and cure.

It would seem logically that the physician is the one who should direct and supervise the application of the closely interrelated medical, hygienic, and educational measures necessary for the proper treatment of the class of children referred to in the title of this paper, though the busy general practitioner, pediatrician, and neurologist seem to have neither the inclination nor the time to give the detailed attention required. Parental fears are easily allayed when, as seems to be the custom, a trusted family physician or consultant, after casually looking over a distinctly constitutionally inferior child, states that he can find nothing "organically wrong" (meaning thereby, I suppose, that he discovers no disease entity) and dismisses the patient with a diet slip, a tonic, and a few vague directions to take the child out of school, get him into the country and he will "outgrow it." This attitude of *laissez faire* is responsible for more wrecked lives than the actual dishonesty of the charlatan, and one of the results is that parents who remain unconvinced immediately utilize the services of the regular irregulars, of the osteopaths, chiropractors, and miracle workers of various cults. Some ten years ago the writer, recognizing what he felt to be a need, decided that the field was sufficiently comprehensive to be worthy of a place in the sun as a branch of medical practice with a distinctive appellation of

its own, and after conferring with a leading authority on medical terminology, suggested the term "pædology," defined as "that branch of pediatrics in which the physical and mental defects of child development are especially studied and treated by the physician." The defects with which the pædologist deals are the result of interference, from many and diverse causes, with the normal processes of growth. These causes are hereditary, environmental, or a combination of both. Either class of causes may predominate as an etiological factor in a given condition, or group of conditions; seldom is either found alone.

The causes of constitutional inferiority are concisely stated by Noble as follows:

HYPOPLASIA OR DEGENERATION.

(Schema drawn for the author by Dr. Charles P. Noble.)

(a) Hereditary hypoplasia. Due to defect in the chromosomes (the chromatin or hereditary material) of the ovum or the spermatozoon of parents.

(b) Environmental hypoplasia.—(1) Due to toxemia in the parent or parents affecting (by poisoning) the ovum, or the spermatozoon, or both—giving rise to a defective (poisoned) impregnated ovum or germ. Preconceptional environmental hypoplasia or arrest.

(2) Due to toxemia in the mother or to local disease in the endometrium, leading to poisoning of the germ, the embryo, or the fetus, or to insufficient nutrition of the developing ovum. Antenatal, intrauterine hypoplasia.

(c) Mixed hereditary and environmental hypoplasia.—Due to toxemia in the parent or parents, themselves examples of hereditary hypoplasia, before conception; or to toxemia, or to uterine disease, in the mother during pregnancy; or to bad environment leading to disease in postnatal life, in children of parents having hereditary hypoplasia.

"Hereditary hypoplasia was formerly spoken of as the hereditary diathesis or dyscrasias, as gout, diabetes, tuberculosis tendency, the nervous diathesis, embracing hereditary neuroses and psychoses, and including epilepsy. It also embraces the hereditary tendencies due to defects or to reversion of the 'born criminals' of Lombroso, and the 'moral or sexual degenerates' of Krafft-Ebing. With exceptions, those suffering from hereditary hypoplasia are either continuously hyperenergized or are alternately hyperenergized and lethargic—or in the Wanderlust group.

"Environmental hypoplasia may be general or specific as to organ or systems of organs, or diathetic in type. Environmental hypoplasia is invariably associated with a lessened capacity to develop energy. The entire group suffering from environmental arrest are subenergized."

Much of the existing disagreement regarding the relative importance of the effects of hereditary and environmental influences in the etiology of defective development results from the current confusion as to the limitations of each of these factors. The term "hereditary" is often used when "congenital" or "fetal" should be employed as "hereditary syphilis," which disease is never hereditary in the scientific meaning of the term. Any conditions not existing in the germ cells of the parents before conception are due to extraneous influences and cannot be considered as hereditary causes. Whether the essential

potentialities of the germ plasm are *permanently* modified by accidental influences or not is immaterial; debilitated, toxin-ridden parents procreate debilitated, asthenic babies, who die, or, if they happen to survive, grow up weaklings, unfit to cope with the storms, stresses, and infections of modern civilization, and become in turn the parents of other weaklings, and so on down to the extinction of the line, or until Hygeia interferes. Because humanity forbids the full operation of the laws of natural selection it is necessary, for the preservation and development of the race, that the weaklings be eliminated, not by the methods of savage tribes and of some of the older civilizations, by subjecting to death through exposure the supposedly unfit, but through applying to each individual, early and continuously, the intensive effort necessary to insure physical and mental equilibrium to their highest potentials.

Early interference with the natural forces of growth by any vitiating influence modifying cell development becomes aggravated by reason of the interrelation and interdependence of the various systems of body cells, among the most important of which are those initiators and regulators of correlative growth, the ductless-glandular and vegetative-nervous systems. The result is further growth disturbance in the developing embryo. The cells of the endocrine system, imperfectly vitalized, fail to secrete as they were destined and the ensuing deficiency in hormonal stimulation results in further defective development, in organic inferiority, hypoplasia, infantilism, degeneracy—call it which you will—in varying degree. Hypoplasia may affect any organ and any structure in any degree from the grosser manifestations of abnormality to occult variations in cellular and chemical complexity, from general or local arrest to simple depreciation in vital force function.

Among the gross somatic manifestations of hypoplasia may be found:

1. Abnormalities in size and shape of the head. Softness or bossing of the cranial bones. Marked gaping or premature closure of the fontanelles and sutures. Undue distention or sinking of the fontanelles.

2. Malformation of the ears. Irregularity in size. Undue prominence or flattening. Misshaped helix, anthelix, tragus, antitragus, and lobule. Supernumerary auricles, auricular appendages, or atresia auris.

3. Anomalies of the eyes or lids. Drooping of one or both eyelids. Epicanthus and palpebral fissures. Congenital cataract, coloboma iridis or ideremia. Microphthalmus or anophthalmus. Strabismus and nystagmus.

4. Malformation of the nose. Saddle-shaped, exceptionally small and broad, or unduly large and prominent. Partial or complete atresia of the posterior nares.

5. Malformation of the face. Undue prominence of the cheek bones with markedly retracted small chin. Clefts of face and lips. V-shaped or high vaulted palate. Enlarged, protruding, and often cracked tongue. Irregularly shaped and implanted teeth, deficiency or excess in their number. Inability to bring jaws closely together, owing to irregularity of dental arches.

6. Malformation of long bones. Curvatures of the bones of the upper and lower extremities. Supernumerary fingers and toes or deficiency in their number. Syndactylism or fan-shaped distribution. Disproportion in size of legs and arms. Talipes, spina bifida, and caudal formations.

7. Umbilical hernia; diastasis recti abdominis. Anomalies of the genitalia; epispadias and hypospadias. Malformations of the anus and rectum. (Sheffield.)

The gross stigmata of degeneracy, just described, as well as those of minor degree to be described later, are the somatic manifestations of hypoplasia. It may some day be possible, when our knowledge of endocrinology has become more complete, to trace, by means of the stigmata of degeneracy, the retardations and exacerbations in function, changes in chemical complexity, and even the structural abnormalities of individual glands of internal secretion, even back to early intrauterine existence. More even than this is possible as a result of an enlightened knowledge; it may be that the mysterious directive forces of hereditary transmission will be found to reside, not in the essential structure of the chromatin, but in the intricate chemical (hormonic) constituency of the cells.

Pertinent to this statement is the recent address of Prof. Arthur Keith before the British Association for the Advancement of Science, in which he thoroughly canvasses the situation in reference to the effects of the internal secretions in causing those primary differences which distinguish the principal races of mankind. He maintains that the endocrine glands not only serve the purpose of immediate regulation, but more fundamentally they govern to a great degree the ontogeny of those human traits which for the most part are used for differentiating the several races.

Stigmata less obvious than those enumerated in the table above are found in constitutionally inferior individuals, particularly in those whose inferiority is not grave enough to constitute actual bodily deformity or mental deficiency but is sufficient to interfere with the efficiency of the individual so affected.

These incidental variations in development, as they may be termed, are: (1) Anatomic, (2) Physiologic, (3) Psychic.

Among the anatomic variations are found: retardation in growth rate, bodily disproportion, underweight or obesity, hypotonicity of muscles and ligaments, hypertrichosis and abnormal distribution of hair, long slender bones, delayed epiphyseal union, muscular ocular anomalies, astigmatism, myopia, hypermetropia, deflected nasal septa, enlarged turbinates, high arched palate, adenoids and enlarged tonsils, maxillary or mandibular prognathism, widely spaced teeth, defective teeth, postural defects, visceroptosis, anomalies of bones of inner skull, small or malformed sella turcica, enlarged thyroid, abnormally small thyroid, persistent or precociously atrophied thymus, underdeveloped genitalia.

Among the physiological variations may be mentioned: cold, clammy skin and cold extremities, subnormal and unstable temperature, low blood pressure, undue dryness of skin and undue sweating, localized flushing and pallor, anemia, reduced output

of urinary solids, enuresis, variations in cardiac rhythm, constipation, gastric irregularities, delayed puberty, dysmenorrhea, tremors, incoordinate muscular movements, defective articulation, stammering.

Among the psychic variations may be included: aprosexia and psychasthenia (the natural correlates to a condition of general adynamia); hypermotivity, perverse tendencies (delinquency, sex perversion, inversion, etc.), a sense of inferiority, negativism, egocentricity, isolated depression of function of higher cerebral centers (congenital word-blindness, word-deafness, amusia, etc.), night terrors, food idiosyncrasies, premature eroticism, sexual frigidity, sex complexes, obsessions, compulsive ideas, phobias, etc.

The treatment of constitutional inferiority may be divided into: (1) Prophylactic, (2) Hygienic, (3) Medical, and (4) Educational.

Prophylactic measures should date not only from the earliest moment of conception, but from a time much earlier than this in accord with the dictum of Oliver Wendell Holmes that "the education of the child must begin with the grandparents." Accordance with the rules of hygienic living on the part of prospective parents will do much toward insuring the integrity of individual germ cells. After conception the burden of responsibility rests upon the mother. The importance of antenatal hygiene is not generally realized, though upon its proper observance depends, in a large degree, the stability of the race. Malnutrition, either from insufficient or improper food, or the result of metabolic disorders, focal infections, or intestinal toxemia, is a frequent source of hypoplasia in the developing embryo. Modern scientific medicine does not recognize "maternal impressions" as a plausible factor, but the emotional state engendered by belief in this popular superstition is in itself a baleful influence through its effect upon bodily functions. Worry and emotional disturbance from other causes, and exhaustion from overwork and an over strenuous pursuit of pleasure, are also possible factors. An important measure in the prophylaxis of hypoplasia originating during the gestational period is through treatment of endocrine insufficiencies in the mother by means of ductless gland preparations as advocated by Dr. Sajous. Every prospective mother should be carefully examined for evidence of lues, and intensively treated as indicated. Equaling prenatal prophylaxis in importance is that during the period of infancy, as nutritional disorders during this period frequently cause interference with the forces of correlative growth. The writer is convinced that the malnutrition and toxemia incident to gastrointestinal disturbances in infants constitute, with the possible exclusion of prenatal causes, the most frequent cause of constitutional inferiority. The histories of delicate, nervous, and backward children (not inherently defective) almost invariably present a record of intestinal infections during the first year. Unusual care to prevent the occurrence of these must be exercised when maternal nursing is not possible, not only because of the dangers incident to artificial feeding, but also for the reason that the inability of the mother to nurse the child is usually due to the fact that she herself is constitutionally inferior and consequently fails to trans-

mit to her offspring the vital force necessary to the energization of the processes of normal growth. Recent studies in nutrition have shown the necessity for incorporating in the diet of the developing child food substances rich in vitamine content and in mineral salts. Constitutional inferiority is often a true deficiency disease due to a diet deficient in vitamins or other food accessories necessary for growth and development. The physiology of metabolism is in process of being rewritten and it now looks as though in the very near future we will definitely know something of the processes involved. The writer has for a long time been convinced that much physical and mental instability in late childhood is due to early dietary habits and has lost no opportunity to protest against the customary high carbohydrate diet of infants and young children. Feeding for correlative growth involves more than mathematical formulæ supported by the elusive vitamine in fruit and vegetable juices. The development of all the tissue of the body is dependent upon the nutrition of the individual cell and the nutrition of the cell depends upon a pure rich supply of blood. Many cases of subnormal development are due to an impoverished blood supply, the result of various factors, one of the most important of which is an excess of carbohydrates in the diet. In support of this contention may be mentioned recently published experiments upon blood regeneration at the Harper Foundation for Medical Research in the University of California, in which Whipple and his associates have clearly demonstrated the profound effect of food factors on blood pigment regeneration. They found, in their experiments on dogs, that rapid and complete blood regeneration follows only when animal tissues are included in the diet. They found cooked lean beef, beef heart, and liver to be effective, while the commercial and fresh water-extracts of these substances were impotent. They also found that a hemorrhagic animal will actually form more red cells and hemoglobin during fasting than during a similar period of sugar feeding. Whipple, Hooper, and Robscheit point out that since in neither case nitrogenous material is taken into the body, whatever hemoglobin and red cell stroma may be found must be constructed in the organism from body protein or protein split products. Thus the well-known protein-sparing action of carbohydrates tends to protect the body from protein loss and so prevents the formation of catabolic "fragments" which would ordinarily be available to form new blood cells. These investigations tend to confirm the personal observations of the writer, who has found that though constitutionally inferior children will slowly grow and gain in weight on a diet free from animal proteins, they will remain anemic, while they will develop at a more normal physiologic rate, with more or less rapid blood regeneration depending upon other factors, when animal tissues are added to the diet. For several years a group of children under his observation were maintained on a diet free from animal tissue proteins, the caloric value and proportion of proteins, fats, and carbohydrates being accurately regulated, yet this group failed to show the nutritional improvement which did a later group on an unestimated diet, containing animal tissue. It was also noted that digestive disturbances were no less frequent than with the latter diet,

in which there was little restriction upon substances often forbidden to children. The digestive functions of the child, like other functions, develop through exercise, and the writer is of the opinion that many juvenile and adult ills are traceable to pampering of this important function in early childhood. Nature signifies when chewing should begin by the eruption of the teeth, and if it were more generally the custom to give solid food, judiciously, of course, to babies toward the end of the period of infancy there would be less teething disturbances and less digestive ills in childhood and later life. A certain amount of dietetic liberty in early childhood also is preferable to the alimentary coddling with which many children are afflicted.

Ordinarily, children, even those of the well-to-do, have not enough to eat. A child of twelve years, receiving the proper amount of exercise and fresh air, can easily consume an amount of food furnishing 3,500 calories a day, a quantity sufficient to maintain an adult at hard labor in good health. The fears of solicitous parents, supported by popular books and articles on the feeding of children, lead to restrictions in the diet which results in a state of malnutrition as serious as that occurring in families of slender means. Again, the school child, in the habit of sleeping until the last minute, comes to the breakfast table with time only to bolt one or another emulsified cereal whose only virtue is that it requires a large quantity of milk or cream to permit of being swallowed. By the middle of the morning his tissues crave more nourishment, which craving is relieved at recess time by candy or highly ornamental pastry of low nutritive value. The edge of his appetite blunted, he makes a hasty lunch, grudging the time that might be used in play. Again in the afternoon his appetite is impaired by some easily obtained carbohydrate food, and at dinner time he partakes only of those dishes for which he has great liking. The result is that his diet, while not necessarily deficient in calories, is composed largely of carbohydrates, causing an evanescent energy but failing to provide for tissue wear and tear, for blood genesis, for growth, and for storage for emergency.

Next to diet, fresh air, and not merely "fresh air" but air in motion, bathing, proper hours of sleep, exercise, clothing, all have an important place in the prophylactic and hygienic management of the hypoplastic child. It is time for us to apply to the raising of children the lessons learned on the stock farm, in the raising of domestic animals and fowls. The stockman has learned that the three prime requisites for success, the stock being sound, are diet, fresh air, and exercise. He knows that to secure the maximum of growth and vigor he must feed a ration well balanced as to proteins, fats, and carbohydrates; that he must furnish sufficient roughage to give bulk to the intestinal contents; that he must give green stuffs and food rich in vitamins and mineral salts, and that in case of the omnivora, as hogs and chickens, he must, to get the best results, give tankage (dried blood) and beef-scrap. He knows that he must feed in large quantities and must allow his stock a certain amount of choice in their selection of food substances, they being better able to determine the proper proportions than he, and that to gain the maximum of growth and vigor,

they must have open range, free from crowding, from undue noise and confusion. To the urban realist "pigs are pigs," but to the up-to-date farmer profitable pigs are a combination of balanced rations, exercise, and fresh air. Every observant swineherd has seen the "runt" of the litter, nosed aside by his stronger and more active brothers and sisters, equal or outstrip them all when given a trough and a run to himself.

The prevalent impression that purely medical measures are of secondary and doubtful importance in the treatment of the class of cases under discussion is both a cause and a result of the indifference of the medical profession generally concerning this important phase of preventive and remedial medicine, and is responsible for the pre-emption of the field by the lay psychologist and pedagogue who, while perhaps well-grounded in the principles of psychology, lack, because of the nature of their training and experience, a broad medical viewpoint. Infinitely more serious, this indifference has driven these patients into the hands of Christian Scientists, osteopaths, chiropractors, and other advocates of various fads and fancies. The first requisite to effective treatment is the removal of possible sources of focal infection and reflex irritation, both of which are potent factors in the production of hypoplasia, not only through their immediate irritative and toxic effects upon the vegetative nervous system, but also because through long continued overstimulation of the adrenal system they cause a secondary adrenal depletion, a hypoadrenia, similar in its effects upon correlative growth to the adrenal deficiency following the acute diseases of childhood. Thus the surgical removal of adenoids and diseased tonsils, eyestrain, phimosis, impacted cerumen, carious, impacted, and abscessed teeth, etc., is an important therapeutic procedure, whose corrective influences are both immediate and remote. An important surgical measure is the relief of increased intracranial pressure by means of cranial decompression, as cerebral hemorrhage in early life is a productive cause of mental and physical instability. Rodder has pointed out that the prevalent impression that cerebral hemorrhage follows only difficult labors and instrumental deliveries is fallacious, and that hemorrhage may follow normal labor when least expected. He advises that early surgery be controlled by measurements of the coagulation time of the blood, and that fresh blood be used therapeutically before operative procedures are instituted.

Practically every organically inferior child presents symptoms which are referable to the endocrine system, to the vegetative nervous system, and to the bloodmaking apparatus.

The clinical syndrome in young children is usually one of suboxidation furnishing definite indications for therapeutic intervention. The low blood pressure, lowered basal metabolism, cold hands and feet, general asthenia, and hypotonicity point conclusively to lowered activity of the adrenal system. This endocrine implication usually includes the thyroid and pituitary as well. Through the use of a number of well-known drugs, among which mercury, strychnine, caffeine, and digitalis may be cited, the adrenals may be stimulated to increased activity; and in cases in which the hypoadrenia is develop-

mental in origin these drugs may be given to advantage, but in those in which the lessened activity is the secondary result of an acute or chronic hyperactivity such "whips" should be avoided. In these, and they are the most common, the burden should be taken off the adrenals, by adding to the adrenalin content of the blood, and by a vicarious stimulation of metabolism, though the use of adrenalin chloride, hypodermatically or by mouth, and the administration of suprarenal gland, which may be advantageously supported with small doses of thyroid, and with pituitary and the gonads. Syphilis in the forebears is prone to affect the endocrine glands in the descendants, either as an active infection or the sterile end of a result of a degenerative process. In these cases, particularly, is mercury indicated, with small doses of thyroid or iodine to enhance its activity. In the writer's opinion arsenicals, because of their depressing action upon the chromaffin system, should not be used in congenital lues except in early cases with active lesions, and in juvenile neurosyphilis when mercurial treatment has failed of results.

A natural result of suboxidation is a reduced alkalinity (deminerallization) of the body tissues, which may reach a crisis in a frank attack of acidosis. Cyclic vomiting in children, sudden acute prostration with pallor, or sudden temperamental changes without potent cause, should always lead to examination of the urine for acetone. A vial of blue litmus paper to test the reaction of the saliva would in most nurseries be of greater value than the omnipresent clinical thermometer, as alkaline deficiency early manifests itself in the buccal secretions. Acute acid conditions must be met by the exhibition of alkalis, but the rational method of therapy is to remove the cause through the sustained stimulation of tissue oxidation.

As the equilibrium of the vegetative nervous system is in a large degree controlled by the chromaffin system, it is evident that impairment of function of these organs leads to imbalance of function in the vegetative nervous system. According to Falta, "The ductless glands themselves are vegetative organs. They are supplied by vegetative nerves and possess, therefore, central projection fields. It is assumed that the function of the ductless glands is in great measure regulated by the nervous system." Again, "The ductless glandular system influences the excitability of the vegetative nervous system by the hormones that it gives off to the circulation. At least this is true in regard to adrenalin, and is in all probability true of the other ductless glandular hormones." Atropine or belladonna in full physiological dosage is sometimes a valuable remedy because of its sedative action upon vagotonic irritability in some of the conditions to which the constitutionally inferior are subject, particularly in asthma, hay fever, and enuresis due to cystic irritability. I have found both atropine and adrenalin useful in some varieties of stuttering due to a spastic condition of the respiratory organs originating when the effort is made to speak. These patients almost invariably are suboxidized and the most important factor in their treatment is the correction of the perverted metabolism. The contentions of some psychologists and lay speech experts that stammering is essentially a psychic manifestation with-

out physical basis is absurd. Psychic factors intrude to effect fixation and continuance of the habit, but the initial etiological problem is one of perverted physiology. There is a large class of unstable children, apt to be mentally alert, though superficial, who present symptoms referable to thyroid toxicosis. These respond well to proper regulation of hygienic influences, including diet, to rest, and to small doses of the bromides, long continued, and to arsenic.

In all cases other evidence of endocrine abnormality or dyscrasia should be carefully searched for and, when found, the appropriate remedies should be exhibited. Thus hypopituitarism in a mild degree of dystrophia adipososexualis is not uncommon and should be treated by increasing oxidation by the methods already alluded to and by the use of pituitary extract, which substance is rich in phosphorus (nuclein) and chromaffin tissue. In these cases, as in others marked by athenia and suboxidation, thymus gland is useful, supplying as it does (according to Sajous) an excess of phosphorus to the tissues during the period of growth.

An almost constant accompaniment of constitutional inferiority is a hemic dyscrasia, the evidences of which the writer is in the habit of referring to as "hypoplastic blood," blood which is ontogenetically incomplete—more or less of the fetal type. The hemoglobin is low, and in the cover-glass specimen is unevenly distributed, the red cells are decreased, are irregular in shape and size, and nucleated red cells are present. The leucocytes may be increased in number when there is toxemia, or deficient in number, and myelocytes may be present. Almost invariably there is lymphocytosis and an increase in the eosinophiles. The blood dyscrasia, being both a cause and a result of defective correlative growth, must be met by stimulation of the blood-making organs to increased activity. This indication is in a degree met by the hygienic and medical treatment mentioned above. Iron, a specific stimulant of bone-marrow (Nageli), is a valuable adjunct to treatment. The writer prefers the hypodermic administration of iron in the form of the green citrate, but in intractable cases uses in addition reduced iron, tincture of the chloride, iron carbonate, and organic iron in the form of the various preparations of hemoglobin now on the market. If the hemoglobin of the blood fails to improve satisfactorily after the exhibition of one form of iron, another should be substituted, as failure with one preparation may be followed by brilliant results when the dose is materially increased or another preparation is used. To stimulate the formation of leucocytes in the spleen, spleen substance may be given with advantage.

The educational management of constitutionally inferior children might be considered to be outside the legitimate domain of the physician, yet when we realize that education (according to the New Standard Dictionary) "includes not only the narrow conception of instruction, to which it was formerly limited, but embraces all forms of human experience, owing to the recognition of the fact that every stimulus with its corresponding reaction has a definite effect upon character," we see that the term is practically synonymous with the current concept of the term "mental hygiene." As every act of the

child's life, every impression, is a factor in the systematic development of the powers of intellect, feeling, and conduct, it is important that to an extent the environment of the inferior child be intelligently regulated by one who is cognizant of his constitutional variations and who may, from them, postulate and understand his psychic eccentricities, real or potential.

While the writer wishes to stress the role of the constitutional basis in the etiology of nervous and mental disease and in conditions of chronic invalidism, he does not ignore psychic factors as an important contributory cause. In his opinion, however, the psychic factor, to be of etiological significance, must ordinarily be grafted upon an organic basis. Undoubtedly, psychic shocks, sudden or long continued in lesser degree, do initiate serious abnormality. However, in the main, both the susceptibility and the response to psychic trauma are conditioned by the somatic integrity of the individual. The writer must confess that his mind does not go along with those who attach a supreme importance to mental conflicts, submerged desires, and the usurpation of the unconscious in early life. That these manifestations of an abnormal mental life exist he does not doubt, that they are serious sources of danger if allowed to persist he does not deny, but that they constitute the prime force to be reckoned with he cannot admit. Considerable experience with children, normal and abnormal, has led him to believe that sexuality in its protean forms is an important phase of early child life only when abnormality of the nervous system exists, and that the persistence of abnormal infantile sexual traits into adolescent and adult life occurs only in individuals whose soma and psyche have not fully and evenly evolved; in other words, in those who are constitutionally inferior. Maeterlinck and Barrie draw a truer picture of the normal child's mind than does Freud; contamination, except in those of exaggerated sensual susceptibility because of nervous defect, comes from sophisticated companions and elders, not from essential depravity. There is no intention to deprecate the analysis and correction of abnormal psychic reactions, either those with sexual basis or otherwise, as a means leading to prevention or cure, but in the application of Freudian philosophy the importance of the treatment of the constitutional basis should not be ignored. Through the forces of suggestion and example come also, to a large extent, those crudities and perversities which lead some people to consider children as selfish little animals. Wisely directed, the same forces lead to idealism and altruism. The sense of inferiority common to hypoplastic individuals leads to accentuation of the fundamental primitive instinct of fear which Boris Sidis believes to be the source of all psychopathic maladies, and to the desire to escape from reality in phantasy, another important factor in psychopathy, in hysteria, drug and alcohol habit, crime, etc. These tendencies call for early educational measures directed toward counteraction and suppression. The unreasonable fears of children are usually initiated through suggestion on the part of the elders and can be eliminated by the rational application of the same means. Imagination in the child should not be suppressed, for this interferes with expression and leads to the shut-in type of personality and

other forms of abnormal mental life, but should rather be encouraged and guided. The child should never be allowed to let go his hold upon reality, to lose himself completely in the characters and events of his little dramas, but should be taught to retain a consciousness of the sharp dividing line between that which is "pretend" and that which is real. To do this interferes in no way with the child's enjoyment of the world of make-believe and it serves to ingrain in him the habit of keeping both feet on the ground. Fairy tales, myths, the exaggerations of fiction, and the hyperboles of social expression should be interpreted for him on this basis, and at a very early age he will learn to make his own interpretations and draw his own conclusions and at the same time will develop that most potent preventive of mental variation—common sense. Undue repression in early childhood is a prolific cause of the establishment of a sense of inferiority in the hypoplastic and also in those inherently within the limits of normality. While inculcating in the child the precept "there is no such word as can't" we should teach the parent that "don't" also is taboo. The child must learn through experience and his activities should be directed and encouraged, not checked at every turn. Unfortunately the average home, particularly the urban home, is conducted for the convenience of the adult members of the household; the children may fit in as best they can, just so they keep out of the way of their elders at the infrequent times when these have "no place to go"; or when it is otherwise they are liable to the opposite extreme of oversolicitude, overindulgence, and inconsistency of management as harmful in result as the species of neglect mentioned. The first step in the management of the hypoplastic child is that the domestic arrangements of the household be modified and changed as conditions require, sources of friction must be removed, impatience, irritability, and undue sympathy on the part of various members of the household must be curbed. The child's activities must be arranged to insure sufficient rest, as not only is easy fatigue a prominent symptom of organic inferiority, but it is also a contributory cause. Most children are overstimulated by the conditions of modern life, conditions which, because they are usual, are considered normal. Fatigue in children brings about a nervous irritability which leads to further effort giving the false impression of unflagging energy. Constant calls upon the reserves of energy, which should only be made in emergency, and in early childhood very infrequently result in nervous insolvency. The constant din of the city streets, the vibration of street-cars and automobile, the glare and excitement of the movie, the strident jazz of the phonograph, the constant hurry and bustle to be somewhere else as quickly as possible—all these have their effect for harm on the delicate organism of the growing child.

The ideal place to carry on the education of the hypoplastic child is the country, and if necessity compels city living, as many of the practicalities of rural existence as possible should be utilized. It is in the country that the child can confront the realities of existence in an uncontaminated state and be brought to realize what Cabot calls "the glory of raw materials," and it is there that the human plant may best be nurtured. As Browning says:

It was better youth
Should strive, through acts uncouth,
Toward making, than repose on aught found made.

The conventional cut and dried methods of the modern schoolroom, depending largely upon memory and abstractions, fail properly to hold and direct the attention of the hypoplastic child. Contact with the concrete, the study of the phenomena of Nature, and the demands made upon initiative and self-reliance resulting from a system of education in which the practical is largely utilized, serve to bring about function of normal areas of interest and to eliminate abnormal ones.

805 KEENAN BUILDING.

MYOMECTOMY VS. RADIUM AND X-RAY IN THE TREATMENT OF FIBROID TUMORS IN WOMEN UNDER FORTY YEARS OF AGE.*

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It seems to me the time is opportune for a discussion of the relative merits of myomectomy, and radium and x-ray, in the treatment of fibroid growths of the uterus in women who are still comparatively young, say, under forty.

There is no claim made by me to adduce anything new about the operation of myomectomy. As is well known, it has been practised for several years by most gynecologists and by some general surgeons; but the object of this short communication is to draw attention to what probably is *not* so well known, namely, that myomectomy is by far the more conservative procedure in women who have still some years to the menopause, than is either radium or the x-ray.

In the first one, there is conservation of the menstrual function; in the other two (if they are successful) menstruation ceases and all the distressing phenomena of the artificial menopause appear.

All of us who operate upon the genital organs of women learn early in our career to abate our joy at the successful issue of a radical operation, through the probable return of our patient afterwards, complaining of various nervous symptoms for which we can give them but little relief. In many instances there is no choice in the matter, as, for instance, in malignant disease and in hopelessly diseased adnexa leading to partial or complete invalidism.

Therefore it is that the conscientious and thoughtful operator nowadays makes every effort to preserve the menstrual function of his patient. I say, advisedly, menstrual function, for the ovaries to my mind serve no useful purpose when the uterus has been removed, or when the endometrium has been destroyed so that menstruation is no longer possible.

Some of the very worst cases of the artificial menopause syndrome have been witnessed by me in women who had their ovaries and their uterus *in situ*, but in whom a too energetic curettage had

*Read before the Section on Obstetrics and Gynecology of the New York Academy of Medicine, November 23, 1920. See page 120.

brought about a permanent cessation of menstruation. The same applies to instances when the uterus was removed and the ovaries left behind.

There is to be observed at the present time a singular state of mind on the part of medical men. They are all keenly alive to the importance of conserving the menstrual function in women. They hesitate, to their credit, to consign their patient to an operation which would destroy that function. Still, they will refer, without a moment's hesitation, a patient with a bleeding fibroid of the uterus, to the roentgenologist or radiologist, who can only be successful by destroying that function, and, in most instances, permanently.

For this state of mind of the medical profession, the gynecologist himself is mostly to blame. He has written and talked to a surfeit-degree about the various techniques in performing hysterectomy;—whether the cervix should be removed or should not, or whether in removing the uterus an ovary should be left or not, and about kindred details. But on the true crux of the matter,—the conservation of the menstrual function,—he has been rather silent. It remained for that deep medical thinker and great surgeon, W. J. Mayo, to bring the subject recently before the profession in a masterful and convincing paper, read before the Obstetric Section of the American Medical Association at its meeting of April, 1920, and published in the *Journal of the American Medical Association* for June 19, 1920. The perusal of this paper gave me especial pleasure, in that it expressed the views that I have held and the practice I have followed for many years past.

The statistics Mayo furnishes (and to no other operator are such huge personal statistics available) dispel the fear that myomectomy is a more dangerous operation than hysterectomy. In 617 cases of abdominal myomectomy in the Mayo Clinic, there were only three deaths, or 0.5 per cent.

My own statistics are very modest in comparison but are equally good. For a period of about the past ten years I have been able to collect 120 cases, 31 from my own private patients, and 89 from the Second Gynecological Service of Mt. Sinai Hospital. There was not a single death among the entire series.

In one of the hospital cases a hysterectomy was done shortly after the myomectomy, because the patient was running an elevated temperature, and an undetected sloughing submucous fibroid was found. This was among the early cases, when an exploration of the uterine cavity was not always practiced.

In a second hospital case there was an extensive breaking-down of the abdominal wound, with evident secondary suppuration of the wound in the uterus, as the patient has a small uterine fistula which however gives promise of closing soon.

This practically constituted all of the serious morbidity that occurred. The ages of the private patients ranged from 22 to 37 years. One was 42 years old. Nine, or 27.7 per cent. of the patients conceived afterwards. One had 2 children, seven had 1 child, and one resulted in interstitial pregnancy.

Five of the patients were pregnant and had to

be operated upon on account of acute symptoms due to degenerative changes in the growth. Two went to full term and gave birth to living children. In the remaining three the tumor invaded the uterine cavity to such an extent that after removal of the growth the uterine wound could not be coapted until the products of conception were removed.

All but two of the cases were operated upon through the abdominal route. The tumors, with a few exceptions, were large, ranging from the size of the closed fist, to growths reaching to the umbilicus and to midway between the umbilicus and ensiform cartilage. They were all interstitial or submucous. In none of the cases has there been a recurrence of fibroid growths or of menorrhagia.

The subsequent histories of the hospital cases, for obvious reasons, are not so well known. The follow-up system is of comparatively recent date and is far from being thorough. None, however, have been readmitted for secondary operations and those who have returned to the follow-up clinic showed no recurrence of growths. On bimanual examination no appreciable enlargement of the uterus was noted. Three were pregnant at the time of operation: in one the uterus was emptied at the time of the myomectomy; the other two went to full term and were delivered of a living child. In one of the latter a dermoid cyst of the right ovary was also removed.

Three of the patients, one of whom had been sterile before operation, conceived afterwards and went to full term with normal deliveries. Eight patients were operated upon through the vaginal route; the remaining eighty-one through an abdominal incision.

It is a surprise to oneself what apparently unpromising cases lend themselves to a myomectomy if one starts out with the determination to save, if possible, the uterus in whole or in part. I recall several, in which at first sight the size and the number of the growths and their situation were such that a conservative operation did not seem at all feasible; still, with persistence and patience I was able to remove the growths and build up a fairly satisfactory uterus.

Two of these cases are worthy of special mention: In one, the growth reached to three inches above the umbilicus and was situated between the fundus and the cervix. After its removal the body of the uterus was almost completely separated from the cervix, being united posteriorly by only a narrow bridge of tissue. I sutured the body to the cervix with plain catgut. The patient made a good recovery, menstruated normally and on examination a few months later the uterus felt like a perfectly normal organ. In the other, the growth, equally large, was situated in the same way, between the fundus and the cervix, but had also developed deeply and extensively into the layers of the broad ligament. When the growth was removed there was such a disturbance of the anatomic relations of the right tube and ovary that I deemed it wise to remove them, particularly as the left tube and ovary were perfectly normal.

What the operation meant to these two patients can readily be realized when it is borne in mind that they were both unmarried women, 32 and 35 years old respectively, who had immediate pros-

pects of marriage, provided their generative organs could be conserved.

One of the objections often raised against myomectomy is the frequency with which tumors develop later, requiring a second operation. In Mayo's series of 741 cases, only 19 (2.56 per cent.) required secondary operations. In 11 of the cases the operation was performed five or more years after myomectomy, and in 1, thirteen years afterwards.

We have seen that my own statistics in this respect, as far as they go, are even more favorable than those cited by Mayo. Thus far not a single case has had to be operated upon again although many of the patients were operated upon more than five years ago.

I have had occasion more than a few times to do a second operation upon patients previously operated upon by other surgeons, but in these instances the period elapsed from the prior operation was so short, and the growths were so large, that the impression gained was that the prior operator had contented himself merely with removing the pedunculated growths and had left untouched the equally large or larger interstitial ones.

A valuable point made by Mayo has reference to the advisability or necessity, in cases of hemorrhage, in addition to the myomectomy, of opening the uterine cavity and of thoroughly curetting the endometrium under the eye. In the majority of my cases this procedure was made unnecessary by one or other of the tumors dipping into the uterine cavity and being covered in great part directly by the endometrium. The difficulty in these cases was to conserve sufficient endometrium to carry on the function of menstruation.

But the value of the procedure was forcibly illustrated in a case recently operated upon by me. The patient had had profuse hemorrhages for a long period so that her hemoglobin was reduced to 38 per cent. At the operation there was found a growth the size of the closed fist, situated in the posterior wall. There were three smaller ones scattered over the rest of the uterus. When all the growths had been enucleated and the resulting wounds sutured, the body of the uterus still appeared rather large. However, no other tumor could be felt through the uterine wall, by the most rigid palpation. Nevertheless, I felt that those that had been removed would scarcely have caused such severe hemorrhages. I therefore cut through the wall of the fundus directly into the cavity of the uterus, and found the endometrium very much thickened, and spongy, and detected an elongated submucous fibroid of the size of one's thumb. The latter was easily removed with the finger and the endometrium was thoroughly curetted under the eye.

In spite of our strongest determination and most painstaking efforts, it must be admitted cases will now and then be encountered in which it is not possible to save the uterus. What we must endeavor to do, then, is to save enough of the organ and endometrium to carry on the function of menstruation.

Even should we be baffled in this and the entire organ have to be sacrificed, the patient would in no wise be any worse off regarding her menstrual function than she would have been had she been

successfully treated with x-ray or radium. On the contrary, to my mind she would be better off, for her cure would be more certain and more complete.

Let me not be misunderstood. I am not endeavoring to make out a case against x-ray or radium, as the title of my paper might indicate. They have their uses in the treatment of fibroids, even in young women. There are certain women to whom the dread of an operation is so great that they will go on suffering pain and loss of blood rather than submit to it. Such patients I refer to the roentgenologist or radiologist; also those who have a constitutional dyscrasia which would render an operation unusually dangerous.

I go even further. Every patient who consults me regarding a fibroid tumor causing symptoms, is told by me she may have her choice of treatment, either by operation, or by x-ray or radium. I tell her, regardless of her age, that the *one* (operation) perhaps carries more risk with it than do the others, but that in my opinion it is more certain of permanent cure. If she is under forty I try to impress her with the advantages, of which I myself am strongly convinced, of submitting to an operation, the endeavor of which would be to remove her tumor or tumors and preserve her menstrual function.

NOTE.—In the discussion, following the reading of the paper, exception was taken by Dr. Howard Taylor to the statement that operation carried with it more risk to life than x-ray or radium. He cited a fatal case following radium treatment. I myself recall a fatal case in the hands of one of the most expert radiologists in the country. No doubt other deaths have occurred. This scarcely could be otherwise, in view of the fact of the uncertainty in the diagnosis of abdominal tumors. The most expert and experienced diagnosticians frequently make errors in this field. Cases not infrequently occur of old pus tubes so intimately barked to the uterus that the resulting mass is frequently mistaken for a fibroid tumor. Every operator will recall several such mistakes in his own experience. Ovarian cysts with thick walls and malignant growths of the ovary are at times so extensively adherent to the uterus that they are mistaken for fibroid growths of the uterus. X-ray or radium treatment in these instances would be disastrous. Numerous other conditions could be cited, did space permit, in which a diagnosis of a fibroid growth is made and on opening the abdomen an entirely different condition is found.

751 MADISON AVENUE.

TUMOR OF THE SPINAL CORD AND ITS MEMBRANES.

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SURGICAL treatment of tumor of the spinal cord is of comparatively recent development. The first tumor of the cord was removed a little over thirty years ago. In the intervening years since this doubtfully-undertaken first operation, our knowledge of cord tumor has broadened, the signs and symptoms of tumor presence systematized, and the technique of the operation improved, so that correct diagnosis and successful removal of cord tumors is of frequent occurrence. From the large number of reported cases, there has been built up such a comprehensive symptom-complex of the various cord neoplasms, that it is now rather rare in diagnosis of cord tumor to have operation reveal not tumor but organic cord disease. Rather the error

lies in the opposite direction, for not infrequently tumor signs will so simulate organic cord disease, that operation is not thought of, and only at later operation, or at autopsy, will the presence of a tumor be disclosed. Such was the case in one of the patients reported in this article. In any patient with beginning motor impairment of the lower extremities and even slight sensory disturbances, with lues excluded, the strong probability of a spinal new-growth must be constantly kept in mind. Naturally, when the signs point to the presence of a tumor, operation is the only procedure. In a doubtful case where the signs are confusing, indicating either tumor or organic cord disease, an exploratory laminectomy should always be done. Even in cases where the signs are largely those of organic cord disease, if there is any doubt of the diagnosis, if there is only a suspicion of tumor, in the writer's opinion, operation should be performed. Naturally, where the signs clearly indicate a condition of organic cord disease, and not tumor, operation is not to be thought of. With its improved technique, the risk of laminectomy is comparatively slight. And it is far more preferable, in doubtful cases, to operate and find in some of the patients a condition of organic cord disease which will not be helped by the operation, than it is not to operate, and allow a tumor to remain with sure progression to total disability of the patient. And in the writer's experience, the proportion of tumors found in these doubtful cases is not so small as is generally supposed.

Intradural Tumor.—Intradural tumor, or tumor within the cord substance itself, is not as rare as was formerly supposed. Of all tumors of the spinal cord and its membranes, one in four is intradural. They are almost always found in the upper portions of the cord, in the cervical or upper thoracic segments. Many of these tumors are infiltrating in character, invading the cord substance in their advance, and tending to blend with it, but at times are surrounded by an area of softening of the cord substance. They usually grow in an upward and downward direction rather than transversely and often attain quite great length. Occasionally, however, intradural tumors are encapsulated and this type of tumor may extend its growth transversely, giving rise to cord signs that make it impossible to distinguish it from extra-cord tumor.

The signs of intradural tumor are usually well marked and definite. Pain, which is very often the first sign of extra cord tumor, is here absent or slight unless, as sometimes happens, the bulging of the cord, caused by the growing tumor, presses or drags upon a posterior nerve root.

From their position within the cord these tumors, by interference with the pyramidal tracts, give rise to motor symptoms below their level—spasticity of legs, with exaggerated knee and ankle jerks, clonus, and the Babinski sign. This by itself is not of diagnostic importance, as any lesion interfering with the pyramidal tracts will cause the same motor disturbances. Due to their location in the cervical and upper thoracic cord, by interference with the motor cells in the anterior horns of the cord, atrophy of muscle in the upper extremities is often seen, and this muscle atrophy occurs

earlier than that found, if present at all, in extra-cord tumor.

One of the early and definite signs of intradural tumor is dissociation of sensation. The main tracts for touch sense run in the posterior columns of the cord. The fibers carrying pain and thermal sense cross in the cord to the spinothalamic tracts in the anterolateral and anterior portions of the cord. So that an intradural tumor—depending on its position within the cord substance—will almost certainly give rise to dissociation of sensation. Owing to great size or rapid growth, or peculiar position, an intradural tumor may markedly impair all sensation below its level, but this is only occasionally seen.

As these tumors usually grow in an upward and downward direction, the level of motor and sensory impairment on the trunk or upper extremities may be gradually raised, but as an aid to diagnosis before operation it is a point one should not wait for, since any obstructive lesion within or without the dura may cause a damming of the spinal fluid, thus causing pressure with raising of the sensory and motor level and simulating an extension upward of an intra-cord tumor.

Examination of the spinal fluid, obtained by lumbar puncture, may be of aid to diagnosis. Fluid of a yellowish tint, and showing an increase in globulin, with few cells, points to tumor either intra- or extradural. Marked increase in the cells indicates an inflammatory process in the meninges.

Extradural Tumor.—Extradural tumor, or tumor arising within the dura, but without the cord substance, is occasionally found in the cervical and lumbar regions, but more frequently in the mid and lower thoracic region of the cord. Some few arise from the inner surface of the dura, but the great majority spring from the pia and arachnoid. They are nearly always single growths, but occasionally multiple sarcomata of the roots about the conus, or of the cauda equina itself are met with. Extradural tumors are usually localized, encapsulated growths, giving rise to cord symptoms solely by their compressive effect, but infiltrating growths, glioma or sarcoma, are occasionally encountered.

Extradural tumors are the most common of the new growths affecting the cord, their ratio, as compared to intradural tumor, being as 3 to 1, and as compared with extradural growths being as 2 to 1.

The first cord symptoms arising from the presence of an extradural tumor depend upon the location of the growth. If the tumor lies posterior to the cord, upon one side or the other of the median line, the first symptom is usually (but not always) pain. This is due to the pressure of the tumor upon the sensory nerve roots. The pain is at first slight and transitory in character, gradually becoming with the growth of the tumor more severe and persistent. As an extradural tumor extends its growth transversely, rather than in an upward and downward direction, these irritated roots later give rise to a zone of hyperesthesia in their areas of distribution, which is of marked assistance in determining the spinal level of the tumor. However, even with a tumor lying in this

position (posterior to the cord) and compressing sensory roots, there may be little or no pain. In one of the cases reported below, although at operation, two of the sensory spinal roots were found flattened to ribbons by the tumor, there had been no pain at any time.

Tumors, lying posteriorly, as they increase in size, compress the posterior columns of the cord, causing hypesthesia and even anesthesia to touch, and marked impairment of joint and muscle sense, since the fiber tracts for these senses lie in the posterior columns of the cord.

Tumors lying on the lateral surfaces of the cord usually cause first root pains and then by pressure on the spinthalamic tracts, give rise to marked impairment of pain and thermal sense of the contralateral side, as these tracts cross the cord. Lateral extramedullary tumor if placed a little more anteriorly than posteriorly, may be difficult to distinguish from intramedullary tumor for, due to its forward location, posterior root pains may be absent, and by interference with the spinthalamic tracts, carrying pain and thermal sense, marked dissociation of sensations may occur, and this latter symptom is a nearly constant one in intramedullary tumor. If the tumor is situated in front of the cord, the first sign of its presence will be paresis and paralysis of muscle groups, and from interference with the anterior horns of the cord, or the motor roots, muscle atrophy may occur.

The above relates to early signs caused by a tumor in its usual location, the thoracic region. If located in the upper or midcervical region, respiratory difficulty may be an early symptom. If the tumor is located at the first thoracic segment of the cord, the cilio-spinal center may be interfered with, causing impairment or paralysis of pupil dilatation. If placed in the lumbar region near the conus, impairment of bladder function may be an early sign.

As the tumor gradually increases in size, whatever its position, whether posterior, lateral, or anterior to the cord, all the cord tracts begin to show the effects of the compression. The zone of hyperesthesia, marking the tumor level, is sharpened, and the areas of hypesthesia below the lesion broadened and deepened to anesthesia. The pyramidal tracts show the effects of the compression with increasing spasticity, exaggerated reflexes, clonus and Babinski sign, paresis of muscle groups gradually increasing to paralysis. There is impairment of bladder and rectal function gradually becoming more marked. With later and more severe compression the early sign of tumor presence, root pains, is apt to lessen and disappear.

Extradural Tumor.—Extradural tumor, or tumors situated outside the dura, in the spinal canal, are quite commonly found. As compared with extramedullary growths, their proportion is as 1 to 2. Unfortunately, the majority of extradural growths are malignant.

Extradural tumor of the spinal canal springing from the soft parts is usually a sarcoma or fibroma. Sarcoma is the more frequent, arising from the outer surface of the dura, or from the periosteum. Owing to the indefiniteness of the symptoms it causes sarcoma is apt to attain quite large size before operation, and frequently causes absorption

of bone that can be detected by the x-rays. If sarcoma is situated lateral or anterior to the cord, the symptoms that arise may closely simulate multiple sclerosis with its remissions and exacerbations, and it is quite frequently mistaken for that disease, for pain may be absent even if the sensory roots are compressed (Case 1).

Fibroma of the spinal canal is small and slow growing and causes but few and indefinite symptoms for a long time. Little or no erosion of bone accompanies its growth.

Benign tumors of the spinal column, by their position, may affect the cord or spinal roots. Chondromata, fibromata, exostoses (as in a patient reported in the *American Journal of the Medical Sciences*, September, 1919, clviii, 3, page 335) may occasionally be found, but benign tumors of the vertebræ are extremely rare.

Carcinoma, which attacks the bodies of the vertebra, usually in the thoracic region, later affects the cord and roots by compression. It is never primary in the vertebral bodies, but is a metastasis from cancer elsewhere, usually the breast, and hence carcinoma of the spine is more common in women. From its position in the vertebral bodies as it extends its growth, it compresses the spinal roots first, and therefore, severe pain is usually the first and only cord symptom. Later it attacks and compresses the cord, with fairly rapid development of paralyses, anesthesia and loss of sphincteric control. The pain is more severe than that seen in other spinal tumors and there is marked tenderness to pressure over the affected vertebræ.

Sarcoma of the vertebræ, usually found under middle age, may be a primary growth, or secondary to sarcoma elsewhere. In contradistinction to carcinoma, sarcoma arises posterior to the cord in the arches of the vertebræ. Due to its position root pains are not an early sign but it gives rise to a protrusion over the spine that can often be seen and palpated. As it extends its growth, it affects the cord by compression and the signs of cord involvement, paralyses, anesthetics, and sphincteric loss, are rapid in development.

Diagnosis and Treatment.—Although from what has been said above, the signs of tumor of the cord and its membranes seem to be clear cut and well defined, such is by no means always the case. Many atypical cases are met with. Many of these new growths arise and pursue their course in an unobtrusive manner, giving rise to but few signs and these vague and ill-defined. As in tumor of the brain, the early signs and symptoms are of great importance. The early signs may be the chief means of differentiating tumor from organic cord disease, as seen in the case of the second patient reported. Later in its course tumor may closely simulate organic disease.

Root pains and impairment of sensation, areas of hypesthesia below the lesion, are if present the most important early diagnostic sign of tumor.

Other early signs may be present, depending on the location of the lesion. If in upper cervical region, disturbance of respiration; at the cervico-thoracic junction, impairment of the cilio-spinal center; and if located near the conus, early involvement of the bladder and rectal sphincters.

With increase in size of the tumor, further signs of cord involvement appear. Impairment of sensation becomes more marked, with perhaps the establishing of a zone of hyperesthesia at the upper margin of sensory impairment. This area of hyperesthesia, if present, makes a diagnosis of tumor almost certain. Spasticity, or weakness of one or both extremities, is found with alteration of the reflexes.

Lumbar puncture may be an important aid in the diagnosis, and should always be done. Syphilis of the cord and the membranes may be confirmed or excluded by this means, and a yellowish tint to the fluid, and increased globulin content strengthens the diagnosis of tumor. When tumor is suspected skiagraphs of the spine should always be taken. Both antero-posterior and oblique views should be made, for skiagraphs of the spine are difficult to "read" and even large erosions of bone may escape detection. The x -rays will disclose carcinoma of the vertebral bodies and frequently sarcoma of the canal, if the arches and laminae are eroded. An occasional chondroma may be detected by this means. The x -rays are of no assistance in intradural growths.

Organic cord diseases most often confused with tumor are multiple sclerosis and syringomyelia. An atypical multiple sclerosis with collection of fluid, localized in the thoracic region, will give an almost exact picture of tumor. Quite a few cases of multiple sclerosis have been operated upon for tumor. However, as it has been found that many cases of this type of sclerosis are benefited by laminectomy, the mistake in diagnosis is not extremely serious. And tumor, in its turn, may give rise to symptoms closely approximating multiple sclerosis, as in the first of the patients reported here.

Syringomyelia is most often confused with intramedullary tumor. Their usual locations are the same—the cervical and upper thoracic cord, and they are both lesions within the cord substance. Dissociation of sensation is common to both. Pain is absent in syringomyelia, often absent or slight in intramedullary tumor. Beyond the fact that syringomyelia usually involves more segments of the cord, and that joint changes and other trophic disturbances are common in syringomyelia, it is often impossible to make a diagnosis. Where the slightest doubt exists operation is indicated.

After deciding that the case is one of tumor, with carcinoma and sarcoma of the vertebrae excluded by the x -rays and lues excluded by lumbar puncture, the next step is the determining at what segment of the cord the tumor lies. While the motor disturbances are helpful in making a diagnosis, especially where the tumor is so situated as to cause the disappearance of isolated reflexes, such as the knee jerk, with preservation or exaggeration of nearby reflexes, yet the main reliance is placed on determining the limits of sensory impairment. This requires careful, repeated examinations. One should not make a diagnosis of a tumor-level on a single examination. Sensory examination requires the close cooperation of the patient and naturally this cooperation is not always all one could desire, and the sensory limits may apparently vary from day to day. However, by careful, repeated exami-

nations, one can nearly always locate the growth within a margin of one or two segments and very often locate not only its exact level but also its position in relation to the cord.

When the diagnosis of cord tumor is made and its level ascertained, the only treatment is operation. Naturally it is important, and almost inevitable for the sake of diagnosis and prognosis, and for the broadening of our knowledge of the signs and behavior of these growths, to attempt to determine prior to operation whether the tumor be extradural, intradural or intramedullary, but from the standpoint of treatment this is not very important. All tumors of the cord and its membranes must be operated upon. The only exceptions are carcinoma and sarcoma of the vertebrae and even in these conditions posterior sensory root section or cutting of the antero-lateral cord tracts (carrying pain and thermal sense) must occasionally be done as a palliative operation for the relief of pain. A description of the technique of laminectomy has been given in a previous article and will not be included here.

After the spinal canal has been opened by laminectomy, if the growth is found to be a removable extradural tumor, it can be rather readily removed from its bed, and peeled off the dura by blunt dissection, care being taken to avoid injuring the adjacent nerve roots. Exostoses require rongeurs and chondromata the sharp spoon. With the dura intact the cord will submit without injury to quite rough handling, but this should never be done unnecessarily. After the removal of an extradural tumor if pulsation returns along the portion of compressed cord, it is not necessary to open the dura, unless for inspection, and it should be reclosed.

If the tumor lies intradurally and its level has been correctly diagnosed, it will usually disclose its presence when the bony canal has been opened, by a bulging and sometimes a discoloration of the dural sac. When the bulging, or discoloration is absent in the field of operation, a probe should be passed upward and downward in the spinal canal for several inches before the dura is opened. Bulging of the dural sac caused by a tumor located beyond the field of operation may be detected by this means. When the dura is opened and no tumor is found, a similar, careful exploration by the probe along the posterior and anterior surfaces of the cord within the dura may disclose the tumor. Also, dilatation of the posterior spinal veins indicates an obstructive lesion above the field of operation and the tumor may be located by this means. When the growth is located and exposed, if it is an extramedullary tumor and lies in its usual position posterior to the cord, its removal is a comparatively simple matter; if it lies lateral, or anterior to the cord, its removal will be more difficult, and requires the greatest care to avoid injury to the cord. The cord substance itself should never be touched or handled. The operator must constantly keep in mind that he is not operating for the tumor, but for the sake of the cord. If the tumor is crossed by a sensory root, no attempt should be made to slide or pull the tumor from under it. This would certainly injure many cord fibers. Rather cut the root. If the tumor is closely adherent to the cord

surface, it is safer to incise the membranes over it, and attempt its removal a week or ten days later when it may be found to have partially or completely freed itself.

If the tumor is an intramedullary one it reveals its presence by a bulging, more or less marked, of the cord substance. To attempt its removal by incision and enucleation would result in as much, if not more, damage to the cord substance than the tumor itself would cause. The safer procedure is to make a longitudinal incision with a fine knife, in the posterior columns of the cord near the median line, down to the tumor, and allow the pressure within the cord to force the tumor to the surface. This will require a week or ten days to accomplish and the tumor, unless it be of the infiltrating variety, may be removed at the second operation.

The following two cases are interesting as illustrating how tumor at times may simulate organic disease, and the amount of compression the cord can successfully withstand if gradually applied.

CASE I.—C. R., aged 28. Always a healthy but quite "nervous" girl. In the summer of 1918 while nursing her mother who was dying of cancer, and taking care of the rest of the family, and much worried, she noticed transitory attacks of trembling and weakness of left leg. This weakness gradually grew worse and a few months later appeared in the right leg, and later, spasticity of both legs. When I first saw her in June, 1919, her condition was as follows: An anemic, emotional girl with spastic para-paresis of lower extremities, reflexes exaggerated, double slight ankle clonus more marked in the left side, double Babinski. Upper abdominal reflexes present and equal, lower right abdominal reflex feeble and the left absent. Tremor of hands intentional in type, and lateral nystagmoid twitchings present in both eyes. Optic discs were normal. There were no subjective or objective sensory disturbances and she had had no pain at any time. No sphincter impairment, no tenderness over spine. A diagnosis of multiple sclerosis was made and the same diagnosis had been made by others at previous examination. Lumbar puncture a month later gave normal pressure finding (spinal fluid manometer), a normal clear fluid and a negative Wassermann. Blood Wassermann also negative. Patient was lost sight of until January, 1920. At this time her condition had markedly changed. From August, 1919, on, the spastic condition had become gradually aggravated so that by October she could lift neither leg from the bed. In November, she had first noticed impairment of sensation. The condition in January was as follows: complete spastic paralysis of both legs to hips; motor power entirely abolished except in two toes of the left foot. There were occasional spasmodic contractions in the legs. There was hypesthesia to all forms of sensation below the umbilicus. Touch sense was better maintained than pain and thermal sense. No tenderness over the spine and no disturbance of the sphincters. Tremors of the hands had disappeared and the nystagmoid twitchings were found only when she was fatigued by repeated examinations. Lumbar puncture at this time showed four cells and slight increase in globulin. Diagnosis of cord tumor was made near the tenth thoracic segment at the level of the seventh thoracic vertebra. X-rays revealed nothing. Laminectomy was done February 5, 1920, removing the laminae of the sixth, seventh, and eighth thoracic vertebrae. A large extradural tumor (size of small hen's egg) was found occupying the left portion of spinal canal markedly compressing the cord. The tumor was firm to touch and encapsulated except at its posterior pole. It was adherent to the dura, but was rather readily peeled off as it also was from its bed in the spinal canal. Quite marked erosions of the transverse arches and the laminae of the seventh and eighth vertebrae had occurred. The foramina of the seventh and eighth left posterior spinal roots were eroded and the roots found flattened to ribbons, and

yet there had been no root pain at any time. With the removal of the tumor the normal pulsation returned in the portion of cord compressed and the dura was not opened. Wound sutured and a straight plaster of paris splint applied to the spine. P. O. notes:—Ten days after operation patient could flex and extend legs and thighs and could raise feet from bed. Sensory impairment improving. Left hospital twenty-five days after operation. At this time could walk by holding to objects or placing hand against the wall; sensation was practically normal. Because of the large amount of bone erosion she wore a spinal brace for three months. Two months after operation she did light housework and could walk several blocks without fatigue. Improvement was gradual and steady so that when seen five months after operation she walked normally with no trace of spasticity, had been dancing, did all her housework, and had resumed her normal life. The knee jerks were still plus with double Babinski. Ten months after operation she was well and had no complaints.

The tumor was reported by one laboratory to be an atypical spindle-cell sarcoma with many giant cells, and many unidentified crystals at the posterior pole where the capsule was missing. It had outgrown its blood supply, was broken down and soft in the center and sectioned poorly. By another laboratory, it was reported as an indefinite benign growth with no signs of malignancy. There have been no signs of return of the tumor 9 months after removal. As there were no signs of loose tissue masses seen at operation, it is probable that the gap in the tumor capsule at its posterior pole was made by the rongeurs in removing the laminae of the eighth vertebra, into which the tumor had eroded deeply. If so the probability is strong that there will be no return, even if it be sarcoma.

The interesting features of this case are the quick recovery of function after operation and the exact picture it presented (except for absence of optic disc pallor) in its early stages of multiple sclerosis. It is difficult to explain the absence of root pain in view of the operative findings.

CASE II.—F. M., male, 16 years. During the summer of 1916, when patient was 12 years old, he was struck by a street car, receiving general and severe bruises, but does not know if his back was hurt; says there was no paralysis of legs. Was in bed at home for six weeks, and fully recovered by that time. Three years later, in the fall of 1919, he had occasional shooting pains in back and legs with slight tenderness of the back in the lower thoracic region. Pain in back was increased by stooping. These transient pains continued until March 1, 1920, at which time he had "pins and needles" sensations in legs, with weakness in both knees, so that occasionally a leg would give way under him while walking. This weakness rapidly increased so that in two weeks he was unable to walk. The following week he complained of numbness in both legs, and some difficulty in emptying the bladder. His condition was diagnosed as either polyneuritis or a beginning myelitis. I first saw him March 23, 1920. At this time there was a flaccid paralysis of both legs to the groin, with marked wasting and atrophy of the muscles. Knee and ankle jerks absent. Motor power completely abolished except for the toes on the left foot. Tactile sense was preserved, but there was hypesthesia to pain and temperature found in both legs. He complained of severe pains in the back and tenderness to pressure was found over the spine from the eleventh thoracic to second lumbar vertebra. Muscles of the legs were markedly sensitive to pressure. Sphincter disturbance was present but not marked. X-rays revealed nothing abnormal in the spine. Although the signs indicated a possible polyneuritis or a myelitis, yet because of the history of indefinite root pains, six months previously, and the presence of tenderness over the spine, tumor was suspected near the

conus, affecting the lumbar segments of the cord and an exploratory laminectomy advised. Operation was done March 29, 1920. When the laminae of the twelfth dorsal and first lumbar vertebrae were removed a bulging dark red mass was revealed entirely filling the spinal canal. Careful search failed to locate the cord in this mass. Removal of one spinous process and laminae above, disclosed a normal pulsating dura and removal of the laminae below disclosed a bluish congested dura without pulsation. Blunt dissection removed the larger part of the dark red mass, which came away in friable, laminated sections, apparently organizing blood clot. The greater part of the mass lay anterior to the cord. Beneath the dark red mass was found a band of dense yellowish fibrous tissue one inch in breadth encircling the dura and closely adherent to it. This was divided and dissected from the dura with great difficulty. With division of the constricting band normal pulsation appeared in the dural sac below the lesion. Dura was not opened and the wound closed with one drain down to the tumor site.

Postoperation Notes: Profuse grumous bloody discharge for two days, and then a low grade suppuration occurred, speedily cleared up by use of Dakin's solution. With this exception the convalescence was uneventful. The pain in back disappeared with operation and eight days later the patient could flex and extend the left foot, and move toes of the right foot, and a week later could flex left knee and move right foot. Sphincter impairment had disappeared. Improvement from this time on was gradual and steady, so that one month after operation sensation was normal and he could walk when held on one side. Left leg much stronger than the right, knee and ankle jerks still absent. Three months after operation he could walk up and down stairs and across a room unaided. Muscles had rounded out and the left leg was almost normal in size and strength. Right leg still weak but improving; left knee and ankle jerk were feebly present; the right absent. He was steadily improving when seen eight months after operation.

The pathological diagnosis of the tumor was that it was an endothelial angioma springing from the connective tissue. Doubt was expressed as to malignancy.

Tumors of the spinal cord that manifest the typical signs are rather easy to diagnose. The important point to bear in mind is that many, possibly one-half, of these tumors are atypical and give rise to symptoms that are either slight and indefinite or that simulate organic disease to a remarkable degree. In any cord lesion one should be on the alert for signs of tumor presence. And when signs of tumor are found, even though they be slight and indefinite, if persistent, an exploratory laminectomy is not only justifiable but necessary.

107 EAST THIRTY-NINTH STREET.

A CONCEPT OF X-RAY PATHOLOGY.

III. PLEUROPATHY.

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THE diseases of the pleura with which the x-rayist is commonly concerned may be divided into four groups: (1) Inflammation; (2) Circulatory Disorders; (3) Air Invasion of the Pleural Sack; (4) Tumors.

Whatever the anatomical pathology producing pleural inflammation, the x-ray pathology resolves itself into two factors: a thickening of the pleural surface due to a connective tissue proliferation, or a filling of the pleural cavity with the fluid products of infection activity. These evidences may occur singly or conjointly.

PLEURITIS.—Simple inflammations of the pleura may be due chiefly to pyogenic organisms; in other cases the infection may be specific, as tuberculous or luetic. In acute pleuritis the exudate may consist practically entirely of fibrin, when the condition is known clinically as dry pleurisy. The coating of the fibrin over the infected pleural layer will appear on the plate as a radiolucent or radiopaque mantle. Normally, the serous pleura is radioparent and does not register on the plate; but when attacked by pathology, the pleura become radiolucent or radiopaque. Instead of being composed entirely of fibrin, pleural exudate incited by infection may be fluid. When fluid, pleural effusion may be serous, serofibrinous, hemorrhagic, or purulent. In the order of their radiability, these effusions are radiolucent when serous, radiopaque when serofibrinous, still more radiopaque when hemorrhagic, and of maximum radiopacity when purulent.

Dry Pleurisy.—Dry pleurisy is usually difficult to diagnose from x-ray evidence alone. Usually on the affected side, at the beginning of the infection, there can be seen, when viewed fluoroscopically, a paresis of the diaphragm.

Since dry pleurisy is most often associated with a tuberculous infection, a locus of tuberculous activity should be sought in the lung on the affected side. The actual excursion of the diaphragm is generally lessened in acute pleurisy; so that a double exposure on a single plate made at the end of inspiration and immediately at the end of expiration, will show on the affected side a lessened diaphragmatic journey compared to the normal side.

Pleurisy with Effusion.—The majority of serous pleurisies have as a basis a tuberculous origin; so that in serous pleurisy, as in dry pleurisy, signs of tuberculous infection should be sought in the lung areas. In a limited number of cases the original tuberculous focus may have become extinct in the lung and may reside latent either in the hilus glands or in the pleura. Active pleural tuberculosis leading to pleuritic effusion is not uncommon as a terminal complication in cases of chronic cardiopathy. As the fluid forms, it collects in the most dependent parts of the thoracic cavity. On the x-ray plate these are the costophrenic sulci. As the fluid collects in the costophrenic sulci, the normal lung structure is displaced by the invading serum. The fluid, being radiolucent, occasions a shadow to be cast in the sulcus with the obliteration of the normal outline. Mobile serous fluid, in the absence of a concomitant fibrinous exudate, causes a horizontal fluid level to appear when exposure is made with the patient upright. As the pleural cavity becomes more and more filled with effusion, an even obliteration by the radiolucent shadow proceeds, the level remaining horizontal until the upper third of the thoracic field is reached.

If more fluid is poured into the pleural cavity after a hemithorax is filled to its upper third, the lung, which is fixed at its central portion, cannot yield at the root, but can only yield at the peripheral margin; so that the rising fluid level no longer remains horizontal, but assumes an inclination, being lower at the root of the lung and higher at the margin. This is the line of Damoiseau described by Barjon. The effusion may continue until the entire thoracic area on one side is obliterated.

The x-ray pathology of pleurisy with serous, serofibrinous and hemorrhagic effusion is practically identical and is characterized by a radiolucency that fills first the costophrenic sulcuses on the affected side, maintains a horizontal level, obliterates the cardiophrenic sulcus, continues to rise with a horizontal level until the root of the lung is reached, then rises with its level inclined, the inclination becoming more acute as the fluid increases until finally the entire hemithorax is evenly obliterated by the opacification; and incident to the pressure exerted by this volume of fluid, the mediastinal structures and the cardiovascular stripe are displaced to the opposite or unaffected side.

Pleurisy with Purulent Effusion.—When the pleuritic effusion is purulent, the sulci are the first to disappear as in ordinary effusion. The shadow caused by pleuritic purulent effusion are denser or more radiopaque than those of other effusions. This difference in radiopacity is purely relative and can seldom be used as a means for distinguishing from the x-ray evidence between the pathological character of the various effusions in pleurisy excepting when the purulent effusion attains a combined fibroseropurulent property. In this case the fibrinous exudate attaches itself to the pleural parietes, and this, together with the less mobile character of the effusion, precludes the assumption of a clearly defined fluid level. In some cases, then, a dense radiopacity obliterating a dependent portion of a thoracic field with an irregular upper boundary, differing from a mobile fluid level, it is possible to predicate the fibropurulent character of the pleuritic fluid.

The lung area on the healthy side may be less clear than normal if the effusion of the other side be large. This is subscribed to partly on account of the lung compression, and partly because of a contemporaneous hyperemia. When the effusion is small in amount the lung on the affected side, owing to a vicarious emphysema, may be unusually clear.

Empyema.—Empyema, or purulent pleurisy, may involve a pleural cavity as above described or it may be encapsulated or interlobar. The x-ray diagnosis rests in a radiopaque hanging shadow. It is characteristic and is seldom mistaken for any other condition. Following a pneumonia, empyema should always be suspected in cases of encapsulated fluid inclusions in the chest.

Pleural Thickening.—This is a chronic inflammation of the pleura with the formation of new fibrous tissue between the layers. There may be an obliteration of the entire pleural cavity on one side with an incident reaction of the bony framework, or a partial yet extensive obliteration, or only circumscribed adhesions. The thickened pleura may become so radiopaque as to make it indistinguishable, from x-ray evidence alone, from the opacification due to effusion.

If the thickening involves one surface, such as the anterior surface, an x-ray differentiation between chronic pleuritis and pleuritic effusion can be effected as follows:

Two exposures are made, one in dorsoventral view, the second ventrodorsal. If the radiopacity affects one surface as the result of a pleuritis, it will be relatively more radiopaque in one or the other of the two exposures; the greatest radiopac-

ity appearing in the exposure made when the thickened pleura more closely approximates the x-ray plate. If the radiopacity is due to a pleuritic effusion, the intensity of radiopacity will remain equal in both views, ventrodorsal and dorsoventral.

Thickened pleura sometimes become calcified and then show great radiopacity characterized by circular or radiating shadows.

Adhesions to the diaphragm are readily discerned by the x-ray. The diaphragmatic cupola is suspended by an adhesion and is remarkably illustrated, particularly if the exposure is made on deep inspiration.

Interlobar pleural scleritis may appear as a radiopaque linear marking running transversely across a lung area in the position of the interlobar septum. It may represent a part of a moderate general pleuritis, only the interlobar scleritis showing because of the radiopacity incident to the pleural surface being rayed endwise. As an analogy, a sheet of glass viewed through its thinness is transparent; but when viewed through its edge is translucent if not opaque. So with a pleural surface; when moderately inflamed, rayed through its thinness the inflammatory reaction may be insufficient to register any change in radiability. Rayed through its edge, as in a septum, the combined thickness may cause a radiopacity.

Circulatory Disturbances Involving the Pleura.—

Three important circulatory disturbances may invade the pleural cavity. These are hydrothorax, hemothorax and chylothorax. Hydrothorax is a transudate into the pleural cavity and is a non-inflammatory effusion. Its x-ray pathology, however, is in every way similar to a pleuritic serous effusion and consists of an obfuscating radiopacity of an extent proportional to the amount of transudate present. The following x-ray test is sometimes fruitful distinguishing between a transudate and an exudate. Potassium iodide, or better sodium iodide, when given by mouth, usually appears in a transudate, but fails to appear in an exudate. A transudate containing small amounts of sodium or potassium iodide becomes more radiopaque than when these salts are not present. In the x-ray test, therefore, if an area of effusion becomes increasingly radiopaque following iodide administration, the evidence points to a transudate instead of to an exudate.

Hemothorax and chylothorax cannot be divided on the x-ray plate from hydrothorax. The distinction must be made in the laboratory and from clinical symptoms.

Pneumothorax.—Pneumothorax may occur pure, only gas filling the pleural cavity, or complicated with the presence of serous or purulent exudate. When complicated, seropneumothorax and pyopneumothorax cannot be distinguished one from the other. They can be differentiated from other pleural effusions if the pneumothorax is complete; in which case the area overlying the effusion is void of lung tissue.

Pneumothorax, considered from its etiology, is frequently associated with tuberculosis. It has been estimated that 30 per cent. of pneumothoraces are associated with tuberculosis of the lungs. It is not necessary, from the x-ray standpoint, to need additional x-ray pathological evidence other than that

caused by pneumothorax in order to recognize air in the pleural cavity. The collapse of the lung induced by pneumothorax removes all structure from the lung area and leaves a homogeneous radioparent field. The condition is instantly recognized.

Tumors of the Pleura.—Primary tumors of the pleura are rare. Most often, pleural tumors are metastatic.

Malignant growths of the pleura are generally accompanied with pleural effusions. It is difficult to distinguish, at times, between tumors of the pleura and those of the lung.

DIAPHRAGM.—On the x-ray plate the diaphragm appears as a double dome, the convexity toward the thoracic cavity. On the right side the dome is higher than on the left, owing to the liver surface. The costophrenic spaces are important loci for the detection of certain forms of x-ray pathology. These have already been considered in the discussion of pleural effusion.

Under fluoroscopy, a relative paresis of one or both cupolas of the diaphragm may be observed; and in a less satisfactory manner inhibited diaphragmatic excursion can be demonstrated on the plate by double exposures, one at inspiration, and the second at expiration.

The diaphragm expands the lower lobes of both lungs. Paralysis of the diaphragm may cause, therefore, collapse of this portion of the lungs. This collapse may in some cases amount to a lobar atelectasis.

Diaphragmatic Hernia.—This may be congenital or acquired. In extreme defect, the congenital type is incompatible with life. The acquired type usually follows some form of trauma.

Evisceration.—When the abdominal viscera, particularly intestines, by trauma are projected through a rent in the diaphragm, the condition is recognized as evisceration. Its x-ray pathology is best studied after an opaque feeding and is made usually in connection with gastrointestinal examinations. It rests with the anatomical demonstration of the abdominal contents projecting through the diaphragm. In the case of the intestine, which is always to some extent metoric, protruding gut can be visualized in the lung area by reason of the outline owing to the included gas.

Eventration.—In eventration, a relatively rare condition, generally one-half of the diaphragm is exceedingly expanded upward, allowing the abdominal contents to encroach upon but not into the lung area. From the x-ray pathology eventration is distinguished from evisceration by the fact that in eventration the diaphragmatic arch, although high in the lung area, is regular and unbroken.

Diaphragmitis.—Primary inflammation of the diaphragm is comparatively rare; but secondary diaphragmitis occurs more frequently than is generally taught. It follows as a sequel or may occur as a complication to an inflammatory condition involving either the thoracic or the abdominal viscera. Usually the thoracic viscera are responsible for the diaphragmitis. The x-ray pathology of diaphragmitis is limited to a paresis, sometimes paralysis of the muscle. An abnormally low position of the diaphragm leaf is sometimes significant of diaphragmitis.

Subdiaphragmatic Abscess.—Two types of sub-

diaphragmatic abscess are clinically recognized: (1) Simple diaphragmatic abscess; and (2) a gas containing abscess, sometimes referred to as subdiaphragmatic pyopneumothorax (Leyden).

With relatively few exceptions the primary focus of infection is in the abdomen, and it is only occasionally that the abscess originates above the diaphragm. In the simple diaphragmatic abscess the x-ray pathology consists of an upward displacement of the diaphragmatic dome on the affected side. The relative height between the two domes on the right and on the left is of critical importance in the study of diaphragmatic lesions; and in subdiaphragmatic abscess, as the purulent exudate accumulates, the diaphragmatic cupola rises. Obviously, the x-ray pathology in incipient cases is identical to that of far advanced cases; the only difference resting with the extent of diaphragmatic elevation.

In the gas containing abscess the x-ray pathology is similar to the simple abscess in that the diaphragm on the affected side assumes a level higher than normal; but the pathology is more distinctive by reason of the gaseous inclusion in the products that elevate the diaphragmatic leaf.

It is difficult in all cases to be sure from the x-ray pathology that the elevation of the right diaphragmatic cupola is the result of subphrenic purulency, and not the result of a tumor or abscess of the liver itself.

MEDIASTINUM.—G. von Bergmann presents the following convenient classification, clinically, of diseases of the mediastinum:

CLASSIFICATION OF DISEASES OF THE MEDIASTINUM.

1. Displacement of the mediastinum through pressure or traction from the outside (disturbances of the septal function). (a) Total displacements; (b) Partial displacements.
2. Space-occupying processes in the mediastinum (disturbances of the channels of communication in the mediastinum). (a) Small masses; (b) Large masses.
3. Diseases involving the lymph spaces of the mediastinum (disturbances of the lymphatic function). (a) Acute mediastinitis; (b) Chronic mediastinitis; (c) Mediastinal hemorrhage; (d) Mediastinal emphysema.

The x-ray pathology of mediastinal diseases can be similarly classified into: (1) Changes due to displacement; (2) obliteration of mediastinal space; (3) hypertrophy involvement of mediastinal lymph structures.

Mediastinal displacements are due to secondary pathology and have been in part considered under pleural effusion, and will be further considered under cardiovascular involvements affecting the mediastinal site.

Occlusion of mediastinal space may be due to tumors, hemorrhages, abscesses, mediastinal pneumothorax, mediastinal emphysema, aneurysms, esophageal diverticula, enlarged lymph glands.

The x-ray pathology of mediastinal occluding lesions is simply that of a radiopaque area present in the mediastinal space. The oblique and sagittal exposures, in addition to the dorsoventral, should in all cases be included better to localize the origin of mass occasioning radiopacity. Small mediastinal radiopacity may be due to glands hypertrophied through invasion by tuberculosis or by syphilis; or to glands enlarged as the result of Hodgkin's disease or leukemic affection; to a stasis lymphadenitis;

or to metastatic tumors. There is no positive x-ray differentiation of these small masses from the radiopacity cast by their shadow on the x-ray plate. Their position in the mediastinum and the simultaneous presence of other x-ray signs pointing to the etiology may, at times, indicate the exact character of the pathology.

Large tumefactions of the mediastinum may include enlarged thymus, Hodgkin's disease, lymphosarcoma, leukemic and aleukemic lymphadenosis, or metastatic sarcoma or carcinoma.

Enlarged Thymus.—Thymus enlargement occurs for the most part in infants and children; but it may occasionally be found in adults. The x-ray pathology consists in the presence of a radiopaque area occurring apron-like in the upper lung areas. The apron assumes a triangular shape, often with the base above and the apex pointing downward. Occasionally it may occur in the reverse form; the apex pointing upward and the base below. When in this form the radiopacity due to the thymus generally overlays the heart shadow, the base of the radiopacity resting on the base of the heart. An x-ray distinctive feature of radiopacity due to a thymus shadow is the fraying of the periphery of the shadow. This is due to the unevenness of the surface of an enlarged thymus. Another distinctive characteristic sometimes pertinent to the radiopacity of a thymus shadow is that of the equal distribution in the amount of radiopacity on each side of the midthorax line.

Large mediastinal masses casting radiopaque areas may be due to Hodgkin's disease. The x-ray pathology is that of a mediastinal tumor affecting the lymph nodes. The diagnosis cannot be made from the x-ray plate alone. Enlarged lymph nodes elsewhere in the body, and the blood picture must be used to assist in arriving at the proper diagnosis.

Intrathoracic Tumors.—Among the benign tumors met in the mediastinum may be mentioned the following: Fibroma, lipoma, chondroma, myoma, simple cyst, dermoid cyst, and teratoma. Of these, dermoid cysts are the most common.

Tumors involving the mediastinum are more frequently malignant than benign.

In all varieties of new growths a dense shadow extends outward from the mediastinum, usually on both sides. The radiopacity of this shadow blends with the radiopaque heart silhouette. Under fluoroscopy the radiopacity due to the heart can be distinguished from a radiopacity due to a mediastinal tumor.

Says Barker on the topic of roentgenoscopy of the mediastinum:

In the diagnosis of large tumors of the mediastinum, several types can be distinguished in x-ray pictures; thus, if in the roentgenogram one sees a shadow projecting like a mole-hill at the junction between the cardiovascular stripe and the clear lung area, its surface being either hemispherical, with the center of the sphere lying at the root of the lung, or uneven, with jagged contours, one can be sure that he is dealing with a hilus tumor. Such a mediastinal tumor at the hilus has to be distinguished from a tumor of the lung on the one hand and from an aortic aneurysm on the other.

In large tumors of the mediastinum due to Hodgkin's disease, one sees a mass either to the right or to the left of the sternum, or on both sides, usually feebly convex, and extending all the way from the clavicle down to the heart. When the tumor projects to the left side, the differential diagnosis from aortic

aneurysm may be difficult, though the pulsation in aneurysm, visible on roentgenoscopy, may help. Tumors of the lung itself are usually easily distinguishable from mediastinal tumors proper, though in some cases the roentgenogram leaves one uncertain. Thus, a tumor arising in a lymph gland at the hilus of the lung, or in the bronchial mucous membrane near the hilus, usually gives rise to a shadow extending out into the lung but more or less separable from the cardiovascular stripe; and when the shadow becomes confused with the cardiovascular stripe, the predominant involvement of one lobe of a lung may give one the clew to a pulmonary rather than a mediastinal origin of the mass (v. Bergmann).

In judging of the nature of mediastinal tumors, one should pay attention not only to the appearance of the main shadow, but also to certain additional points: (1) the presence or absence of a pleural effusion, (2) the presence or absence of darkening of one whole lung area (bronchiectasis), (3) the involvement of non-involvement of the arch of the aorta. It is also important to make out, if possible, whether we are dealing with a compact uniform mass or with a composite mass made up of several parts, as in lymph-gland enlargement (bronchial-gland tuberculosis, Hodgkin's disease).

Mediastinitis.—Acute and chronic mediastinitis are clinical rather than x-ray entities. When the inflammatory process is such as to occasion a deepening of the hilus shadow, a mediastinitis might be suspected providing the clinical indications point to the possibility of infection.

THE CALORIC VALUATION OF FOOD.

By MAX MALKIN, M.D.,

CHICAGO, ILL.

THE energy value of food may be determined by burning samples in a bomb calorimeter in an atmosphere of O to secure ready and complete combustion. The heat given off passes through the walls of the bomb and is taken up by a known volume of H₂O at a known temperature."—International Cyclopedica.

"By a caloric is meant the quantity of heat necessary to raise 1 gram of H₂O 1 deg. (Centigrade) in temperature."—Bassler.

From the above quotations one can readily see how the calorimetric deductions have been ascertained, and in the following dissertation we will disclose the fallacy and show that while calorimetric estimates in mechanics may be correct they are entirely inadequate in determining the energy quotient in food products. We take for a comparative study the following foods which are in daily use: fresh beef, veal, fish, vegetables, bread:

TABLE OF FOOD VALUES (BASSLER).

	Refus ¹	H ₂ O.	Protein	Fat	Carbo- hydrate	Ash	Food value per pound.
	%	%	%	%	%	%	Calories.
Beef	14.3	40.6	12.5	31.9	.....	.7	1580
Veal	21.4	53.1	15.1	9.6	.....	.8	685
Fish	54.8	34.6	9.3	.8	.....	.5	205
Vegetables (four)	.....	13.8	7.9	1.4	76.4	.5	1625
Bread . . . . .	.....	35.4	9.5	1.2	52.8	1.1	1205
Sugar (granulated)	.....	.....	.....	.....	82.8	.....	1540
Honey . . . . .	.....	.....	.....	.....	75.1	.....	1395
Vegetables (lima Beans)	.....	13.2	22.3	1.8	59.1	3.6	1590

Protein-containing food can usually be utilized for an extensive period without causing toxic cumulative effects, and it gives more energy per pound than a carbohydrate food which cannot be tolerated over an extensive period because of its toxic cumulative effects in the human system.

One can readily see from this that oats per pound do not contain the same caloric value as does a pound of steak. It is evident that enzymes and natural ferments in the protein diet can be tolerated and are really better tissue builders than the carbohydrates. There is less of the protein required to satisfy the needs of individual energy. This is not the case with carbohydrates, as they are cumulatively toxic in the system. Therefore, one can say that our dependence must be not only on the caloric value but also upon the natural composition of the food product and its ability to react on the human system. For that reason oats may have the caloric value by weight, but this caloric value lacks intensity and duration, which are of great importance for the establishment and maintenance of strength.

The following every-day home experiment will prove my deduction. In heating both water and broth separately to a boiling point, we find that it requires more energy to heat the broth than to heat the water, or in other words it takes more time to bring the broth to a boiling point. Supposing one should raise the heat of water to that of an equal quantity of broth, which would be preferable from a dietary point of view, both having the same caloric value? One can readily see that there is a difference in energy quotient.

Why is water more reliable when using it in a specific gravity test, while it is not as reliable as a calorimetric test? The water under ordinary temperature is a liquid and the molecules glide over one another and its composition remains constant. However, water brought by heat to a state of vapor loses its constancy and evaporates. While its specific gravity may remain fairly reliable in a comparative test on account of the stability of the water. The thermometric test of heat in water, owing to its lack of constancy, and owing to the fact that heat is only one element in the combustion of food, becomes fallacious. While the water has latent energy and can be utilized when heated, food has potential energy. When food is incinerated, therefore, and its calories are deduced by thermometric test, we fail to get a true value of the energy contained therein.

69TH STREET AND WENTWORTH AVENUE.

SPONTANEOUS RUPTURE OF THE UTERINE ARTERY DURING CONFINEMENT.

By JOHN C. MAJOR, M.D.,

JOLIET, ILL.

I WAS called to attend Mrs. S., Joliet, Ill., a primipara, who had been in labor two hours. I made an examination of the case and found the os uteri fully dilated and labor progressing rapidly, head in normal presentation, vagina large and roomy, and pains regular but weak. I gave 1 c.c. pituitrin, which increased the strength and frequency of the

pains. In three quarters of an hour I delivered a seven-pound girl. The after-birth soon followed, the uterus contracted down good and firm, and I left the patient feeling very comfortable. About an hour later I received a call to come at once as the patient was in severe pain. I reached the house in about fifteen minutes and found on examination a large tumor or swelling on the left side, distending the vulva, protruding about one inch externally. On introducing the index finger I found a mass filling up the entire vagina, and could just squeeze the finger in between the tumor mass and the right wall. The patient complained of severe pain and a feeling of great distention. I gave one-fourth grain of morphine to relieve pain and kept the patient perfectly quiet. The uterus was firm and contracted just as I had left it an hour previously. I used a mild antiseptic dressing externally to prevent infection. On calling the next day, I found the patient with no pain. The third, fourth, and fifth days passed without any change. On the sixth day the patient had a temperature of 102°, due to absorption of fibrin from the blood. The swelling gradually went down. On the seventh day two holes the size of a quarter dollar sloughed and large clots of blood came away, accompanied by a discharge resembling pus. On examination through the vagina on the twelfth day I found the tumor entirely gone and the patient made an uninterrupted recovery.

I have practised medicine twenty years, but have never had anything like this. The tumor could have resulted from nothing else than rupture of the uterine artery and infiltration of blood through the cellular tissues.

YOUNG BUILDING.

Medicolegal Notes.

Maintenance of Physician's Office—Restrictive Covenants.—The vendor of real estate informed the purchaser that he could maintain a physician's office on the premises, despite a covenant restricting the use of the property to residential purposes. The vendor, however, was unable to secure a modification of the restrictive covenant. It was held that the covenant constituted an incumbrance on the title and warranted the purchaser in refusing to carry out the contract of purchase.—*Bertola v. Allred*, (Cal.), 189 Pac. 489.

Death from Hemorrhages Caused by Swimming Against Current Not Result of Accident.—One insured against accident, who was apparently in good health, but who was suffering from tuberculosis, sustained a hemorrhage while swimming against a strong current, and died within a month as the result of violent and successive hemorrhages. It was held that the death did not result from "accidental means" within a certificate insuring against death from injuries received through "accidental causes."—*Olinisky v. Railway Mail Assn.*, California Supreme Court, 189 Pac. 835.

Statements to Attending Physician as Evidence.—In an action for personal injuries testimony of a medical expert on cross examination was objected to on the ground that his opinion was based, in part, on statements made to him by the plaintiff. Neither the statements nor the time and circumstances thereof were developed. On appeal the Supreme Court of Arkansas held that, without knowing what statements the plaintiff made to his attending physician during his illness, as well as the time and circumstances under which they were made, it could not determine whether such expert opinion was competent.—*Subiaco Coal Co. v. Krallman* (Ark.), 220 S. W. 664.

MEDICAL RECORD.

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RECENT DEVELOPMENTS IN SYPHILOGRAPHY.

THE Syphilis Number of *La Médecine* for November, 1920, ii, 2, comprises an unusually good symposium on syphilis. Gougerot, the editor, leads off with a general summary in which he discusses treatment, iocism *vs.* dualism, nervous syphilis, and heredosyphilis. In a special article Queyrat advises high weekly doses of arsenobenzol. Sabouraud writes on his favorite subject of dentition in heredosyphilis and continues his polemic against the dentists concerning the specificity of certain dental dystrophies. Sicard discusses the treatment of nervous syphilis and asserts that very small, repeated doses of arsenobenzol are obtaining results impossible under the original methods of exhibition. Iodine is added to the arsenicals. He claims improvement in all organic syphilitic diseases of the nerve centers with the exception of general paresis; but while as a general proposition this affection is "irreducible," he has a few cases in which infinite perseverance seems to have been followed by remarkable amelioration. Milian writes of icterus following arsenobenzol and states that this manifestation indicates an hepatic relapse. In such a contingency he goes ahead with the arsenical medication. Brin gives an account of erythrodermias following the latter. These eruptions are polymorphous and seem to indicate at times hepatic insufficiency, but have more than one mechanism.

Gougerot takes up the pathogeny of the neurorecidives following the use of arsenicals. These late accidents are often a melange of toxic results from the drug and actual specific lesions. The drug has caused visceral lesions such as follow the abuse of arsenic, and the syphilis is then of a type incoercible by arsenic, and recurs despite treatment. Furthermore, syphilis may have been so modified by the action of arsenic that its individuality has suffered and it has become a hybrid affection. Pomaret writes on the elimination of arsenic. While a small fraction remains fixed in the tissues the bulk is eliminated by the intestines and kidneys. In the intravenous use most of the arsenic is quickly eliminated and chiefly by the bowel. The drug gains the intestine principally through the bile. Mercury given with arsenobenzol retards the elimi-

nation of the latter. Spillmann refers especially to the importance of early diagnosis and treatment. The subject matter is somewhat trite but the point is made that the pharmacist can cooperate by sending all suspicious cases to the practitioner without delay. It is unfortunate that the policy of the druggist in temporizing is responsible for many cases getting past the abortive period.

Lévy-Bing and Gerbay discuss conditions which permit of abortive treatment. The latter must begin before the thirty-eighth day following contamination. Tzanck writes of the treatment of the disease during the incubation period. One should not wait for the positive seroreaction. Lévy-Frankel speaks of "epidemic" accidents from novarsenobenzol which can be attributed only to poor preparations. Blechman gives his experience in treating nurslings by intravenous injections of the same medicament. He obtained good results by throwing the substance into the epicranial and jugular veins and the superior longitudinal sinus. Finally Ronchese and Bloch write respectively on the ordinary and intraspinal seroreactions. The Wassermann should be approximated in some manner to the Bordet-Gengou type. The intraspinal reaction ranks now as of the first importance and no longer as merely corroborative.

RECENT THEORIES OF HEARING.

THEORIES as to hearing have changed considerably in modern times, and even now there is no complete agreement on the subject and the explanations of Helmholtz, Wrightson, Rutherford, Meyer, and Lipp have all been criticized. The latest critical review of these theories was made by Mr. G. Wilkinson in a paper read before the Sheffield Medico-Chirurgical Society on Nov. 4, at Sheffield. Helmholtz's application of resonance to explain the analysis of sound by the cochlea was described.

The facts in support of Helmholtz's view that each of the transverse fibers of the basilar membrane has its own proper period of vibration, progressively increasing from the base to the apex of the cochlea, are as follows: (1) These fibers increase progressively in length from base to apex; (2) As Professor A. Gray has shown, the external ligament probably regulates the tension of the transverse fibers, and this ligament progressively decreases in bulk from base to apex. It is therefore probable that the tension of the transverse fibers progressive decreases. (3) The "load" on the transverse fibers, that is, the mass of the perilymph and endolymph intervening between each string and the oval and round windows progressively increases. Wilkinson in discussing this theory says that while it might be difficult to accept the view that these factors are sufficient to give the basilar membrane the amount of differentiation required for a series of resonators extending to nine octaves, in any event they would give sufficient differentiation entirely to destroy the value of the basilar membrane as a simple recorder of the movements of the stapes, as postulated by the theories of Wrightson and

Rutherford, or as a simple yielding membrane without resilience, as pictured by Ewald, Meyer, and Kuile. For such a purpose a simpler structure would answer better.

As for Wrightson's theory, Wilkinson asks, why is a large and important nerve like the auditory, with its 4,000 or more branches in the cochlea at all necessary for the performance of so simple a function? Is it to be believed that each of these 4,000 nerve twigs is carrying identically the same message to the brain at the same time? There seemed to be a fundamental misconception in all theories of analysis of sound by the brain, such as Wrightson's, Rutherford's, Meyer's and Lipp's. In the opinion of the lecturer the essential act in sound analysis is not the resolution of pressure curves into their harmonic components, but the instantaneous measurement of small intervals of time. The disintegration of one of Wrightson's sound pictures would necessitate the immediate recognition by the hearing center of differences in the phase periods amounting to one 100,000th part of a second. The measurement of time is essentially a mechanical operation. All our methods of measuring time depend on instruments giving harmonic vibrations. He contended that the theories of Ewald and Kuile do not seem to offer a satisfactory explanation of the resolution of compound into simple tones. Up to the present no satisfactory working model of the cochlea has been made. Helmholtz's theory undoubtedly gives a fuller and more comprehensive explanation of the facts of hearing than any other. The difficulty of accepting it lies in certain anatomical details of the structure of the cochlea, but if Helmholtz's theory is rejected, up to the present time no satisfactory alternative explanation has been offered, the inherent difficulties of which are not even greater.

There appears then to be no generally accepted and scientific explanation as to the why and wherefore of hearing. Wilkinson's criticism of the various theories advanced is rather destructive than constructive, although, of course, such criticism is of value. It is curious that no satisfactory working model of the cochlea has ever been made. A good model of this important part of the labyrinth might greatly facilitate investigations in this direction.

BREAST FEEDING AND THE INFANT MORTALITY RATE.

In countries populated by the white race it is essential that as many healthy children should be born and reared as possible, that is if the white race is to continue its dominance of the world. Unfortunately in all countries the inhabitants of which are white, the birth rate for some years has been steadily declining, and it also appears that the more highly civilized the country the fewer children are born. Also in these countries the educated and those best fitted to rear and bring up the most desirable citizens have the smallest families. However, if the members of the white

racers refuse to have more than a limited number of children, at least, those that are born should be nursed and reared in the manner best calculated to make of them healthy men and women. But even this is not generally done. The infant mortality has certainly been greatly reduced, yet still stands in most countries at far too high a figure. Moreover, it is not only the mortality which is a matter of national or rather international concern, but the invalidity and various disabilities that hamper the adult who was not properly nourished when an infant and whose bringing up throughout childhood and youth was not based on sound hygienic principles. It is, however, in the first few months of life that the die usually is cast, as to whether an infant will develop into a healthy specimen of manhood or womanhood. And this result depends very largely on its diet and the methods of feeding followed. The safest, cheapest, and most satisfactory way of feeding an infant, at any rate up to nine months, is by the breast.

Referring to this subject in the annual report of the Chief Medical Officer of the British Ministry of Health, Dr. Janet M. Campbell gives some very useful advice as to breast feeding. After taking it for granted that the mother's own milk is the only wholly satisfactory food for the infant and that there is no perfect substitute for it, she goes on to point out that breast feeding is by no means always a simple and easy matter. Initial difficulties often arise which discourage the mother, and in the absence of sensible, practical advice may lead her to assume that she is physically unable to nurse her baby. The statement might also have been made that too many mothers are willing to assume that they are physically unable to nurse their babies. Attention is drawn to an unfortunate fact that the medical practitioner has relatively seldom made a special study of breast feeding and that it is frequently left to the nurse or midwife to give advice on that point. If the nurse has not been well trained in this direction she is apt to neglect to give a fair trial to breast feeding and the outcome is that she recommends artificial feeding. As for the routine of breast feeding it is now generally conceded that feeding should be at intervals of not less than three hours from the time of birth onwards and that the interval between the meals should be increased to four hours as soon as possible, no food being given at night between the hours of 10 P. M. and 6 A. M. Thus both mother and child have reasonable rest and from the mother's point of view, breast feeding loses much of its fatigue and inconvenience.

The points which it is desired to emphasize are that it is a matter of supreme importance to the white race to rear the largest number possible of healthy children and that in order to effect this object infants must be nourished in such a way that the foundation of a sound constitution is laid. Further, that this result can be best achieved by

mothers nursing their offspring. Consequently, as Dr. Campbell says, "doctors, midwives, nurses and health visitors should be thoroughly conversant with the practical aspect of the subject and so able to give useful advice which will carry weight with the mother and convince her that it is only right and proper to nurse her own baby, unless there are valid reasons to the contrary, but that the duty will not impose upon her an unduly heavy burden." In the prosecution of efforts to promote child welfare the primary and necessary step is to nurse and care for the child properly during the first year of life. Many mothers fail to do this through ignorance and it comes within the province of medical men especially to advise and instruct regarding the manner and time of feeding and on other matters concerned with the upbringing of the infant. By such means the infant mortality rate will be kept down and adult invalidity and disability will be minimized.

UTILITY OF THE APPENDIX.

DUFOUR in a brief article on this subject in *La Presse Médicale* for October 30, 1920, xxviii, 79, states that in order to appreciate certain problems of the appendix one should study specimens removed during autopsy or post mortem. Three features will be noted: first, the natural mobility, not only as a whole, but of the free extremity; second, the position of the tip of the appendix in reference to the ascending colon or any other portion of the colon within the pelvis, and, third, the presence or absence in the appendicular lumen of any of the intestinal contents. The author differs from the physiologists Morax and Doyon in holding that the appendix is a diverticulum of the cecum, and as such it should give free access to the contents of the intestine, which presumably it is able to expel; provided of course that its canal is permeable. During operation the appendix, when permeable and free from coproliths, contains the normal contents of the cecum for the time. The consistency is semisolid, unless of course a purgative has been given. The normal behavior is somewhat as follows: When the cecum is full the appendix begins to fill until distended and at the same time straightens or unkinks itself, while the free end is mobilized and in all likelihood by contact with some portion of the peritoneum evokes peritoneal irritation, peristalsis, and the desire for stool. The area irritated is most apt to be the peritoneal covering of the colon. If this view is correct, then an adherent appendix has forfeited this power, so that the subject has less incentive for defecation. We know how the subject with this lesion is apt to be constipated. On the other hand, a very long and overmobile appendix could cause too frequent stools, colic, etc. Here is perhaps an indication to operate on an uninfamed appendix.

TESTICULAR OPOTHERAPY.

THE failure of testicular extract in cases where it seems indicated, when contrasted with the brilliant effects of testicular grafts and with the generally favorable effects of so many organ extracts when

given by the mouth, is one of the riddles of therapeutics. Bauer considers the subject briefly in *Le Bulletin Médical* for Oct. 2, 1920, xxxiv, 47. While the interstitial cells of the testicle are believed to contain the active principle of the gland, an extract of the whole organ is usually given. If animals are castrated and glandular extracts injected the effects which should result from the unsexing do not supervene. Extracts have been prepared from human ectopic testicles which consist wholly of interstitial tissue but the results have been disappointing. The good effects claimed for the extract of Poehl are not obtained by those who have tested it. Ever since the first trial of testicular therapy by Brown-Séquard, cures of impotence have been claimed, but these were probably cases of psychical impotence only. Results obtained in children, especially about the time of prepuberty, in cases of anomalies of growth and development, appear to show that the remedy may have some power in the undeveloped male. Souques in fact gives it with other extracts in infantilism. An empirical or chance effect in relieving constipation has been claimed by several who have given the gland to neurasthenics, but apparently only when injected hypodermically. The usual dose has been five grains of the dried extract two or three times daily. The author does not mention either massive doses or the use of the remedy over prolonged intervals of time, but doubtless the treatment would not have been abandoned without a complete trial, including subcutaneous injection.

THE TREATMENT OF TUBERCULOSIS WITH SODIUM MORRHUATE.

SIR Leonard Rogers, who has been instrumental in introducing new methods of treatment for several diseases, has recently been studying the therapeutic value of certain oils, and has somewhat rehabilitated cod liver oil with regard to its action upon the tubercle bacillus. In *Tubercle* for November 1920, Dr. G. R. Iambe of Narsinghpur, India, writes on the treatment of tuberculosis with sodium morrhuate, upon which Sir Leonard Rogers read a paper at the session of the Science Congress in Bombay, Jan. 1, 1919. Most of the cases treated by Iambe were lung cases. Among others he treated three cases of surgical tuberculosis, two of tuberculous glands, and one of tuberculous caries of the ankle and elbow joints. In both the gland cases the glands healed by first intention and the elbow case was markedly improving at the time the report was made. With regard to the pulmonary cases in the early and so-called second stage the improvement was marked and fairly rapid, in fact improvement in all the symptoms of the disease was manifested. According to Iambe, sodium morrhuate, given hypodermically or intravenously, produces marked changes in the bacilli. The envelopes are broken soon after commencement of the injections. Indeed after a course of about six or eight injections, no covering was noticed in a single case. The bacilli themselves undergo degeneration, from their slight curved and unbroken appearance they become beaded and broken. However, they have never wholly disappeared even after as many as 80 injections.

News of the Week.

New York Quarantine Station Goes to Public Health Service.—The United States Public Health Service will take over the New York Quarantine Station formally upon presentation by the State of New York of proof of title to the premises. When the legal transfer is consummated the Federal Government will come into complete possession and administrative control of all quarantine stations in this country. Legislation, first adopted in 1893 and subsequently supplemented, provided for the purchase by the Federal Government of seaport quarantine stations of such States as might be willing to part with them. Most States were glad to be relieved of the expense of carrying on a work that was for national rather than local protection, and one by one have been taken over until only New York was left.

Jones-Miller Narcotics Bill Favored.—At a hearing before the House Ways and Means Subcommittee on January 4, the Jones-Miller bill was endorsed by Surgeon-General Cumming and other government officials. This bill proposes to amend the Harrison act to prohibit all exportation and limit importation of cocaine, morphine, and other narcotic drugs. The importation of the raw drugs is prohibited except in such quantities as may meet the approval of the Surgeon-General of the Public Health Service. Assistant Solicitor G. H. Hackworth of the State Department, says this legislation would be of assistance in meeting the terms of the Hague international anti-opium convention.

Crime and Alcoholism Under the Volstead Act.—Congressman George H. Tinkham of Massachusetts is prepared to show by police court records that 42,000 persons were arrested in the National Capital during 1920, compared with a total of 35,498 arrests during 1917. According to this report most of the fines of 1920 were imposed for drunkenness, bootlegging, disorderly conduct, and traffic violations. The Volstead act is also blamed for a 100 per cent. increase in the number of cases of alcoholism treated in the municipal hospitals of New York City during the past six months in a report submitted by Bird S. Coler, Commissioner of Public Welfare. According to this report there were 807 cases of alcoholism admitted to Bellevue Hospital during the last six months of 1919, and approximately 1,425 during the last six months of 1920. At the Kings County Hospital, where the second largest number of alcoholic cases have been treated, the increase from August 1 to December 8 was 106.6 per cent. Commissioner Coler states that from information furnished by doctors the type of case they are seeing now is different; "that there is no 'fight' in them—that they are just down and out and very unpleasant to handle." This is attributed to the use of "hard" liquor to a greater extent than formerly.

Alleged Deaths from Botulism.—Tinned beef which has been in the galley of the Greek steamship *Iokasto* for four months, has caused the death of its first officer and two cadets. Two other cadets were taken critically ill at the Staten Island Hospital. The *Iokasto* arrived at Quarantine on December 27. During the voyage the ship's food supply was exhausted and a new sup-

ply which was expected at Quarantine did not come, so the crew ransacked the galley and found the canned beef. All who partook of it became ill. Agents of the Department of Health have taken samples of all food aboard the vessel for analysis. The newspapers report these as deaths from botulism, a word which has taken the place, in popular parlance, of ptomaine poisoning.

Campaign for Cardiac Children.—A conference to consider the problem presented by the large number of children of school age who suffer from cardiac troubles was held at the Hotel St. Regis January 6, under the auspices of the committee for the Mineola Home for Cardiac Children. This meeting opened a week's campaign to raise \$100,000 for the support of the home and for nine classes of cardiac children of school age, caring in all for 470 children.

Anthrax from Gloves.—A case of anthrax is being cared for in St. Mary's Hospital, New York, which is believed to have been caused by infection from a pair of undressed kid gloves.

Fund for Cornell Medical College.—At the close of its recent campaign Cornell University's semi-centennial endowment fund amounted to \$8,952,770. Among the various purposes to which this fund will be devoted two interesting items are \$1,500,000 for a new chemistry laboratory and \$500,000 for the medical college in New York City.

Fire Damages Biltmore Hospital.—A fire on January 2 destroyed the central part of the Clarence Barker Memorial Hospital, at Biltmore, N. C. The damage is estimated at between \$40,000 and \$50,000. Plans for rebuilding the burned sections of the building are already under way.

Two Centenarians Die.—Mrs. Sarah Freeman of Woodstock, Ont., a grand niece of Joseph Brant, famous Mohawk Indian chief, died December 30, 1920, at the age of 108 years. She was born in Stockbridge, N. Y., in 1812. George Crow, who died at Denver Hill, near Littleton, W. Va., on January 8, also reached the age of 108 years. He sought to enlist for military service in the Civil War and was rejected by the recruiting officer for his advanced age.

Manidol Songkla, Crown Prince of Siam, is taking a special course in public health at Harvard University and the Massachusetts Institute of Technology.

Mayor Jeremiah Donovan of Norwalk, Conn., has for the third time turned over his year's salary as Mayor to a local hospital to aid in the treatment of those who have not the means to pay.

Dr. Edwin Bradford Cragin, who died October 21, 1918, left an estate of \$1,164,281, mostly in stocks and bonds, as shown by the appraisal recently filed in Surrogate's Court.

In Memory of Dr. Samuel James Meltzer.—The stated meeting of the New York Academy of Medicine of January 6 was held in association with the Society for Experimental Biology and Medicine and the Harvey Society as a tribute of appreciation of the life and services of Dr. Samuel James Meltzer. Memorial addresses were made by Dr. George B. Wallace, Dr. Phoebeus Levene, Dr. William H. Howell, Dr. Graham Lusk and Dr. William H. Welch.

Activities of the New York Academy of Medicine.—The annual report of the president of the New York Academy of Medicine, Dr. George David Stewart, shows that each year the Academy is taking a more active and extended part in the health and related problems of the community, the State and the Nation. Among the many problems that its Public Health Committee has considered during the past year are the following: (1) An exhaustive study of the dispensary situation has been concluded and published. As a result of this study a special committee under the auspices of the Hospital Fund, has been organized to continue the work. (2) At a request of the State Industrial Commission, a committee has undertaken a study of the medical aspects—not political—of the Workmen's Compensation Act in New York State. (3) The committee, in preparing the scientific program of the Milk and Health Exposition held in May, 1920. Among other subjects which the committee considered and upon which it made records, are birth control, the Health Center bill, the way in which Federal grants for stimulating the Anti-Venereal Disease Campaign in the several states were used in New York City. This report sets forth the needs of the Academy, more particularly of the library, and expresses the belief that if the public were aware of the valuable service of this institution to medical education and the study of public health problems the financial aid it deserves and needs would be forthcoming.

Child Welfare Congress in Mexico.—Two hundred physicians from all parts of the republic met in Mexico City, January 2, to attend the first congress on child welfare held in that country. According to the *El Universal*, the mortality among children in Mexico is startling. In Mexico City alone 75 per cent. of the weekly deaths are in children under sixteen years of age.

Health Drive in Spain.—A cablegram from Madrid, under date of January 2, states that in accordance with recent legislation, a national health commission has been nominated which will direct its efforts to the sanitation of the villages and small towns of Spain.

Doctors Needed in Poland.—A recent report made to the American Red Cross by the Ministry of Health states that Poland lost 400 doctors from typhus fever and now has only 4,000 for a population of 28,000,000, or one for every 7,000 persons. The American Red Cross is constantly reinforcing its medical men in Poland for the purpose of helping the local authorities offset their losses in native physicians.

To Aid Sick and Wounded Ex-Service Men.—The New York County organization of the American Legion announces that an organization has been formed for the purpose of visiting sick and wounded ex-service men with the idea of providing expert medical attention for those who are not in hospitals and who are suffering from disabilities resulting from their military service. A committee has been appointed consisting of Dr. Curtin Gillette, Dr. Fenwick Beekman, and Dr. E. M. Colie, Jr., which will consult with and examine applicants and make such disposition of the patients as their condition requires. The following

Consulting Committee has been appointed to aid in the work: Drs. Harlow Brooks, Joseph A. Blake, Brainard H. Whitbeck, Richard T. Atkins, Conrad Berens, Jr., James Bayard Clark, C. Burns Craig and Henry S. Dunning.

Health Department Lectures on Radium Therapy.—A series of lectures under the auspices of the New York City Health Department will be delivered this month stressing the cure of many forms of cancer through the application of radium therapy. It is stated that the object of these lectures is to allay the fear of surgery which deters many persons from consulting a physician while their malignant diseases are in an incipient stage.

Dr. Louis Pearce of the Rockefeller Institute for Medical Research, who has spent six months in the Congo studying sleeping sickness, returned to this country on the *Lapland* on January 3.

New York Hospital Opens Urological Department.—The New York Hospital announces the opening of a urological department in accordance with the terms of the will of the late James Buchanan Brady. For the present both the hospital service and the out-patient clinic of the new department will have quarters at the Hospital.

Harvey Society Lecture.—Dr. Alfred F. Hess of New York University and Bellevue Hospital Medical College will deliver the fifth Harvey Society Lecture at the New York Academy of Medicine on the evening of Jan. 15. His subject will be "Newer Aspects of Some Nutritional Disorders."

Antivaccination War on Staten Island.—A movement against vaccination was started recently on Staten Island, when a man was summoned by the Board of Education for failing to send his daughter to school, the reason being that she had not conformed to the State law requiring vaccination. Ten summonses are expected by others who have taken the same attitude in regard to their children. Antivaccinations have held a number of public meetings recently. To offset the antivaccination propaganda, Health Commissioner Royal S. Copeland called a meeting on Jan. 7 of those who favor vaccination. At this meeting addresses were made by Dr. Copeland, Dr. Leland E. Cofer, Health Officer of the Port, Dr. William H. Park, and Dr. S. Dana Hubbard.

Philadelphia Hospitals Get Whiskey.—Federal Judge Thompson, on Dec. 29, handed down a decision, the first of its kind, which will enable Philadelphia hospitals to purchase confiscated whiskey at the rate of \$3 a gallon. The Judge has designated the hospitals which are to receive the whiskey and the amount to be paid for it. This decision disposes of 690 gallons of whiskey among six institutions and more will be awarded later.

Red Cross Requires Physicians for European Service.—The American Red Cross is desirous of enlisting a number of medical men for service among the children of Eastern Europe. The service is particularly suitable for recent graduates of hospitals who are free to spend a year in the practice of their profession in Europe. The remuneration will be sufficient to represent an adequate salary and living expenses. The men are needed within a few weeks. Further information may be obtained by addressing Dr. Charles M. Berry, American Red Cross, 44 East 23rd Street, New York City.

Banner Year for Babies in Chicago.—According to Health Commissioner Robertson of Chicago, there were 55,316 births recorded in that city during the year 1920, an increase of 8,558 over 1919. The male babies numbered 28,515, while the females numbered only 26,801.

Appropriation to Prevent the Importation of Epidemics.—The Board of Estimate of New York City has granted the request of Dr. Royal S. Copeland, Commissioner of Health, for \$40,000 in special revenue bonds to be used in preventing typhus fever, bubonic plague, and other communicable diseases prevalent in Europe from entering this city.

Obituary Notes.—Dr. GEORGE KNIFE died at his home in New York City on January 5, at the age of sixty-three years. He was graduated from the College of Physicians and Surgeons in 1885. He was a member of the American Medical Association and the New York Academy of Medicine.

Dr. WILLIAM ALLEN BARTLETT of New York City died at his home on January 5, after a long illness. He was born in 1858 and was graduated in medicine from the College of Physicians and Surgeons, Columbia University, in the class of 1881. After graduation he served a term as medical interne at the New York Hospital and then entered upon general practice, soon acquiring a large clientele. He was very fond of athletics of all kinds and was for many years an active member of the New York Athletic Club. He was a member of the New York Hospital Alumni Association, of the Medical Societies of the State and County of New York, and of the American Medical Association.

Dr. JOSEPH ELLIS MESSENGER of New York, a graduate of Bellevue Hospital Medical College in 1879, died after a long illness on January 5, at the age of sixty-eight years. He was director and assistant visiting physician to the Knickerbocker Hospital.

Dr. EUGENE F. FINLEY, a graduate of the University of Louisville, Ky., in 1892, and formerly house physician at Ward's Island, died at his home in Brooklyn, N. Y., on January 6, at the age of fifty-two years.

Dr. MALCOLM SUMNER WOODBURY of Clifton Springs, N. Y., died at the Clifton Springs Sanitarium on January 6, at the age of forty years. He was a graduate of Jefferson Medical College in 1906, a member of the American Medical Association, and the American Society for the Advancement of Science.

Dr. HENRY A. BUMSTEAD of New Haven, Conn., professor of physics at Yale University, died on a train en route from Chicago to Washington, on January 1, at the age of fifty years. He was chairman of the National Research Council. He was graduated from Johns Hopkins University in 1891 and received his doctor's degree from Yale.

Dr. RICHARD KINGSMAN of Washington, D. C., died after a month's illness on January 1, at the age of fifty years. He was a graduate of Howard University School of Medicine in 1886, and a member of the American Institute of Homeopathy. He was director of the Homeopathic Medical and Surgical Club and a member of the medical staff of the Homeopathic Hospital.

Correspondence.

CASES OF CYSTITIS AND PYELITIS OF OBSCURE ORIGIN.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—Within the past fortnight I have had three cases of cystitis of obscure origin arising in women and extending to include pyelitis of the right kidney. In all of the cases we had the common symptoms of acute cystitis with pus and blood in the urine; temperature running up to 104° F. but without a marked impression of severe illness in the manner and bearing of the patients. All of them had suffered to a moderate degree from the prevalent "colds." Description of elaborate details is not needed beyond this brief note of salient features when asking the question if others have noted this combination or complication of cystitis and pyelitis occurring with the prevalent colds this year.

All of us who have been long in practice are familiar with the fact that cases sometimes seem to go in groups. I shall regard these three cases of mine as merely one of these curious coincidental groups unless my note calls out response indicating that the observation has certain clinical value.

ROBERT T. MORRIS, M.D.

616 MADISON AVENUE.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, December 17, 1920.

Influenza Decreasing.—According to the figures supplied on December 10 by the Ministry of Health there is at present no influenza epidemic in London. The deaths from influenza recorded for the past four weeks, reckoning back from December 10, were 14, 13, 15, and 13 respectively, while deaths from violence totaled 34. The number of deaths from diphtheria for the same four weeks were 26, 20, 22, and 22, while scarlet fever was responsible for 7 victims in each of the first three weeks and 4 in the last.

Students' Efforts for the London Hospital.—With the object of raising £1,500 students of the London Hospital, Whitechapel Road, are organizing a series of raids. On the morning of December 10 one hundred of them donned operating robes and were conveyed in lorries decorated with banners and appealing inscriptions on a tour of the markets. Smithfield, Billingsgate, Leadenhall, and Aldgate were visited, and at each place a number of checks, treasury notes, coins and promises were obtained. On the evening of the fight between Beckett and Moran at the Albert Hall they took up a position in the corridors and also made a round of night clubs in the West End.

Tuberculosis in Belfast.—The chief medical officer of the city of Belfast has issued recently his annual report. It appears from this report that 2,529 new patients were examined at the institutes and 19,816 old patients attended in the year ending March 31, 1920. Of the new cases 1,820 were found to be tuberculous, 508 non-tuberculous and 352 "suspect." Of the specific forms of tuberculosis, pulmonary cases numbered 698 males and 798 females; glandular, 17 males and 105 females; osseous, 48 males and 48 females; abdominal, 16

males and 11 females, and other forms, 12 males and 7 females. The number of patients under treatment was: institute, 1,575; domiciliary, 3,470; sanatorium, 254. The number treated during the year was 7,251, and included those patients who had left the city, or who did not need further treatment, or who had died. The age-incidence showed that the female rate had two maximums, viz., the quinquennium 10-14 and the quinquennium 20-24; while the male rate showed a maximum in the quinquennium 20-24. The female rate showed an excess over the male rate at the earlier ages, while the male rate showed an excess in the period 35-39 and at later ages. Information is also given with regard to the occupations of the patients. Among the highest figures were the following: discharged soldiers, 338; general servants, 14; clerks, 28; engineers, 35; spinners, 42; stitchers, 72; weavers, 49; winders, 21; doffers, 21; laborers, 208; schoolboys, 194; school-girls, 229. Of the 1,820 patients found to be suffering from tuberculosis during the year 758, or over 41 per cent., admitted personal association with tuberculosis among members of their own families. In many cases it appeared that, as the result of inter-infection, whole families had been wiped out by the disease. Respecting the results of treatment the following figures are given: Domiciliary patients, greatly improved, 385; improved, 1,455; in statu quo, 1,183; worse, 203. The domiciliary patients numbered 3,470. Institute patients; greatly improved, 143; improved, 484; in statu quo, 282; worse, 8. The number of institute patients was 1,575. Sanatorium patients: Greatly improved, 41; improved, 74; in statu quo, 43; worse, 32. Among other things the report shows that under certain conditions tuberculosis is transmitted from individual to individual, given favorable conditions, and it is to be presumed a suitable soil. A certain degree of susceptibility is no doubt essential to the contraction of tuberculosis as well as a favorable environment. At the same time the transmissibility of tuberculosis from person to person has been made the subject of a great deal of exaggeration. There are people who assume that they are as nervous when entering the house of a consumptive as if they were visiting a case of virulent infective disease. Dr. Noel Bardswell in his little work published a short time ago, "Handbook for Tuberculosis Workers" (John Bale, Sons and Danielson) supplies an antidote to the vapors of such as these. The contents of his book are imbued with common sense throughout and full of useful information. The chief medical officer of Health for Belfast lays great stress on the urgent need of preventive measures in the campaign against tuberculosis. He utters the solemn warning that we shall never grapple successfully with the problem of tuberculosis until we cease to turn our attention exclusively to the treatment of the individual. This sounds perfectly true. Educate the masses how to avoid tuberculosis, and segregate those suffering from it, as far as possible, and long steps will have been taken in greatly diminishing the incidence of the disease.

The Prevention of Venereal Disease.—An important addition to the literature on venereal

disease has just been contributed by Sir Archdall Reid, who has brought out a book dealing with the prevention of venereal infection. The author will be remembered by many members of the medical profession in America as the writer of in many respects the best work on alcohol ever published. The present book discusses venereal diseases from various aspects, but of course mainly from the preventive standpoint and with a knowledge drawn from a wide experience. Sir Archdall during the war and after has been stationed at Portsmouth, the British naval port, and there have passed through his hands in the course of the past few years many thousands of men suffering from syphilis or gonorrhea. Therefore, he has been able to form an opinion as to the most effective means of preventing the most dangerous and insidious maladies that can be acquired by the inhabitants of the world. He has formed his opinion, and it is this, that not only can venereal diseases be easily prevented (Metchnikoff drove home this lesson), but that the means of prevention are easily procurable and according to the outcome of his experience not difficult of application. By the way, Metchnikoff taught this lesson also. Reid's prescription for the prevention of venereal disease is prompt and adequate disinfection. It should be said that the book is endorsed by the British Society for the Prevention of Venereal Disease and contains the evidence and arguments on which the Society bases its policy. At Portsmouth the system has been a conspicuous success and also, according to Reid, on every occasion when disinfection has been done properly and sufficiently promptly. The book puts the case for the Society lucidly and cogently and should be read widely even if it does nothing more than give rise to discussion. The whole subject of direct prophylaxis needs ventilation. So long as it is not understood or misunderstood just so long will headway be impeded with regard to the prevention of venereal diseases. The scheme suggested in the book may not be practically applicable to a civilian population but, at least, the medical profession and the public should be afforded every opportunity of judging. This book gives much information regarding many moot points of the venereal problem.

The Tuberculosis Bill.—Dr. Addison, Minister of Health, in answer to a question asked in the House of Commons a short time ago, said that considerable additions have been and are being made to the available accommodation for the sanatorium treatment of tuberculous ex-service men and to the facilities available for the concurrent treatment and training of these men. Provision is made in the Tuberculosis Bill for the establishment of village settlements and employment colonies for the benefit of tuberculous patients and their families. Dr. Addison, however, went on to say that owing to the pressure of Parliamentary business it would not be possible to pass the bill this session.

Medical Service for Scotland.—An Interim Report has been presented by the Scottish Consultative Council on Medical and Allied Services recommending a scheme of medical service for Scotland. The report has been adopted by the

Council. The following is a summary of the recommendations. (1) Unification of all local health authorities; (2) a complete medical service to be within the reach of every member of the community, organized by the State, but not of necessity provided at public expense or carried out by State officials or practitioners; (3) organization to be based on the family as the normal unit and the family doctor as the normal medical attendant; all health agencies to be mediated to the individual by the family doctor; (4) the expansion of the present insurance system to provide for the whole population of "national insurance" grade, including all dependents, those entitled to medical service under the Poor Law, and for the treatment of discharged soldiers; (5) special services to be available to others above "insurance" grade for which that section of the community is unable to make adequate provision; (6) the provision of small "recovery homes" or "hospices" for cases of ordinary illness where the patient cannot be properly treated at home and where no "cottage hospital" or nursing home is available; (7) the provision of "invalid homes" for chronic invalids; Poor Law hospitals might be used for that purpose; (8) the family doctor to be provided with all necessary supplementary advice and assistance; all serious surgical cases to be sent to hospital for operation; for acute medical and other cases "district consultants," selected by local members of the profession to be appointed; ambulant cases to receive advice at hospitals or consultation clinics; cooperation among general practitioners for consultation and treatment to be encouraged; (9) facilities to be provided to all practitioners and to all classes for reference to clinical laboratories, and to experts in special branches of medical science; (10) the recommendations regarding hospitals are reserved pending the report of a joint committee considering the question; (11) convalescent homes should be increased in number, and include "preventive" or "rest" homes; (12) the Queen Victoria Jubilee Nurses' organization to be utilized as a suitable basis for a national system of skilled district nursing; (13) the provision of fully trained health visitors in populous areas; (14) the provision of an adequate maternity service as soon as a sufficient number of trained midwives is available; a necessary adjunct would be the provision of sufficient beds in each district for difficult cases or where the home conditions are unsuitable; (15) adequate facilities to be provided for dentistry; a consulting dental surgeon to be attached to each laboratory clinic; (16) the pharmaceutical arrangements of the scheme, it is recommended, should follow the provisions of Section 15 of the National Insurance Act.

OUR LETTER FROM GENEVA.

(From Our Own Correspondent.)

GENEVA, Dec. 1, 1920.

International Congress of Anthropology.—A few weeks ago the School of Anthropology of Paris convened an international reunion of scientists at Paris and this congress, at which some fifteen countries were represented, was an unquestionable

success. Quite different from most congresses at which the results of researches are reported, the Paris congress had as its essential aim to propound questions and to consider methods of research work. As the anthropological sciences have developed very considerably during the past few decades special commissions were at once appointed for anatomical and zoological anthropology, human paleontology, ethnology, and ethnogeny, criminal and prehistoric anthropology, etc. Each commission thus organized worked without remission and on the concluding day of the meeting a certain number of recommendations—all unanimously adopted—were made to the plenary session, much material for discussion was suggested, and various resolutions were offered.

It is impossible here to give in detail the resolutions accepted, but some of the most important may be briefly mentioned. The question of ethnic cross-breeding was generally accepted as being of capital importance on account of our present ignorance in respect to its real results. For example, is a given instance of cross-breeding necessarily advantageous or disadvantageous? Objective facts are still wanting to produce scientific basis for judgment on the question, which is, in reality, very serious, especially that of consanguineous marriage. The study of the physical capacity of children, examined from the viewpoint of professional value, was the object of a discussion during which an attempt was made to establish a scientific basis for the anatomo-physiology of the child during school life.

Questions of eugenics naturally were discussed and among the resolutions voted there was one whose aim is the study of the somatic and psychological characters attesting the biopsychic inferiority of certain individuals. After a discussion of the past due respectively to heredity and environment in the development of this inferiority, the means for preventing or attenuating the occurrence of characters detrimental to the health and hygiene of the human race were considered. As to the word "race," we are all familiar with the various interpretations given it. The ethnological commission remarked that until now the study of human "races" has consisted only in a description and comparison of various human groups, in certain geographical regions, momentarily bearing certain names of people and speaking for the time being a given language. Therefore, although recognizing the interest—and the necessity—of researches made in this direction up to the present and their continuation, the commission was of the opinion that these were merely the first stages of much greater work.

In point of fact, although these analyses have already led to a more or less synthetic image of such or such a group, geographically, linguistically, and politically defined, it is, nevertheless necessary to go further and attempt to discover in each human group its hereditary lineages, by noting the constant characteristics of a given population, in other words its genealogical characters. In this way we shall at length be able to distinguish by initial ethnic types, which are the basis of our present lineages. It was even proposed that these present ethnical types, which thus become extri-

cated from the chaotic condition in which they have been, should be known not merely in their morphological but likewise in their physiological and psychological characters. These propositions, which I have here outlined perhaps represent one of the most considerable labors of anthropologists to come.

In the domain of anthropological statistics a greater coordination was advised between statisticians and technicians in order to reach more useful results. Prof. Pittard of Geneva is of the opinion that great progress can be made in this direction to the undeniable advantage of medical and sociological science, and he also points out the great merit of the resolution voted that, in the domain of prehistoric archeology, all future excavations should be carried out with a single aim in view and with exclusively scientific methods.

More extensive and active international relationship was also unanimously voted and systems of exchange of documents and lectures, the creation of a scientific international annual, the publication of an anthropological dictionary bringing up to date all discoveries and scientific results at present acquired by observers of all countries, the establishment of a central bibliographical organ, etc., were advised. Finally, a recommendation put forward by a large number of members and accepted unanimously by the assembly, demanded a much greater development in the teaching of anthropology in all its aspects in all institutions of advanced learning.

Progress of Medical Science.

Boston Medical and Surgical Journal.

December 30, 1920, clxxviii, 27.

1. Preventive Medicine in Its Relation to Schools. Frank Spooner Churchill.
2. Preventive Medicine and Hygiene in Relation to Colleges. Roger I. Lee.
3. The General Management of Health in Industry. W. Irving Clark, Jr.
4. The Control of Venereal Diseases. George Gilbert Smith.
5. Mental Hygiene. Walter E. Fernald.
6. A Case of Multiple Sclerosis. Florence L. Meredith.
7. Clinic on the Diagnosis and Treatment of Neurosyphilis. H. C. Solomon.
8. Remarks on the Treatment of Fracture of the Neck of the Femur. Royal Whitman.
9. Spina Bifida. Torr Wagner Harmer.

7. Clinic on the Diagnosis and Treatment of Neurosyphilis.—H. C. Solomon, concluding his discussion of this subject, points out that: 1. The central nervous system is involved by syphilis very frequently in the primary and secondary stages; that this involvement is ordinarily benign and disappears symptomatically with or without treatment. 2. In a small number of cases, acute meningitis, meningocephalitis, vasculitis, and gummas occur in the secondary period of the disease. 3. About 10 per cent. of all cases of syphilis develop late neurosyphilis, tabes, paresis, meningitis, meningocephalitis, gummas, vasculitis. 4. Neurosyphilis is always serious, affecting the mind, utility, and life of the patient. 5. Diagnosis is often possible only by the aid of the spinal examination. 6. Therapeutic results are better, the earlier the diagnosis of syphilis is made, and the sooner treatment is instituted. 7. The spinal fluid is often positive long before definite symptoms are present; hence the need of frequent lumbar punctures. 8. More intensive treatment is usually required to treat neurosyphilis than in the treatment of non-nervous-system syphilis. 9. Cases of meningitis, acute meningocephalitis, and mild vascular syphilis usually react favorably to intensive intravenous injection. 10. For these conditions intraspinal injections will at times accomplish more than intravenous therapy.

11. Tabes is more difficult to improve than the above mentioned forms. Many cases, especially the early ones, show improvement under intravenous therapy ad-will at times accomplish more than intravenous therapy. will frequently do much better. It is often the method par excellence. 12. Many cases diagnosed as paresis make fair recoveries under intravenous therapy. 13. Intraspinal injections and drainage of the cerebrospinal fluid may aid in the intravenous treatment of general paresis. 14. Intraventricular injections may at times give more favorable results than any other in the treatment of paresis.

New York Medical Journal.

January 1, 1921, cxlii, 1.

1. Operation for Renal Calculi. Howard A. Kelly.
2. Dangers to Life Associated with Gallstone Disease and Their Prevention. Benjamin T. Tilton.
3. Pathogenesis and Physiopathology of Gallbladder and Biliary Tract Lesions. Vincent Anthony Lapenta.
4. Treatment of Salivary Fistulae by Massage and Hot Air. Pierre Koudinsky.
5. Acid Gastritis. Robert Hugh Rose.
6. Gastric Ulcer and Cancer. John W. Shuman.
7. The Mouth from a Gastroenterological Viewpoint. Louis Henry Levy.
8. Some Upper Abdominal Truths and Fallacies. Moses Behrend.
9. Colon Injury in Nephrectomy. Weller Van Hook.
10. Cryptitis and Hypertrophied Papillae as Causes of Pruritus Ani. J. F. Saphir.
11. Excision of Cancerous Rectum Through Vaginal Section. Charles J. Drueck.
12. The Soul of the Consumptive. S. Adolphus Knopf.

2. Dangers to Life Associated with Gallstone Disease and Their Prevention.—Benjamin T. Tilton directs attention to the four chief dangers that may threaten the life of the carrier of gallstones. 1. Acute suppurative or gangrenous cholecystitis; 2. cholangitis; 3. malignant disease of the gallbladder; 4. operation in delayed cases. In the severer types of acute suppurative or gangrenous cholecystitis operation should not be delayed in the severer types of cases. Simple drainage of the gallbladder is the operation of choice in the severe cases. Cholangitis usually implies that one or more gallstones have entered the common duct and caused stoppage of the flow of bile, with resulting infection. The choice of the time for operation in these cases is a matter of judgment on the part of the surgeon. Operation is more hazardous at the height of the attack and in the presence of jaundice, but if the symptoms persist more than forty-eight hours and the patient's general condition is growing worse from the absorption of septic bile, operation offers the best chances and should not be further delayed. Here also the simpler and shorter operation for drainage of the gallbladder will meet the vital indications, and will save the patient's life in cases where the patient would succumb to the more complicated and prolonged operation of cholecystectomy and removal of the stones in the common duct. Malignancy starting in the gallbladder, unfortunately, in most cases, is too far advanced when diagnosed to admit of complete surgical removal. Metastases in the liver are not amenable to surgery, and it is only when the disease is localized in the wall of the gallbladder that surgery is successful. Operation in delayed cases of cholelithiasis is often hazardous. Early operation in cholelithiasis is strongly indicated; only in this way can the present high mortality of this serious disease be lowered.

3. Pathogenesis and Physiopathology of Gallbladder and Biliary Tract Lesions.—Vincent Anthony Lapenta reduces his views on this subject to the following: 1. Diseases of the gallbladder and biliary ducts are principally produced through hematogenous infections. Importance must be accorded in the history to the occurrence of typhoid, tonsillitis, and other focal infections in the past history of the patient. Previous disease of the vermiform appendix must also be taken into account, as well as concomitant incidence of chronic appendicitis. 2. Oddi's researches show that the gallbladder is not a functionless organ, and that the addition of mucus in the bile by the gallbladder is of some importance. In uncomplicated cases of cholelithiasis with the absence of structural lesions of the gallbladder, without acute or quiescent infection, cholecystectomy is still sufficient. 3. Caution must, of course, be exercised to avoid leav-

ing in a diseased organ. On the slightest evidence of chronic infection, cholecystectomy must be performed. 4. The rôle of hypercholesterinemia in the etiology of gallstones is regarded as a predisposing one. The chief pathogenic rôle is to be ascribed to infection. 5. The rôle of gallbladder infections as chronic foci, capable of setting up systemic metastatic lesions elsewhere in the body, leads one to emphasize the necessity of timely diagnosis and the importance of cholecystectomy as a curative operation.

4. **Treatment of Salivary Fistula by Massage and Hot Air.**—Pierre Koudindj holds that before deciding upon surgical intervention in the treatment of salivary fistula it is essential that one first attempt a physiotherapeutic treatment, composed of appropriate massotherapy maneuvers, as, for example, superficial and deep rubbings, light pressure, digital vibrations, and a current of hot air applied by way of the mouth to the two surfaces of the jaw, first the cutaneous surface, later the mucous surface. It is necessary to combine the two physical agents so that the hyperemic action of the one is complemented immediately by the mechanical action of the other; so that the vital activities of the patient's tissues are stimulated and the cicatrization of the fistula is completed.

Journal of the American Medical Association.

January 1, 1921, lxxvi, 1.

1. Some Influences of French Science on Medicine: The Pasteur Lecture. Graham Lusk.
2. Involvement of Nervous System During Primary Stage of Syphilis: Continued Study. Udo J. Wile and Clyde K. Hasley.
3. Precautions Necessary in the Selection of a Donor for Blood Transfusion. Lester J. Unger.
4. A Study of the Spinal Fluid in Fifty-two Cases of Congenital Syphilis. Lyle E. Kingery.
5. The Wassermann Test and its Limitations in Diagnosis and Treatment. G. L. Rohdenburg, A. L. Garbat, Leo Spiegel, and P. J. Manheim.
6. High Grade Heart Block: The Influence of Posture, Respiration and Exercise. S. Calvin Smith.
7. The Treatment of Acute Tetanus: Report of a Successful Case. Robert A. Kilduffe and W. B. McKenna.
8. Rhinomyoma of the Nose: Report of a Case. George S. Reitter.
9. Foot Drop Following Laparotomy. J. W. Duncan.
10. General Considerations Regarding Serum and Vaccine Therapy. Simon Flexner.
11. Antistreptococcus Serum and Streptococcus Vaccines. George H. Weaver.
12. Use of Vaccines and Serums in Gonorrheal Urethritis and its Complications. John T. Geraghty.
13. The Use of Antimeningococcus Serum in the Treatment of Epidemic Meningitis. Kenneth D. Blackfan.
14. Gauze Sponge in the Abdominal Cavity for Fourteen Years with Simulation of Ectopic Gestation. Fred C. Watson and P. H. Desnoes.
15. The Present Status of Digitalis Therapy. Drew Lutten.
16. Posterior Sinus Infection with Optic Nerve Involvement. C. G. Crane.

2. **Involvement of Nervous System During Primary Stage of Syphilis.**—Wile and Hasley, continuing studies reported in 1915, discussing the findings in 221 cases of syphilis, observed since that time, in which only the primary sore was present. The early period at which these cases were studied is indicated by the fact that of this number 106 were still negative in the blood at the time of the examination. The results which they record refer only to subjective and to biological findings in the spinal fluid. Deviations from the normal in the spinal fluid of these 221 cases of syphilis, in which only the chancre was present, was found in 49 cases, or 22 per cent. of the cases examined. Increase in globulin and albumin virtually parallel was the most constant of the abnormal findings, occurring in twenty-five of the forty-nine cases. Pleocytosis was the next most frequent finding, occurring in twelve cases. The positive Wassermann test in the fluid occurred less frequently than the other two findings, being present in but eight cases. Within certain limitations any single one of the above-mentioned deviations from the normal occurring alone must be regarded as evidence of early central nervous system involvement.

3. **Precautions Necessary in the Selection of a Donor for Blood Transfusion.**—Lester J. Unger summarizes his views on this subject as follows: (1) All individuals may be grouped broadly into four main groups. These groups are established by the presence of two "chief" agglutinins in the serums and receptors for these agglutinins in the cells. Besides "chief" agglu-

tinins, "minor" agglutinins have been demonstrated. (2) Ninety-seven per cent. of adults have agglutinins in their serums. They are, however, present in 13 per cent. of new-born infants. Only 25 per cent. of new-born infants have cells that can be agglutinated, as compared to 50 per cent. among adults. The full quota of agglutinins and receptors is acquired between the third and fourth years of life. (3) Incompatibility between the blood of a mother and her new-born infant occasionally occurs. It is unsafe, therefore, to omit testing the blood preliminary to transfusion, even though the mother should act as donor. (4) It is not advisable indiscriminately to use the so-called "universal donor," as severe reactions have been observed following the use of donors of group IV for patients of other groups. (5) The rouleaux-formation substance, even though acting on the donor's cells, is apparently harmless, and no untoward results have been seen following such transfusions. (6) It is unsafe to perform a transfusion, relying simply on the fact that donor and patient are of the same group. Preliminary to transfusion, the blood of every patient should be grouped and then tested directly against that of the prospective donor.

6. **High Grade Heart Block.**—S. Calvin Smith discusses the influence of posture, respiration and exercise in a case of high-grade heart block in a young man of twenty, illustrating the text with electrocardiograms made under different circumstances. This condition in an active youth of twenty years, with negative previous history, has evidently existed since childhood, despite the fact that heart block is usually encountered in persons past the meridian of life with definite histories of previous infections, and despite the fact that the average life expectancy in high-grade heart block is three years. The case was studied under various circumstances, including the changes induced by posture, respiration, exercise, vagal pressure, and drug administration; the graphic records indicated that on forced expiration the heart block disappeared and that a normal sequence of cardiac events ensued. Fluoroscopic study confirmed these findings. Roentgenograms indicated that the position of the heart was altered when the cardiac mechanism became experimentally natural, thus suggesting that the lessening of traction or the relief of pressure on heart tissue may play a part in the experimental reestablishment of natural cardiac rhythm.

The Lancet.

December 11, 1921, cxcix, 24.

1. Some Neurological Aspects of Ophthalmic Cases. James Taylor.
2. An Address on Man versus the Microbe. William J. Collins.
3. Cancer of the Colon: Its Causation and Treatment. Sir W. Arbuthnot Lane.
4. The Clinical Aspects of Enteric Group Infection as Modified by Protective Inoculation. J. R. Harper.
5. Gastric Analysis in Acne Rosacea. J. A. Ryle and H. W. Barber.
6. Achylia Gastrica. T. Izod Bennett.
7. Loss of Speech Following an Anaesthetic. A. Bernard Clark.
8. Cholera in Turkey and Adjoining Countries Since 1914. F. G. Clemow.
9. Famine Drenpy and Pioneer Work in India. J. A. Nixon.

4. **The Clinical Aspects of Enteric Group Infection as Modified by Protective Inoculation.**—J. R. Harper bases his consideration of this subject on experience gained while working in one of the largest special hospitals in the north of France, where special facilities were given for the reception, treatment, and bacteriological investigation of this variety of case. From January, 1915, to December, 1918, 5586 cases were admitted in which enteric was suspected, 3203, or 55.5 per cent. of which were subsequently diagnosed enteric. The positive cases were made up as follows: 1164 typhoid, 36.2 per cent.; 428 paratyphoid A, 13.5 per cent.; 1128 paratyphoid B, 36.8 per cent.; 431 enteric group, 13.5 per cent. In the inoculated men, 150 of whom were carefully studied, the following were the most common signs and symptoms in their order of frequency: Headache, 83 per cent.; pyrexia (ten days or over), 77 per cent.; furred and tremulous tongue, 49 per cent.; rose-red spots, 45 per cent.; slow pulse, 39 per cent.; tenderness in the left hypochondrium, 38 per cent.; palpable spleen, 34 per cent.; abdominal distention, 17

per cent.; epistaxis, 3 per cent.; thrombosis, 2 per cent. Complications were by no means so common or so severe as might be anticipated, even among the un inoculated. The chief complications noted were bronchitis, pleurisy, bronchopneumonia, and lobar pneumonia, cerebrospinal symptoms, appendicitis, perforation of the bowel, hemorrhage, thrombosis, miscellaneous abscesses, epididymitis. An accurate diagnosis of enteric group infection can follow only as the result of the intimate working of the clinician and the bacteriologist. In probably 70 per cent. of cases the clinician experienced in this group infection will be able to diagnose it as such, but it is impossible for him to decide from the clinical picture which member of the group is the causal organism. A positive diagnosis can be made only by the isolation of the specific organism, or by the fact that the patient has acquired an immunity to one of the organisms. The various methods of diagnosis mentioned are: Cultivation of the bacillus, agglutination, atropine test, cardio-ocular reflex (Ascher). The case mortality of paratyphoid was only 1.28 per cent., that of paratyphoid A being even lower. The mortality among all the cases of enteric group infections occurring with the B. E. F. in France was 3.58 per cent. Paratyphoid A is undoubtedly the mildest of the three infections, and typhoid the most severe.

6. Achylia Gastrica.—T. Izod Bennett considers that the vast majority of cases, judging from an examination of the literature, have been put into this category without sufficient justification. A person without gastric hydrochloric acid is deprived of (1) a useful but merely accessory agent for protein digestion; (2) a useful but accessory agent for controlling the action of the gastric sphincters; (3) an important but not essential means of diminishing bacterial growth in the intestines. Appreciation of these facts explains the mildness and frequent absence of symptoms in such cases; it also arouses speculation as to the possible vital importance of achylia in the pathogeny of such diseases as pernicious anemia and cirrhosis of the liver, which are probably infective in origin. One is next confronted with the problem of treatment, and it is immediately evident that if an attempt is to be made to replace the normal acid large doses must be given. If the volume of a meal be put as low as one pint a dose equal to 90 minims of the B. P. dilute hydrochloric acid must be added in order to raise the acidity of the gastric contents to 0.1 per cent. HCl. But a pint is a very small volume for a meal, and if there be much protein in addition a correspondingly larger quantity of HCl must be added. The writer quotes Crohn as having come to the conclusion (1) that single doses of HCl given before meals are useless; (2) that small doses are always useless; and (3) that only by giving large doses throughout meals can any appreciable percentage of HCl be assured in the gastric secretion. Bastedo is quoted as expressing a similar opinion and as speaking hopefully of the effects of acidol, a proprietary preparation of betaine hydrochloride, which may be taken as a solid, and which liberates free HCl on solution. Pepsin should be given at the same time, and from clinical experience one is forced to the hopeful conclusion that even small percentages of HCl may lead to very material improvement in symptoms.

British Medical Journal.

December 11, 1920. I. 3128.

1. The Diagnosis of Acute Abdominal Crises. Arthur H. Burgess.
2. A Clinical Lecture on the Study of Heart Disease. F. John Foynton.
3. The Effect of Pregnancy upon the Size and Weight of Some of the Organs of the Body. P. T. Herring.
4. The Risks After Operation for Tonsils and Adenoids in Outdoor Clinics. E. Watson-Williams.
5. The Diagnosis of Hydatid Disease of the Lung. Alfred Foster.
6. Volvulus of the Small Intestine Following Ileo-Colostomy. Norman Duggan.

1. The Diagnosis of Acute Abdominal Crises.—Arthur H. Burgess, in two post-graduate lectures here given in abstract, discusses the diagnosis of acute abdominal crises in a general sense, and considers, first of all, individually, the various symptoms and signs met with in such crises, attributing to each its relative value

as a factor in diagnosis, and as an indication for treatment; and secondly, these same symptoms arranged in groups, such as are observed clinically in the different types of abdominal crises. The general symptoms include: (1) Various degrees of shock or collapse; (2) alterations in the frequency and character of the pulse; (3) changes in the temperature; (4) alterations in the type of respiration—"thoracic" type; (5) other symptoms, such as a dry and furred condition of the tongue, hicough, stranguary, and tenesmus. Speaking generally, one may say that, although these general symptoms are useful in directing attention to the possibility of a crisis having occurred, yet they give no clue to its nature, nor are they alone of much value as indications for treatment. It is, then, mainly upon the local symptoms and signs—those referable to the abdomen itself—that one must rely in deciding questions of diagnosis and treatment in any acute abdominal crisis. These include: (1) Abdominal pain; (2) cutaneous hyperalgesias ("viscero-sensory" reflex); (3) tenderness, local and general; (4) nausea, vomiting; (5) muscular rigidity ("viscero-motor" reflex); (6) abdominal distention; (7) presence of free gas in the peritoneal cavity; (8) presence of free fluid in the peritoneal cavity; (9) local abdominal or pelvic swelling; (10) certain changes ascertainable upon rectal examination. Before deciding in any given case presenting symptoms suggestive of an acute abdominal crisis that the cause is referable even to the abdomen at all, two fallacies in particular should be borne in mind; (a) The "crisis" met with in *tabes dorsalis*—"gastric," "intestinal," and "renal." It should be a cardinal rule to test the knee-jerk in every abdominal case. On the other hand, it must be realized that *tabes* does not preclude the coexistence of a true abdominal crisis, and, further, that visceral analgesia which occurs in some tabetics and prevents the manifestation of pain, cutaneous hyperalgesia, tenderness, and rigidity, may render the recognition of such crisis a very difficult matter indeed. (b) The possibility of confusion between acute abdominal crises and acute intrathoracic diseases, especially acute basal pneumonia, acute diaphragmatic pleurisy, and acute pericarditis. This difficulty is sometimes a very real one, and surgeons of experience have not infrequently opened the abdomen only to find the peritoneal cavity normal and the lesion an intrathoracic one. Whenever acute *lobar pneumonia* follows within twenty-four or forty-eight hours of an "early appendectomy," one cannot help but suspect that the pneumonia was the real cause of the abdominal symptoms and that the operation was unnecessary; when pneumonia is due to an operation, it is of the *lobular* or bronchopneumonic type. Confusion is particularly liable to arise in young children, since they cannot assist with a description of their symptoms, and since in them the physical signs of pneumonia are sometimes delayed for twenty-four or even forty-eight hours. Having excluded these possible fallacies, and having decided that one is dealing with a true abdominal crisis, the possible cause of the condition is next to be considered. For his own guidance the writer is accustomed mentally to classify the causes into five groups: (1) The colics; (2) the perforations; (3) the hemorrhages; (4) the inflammations; (5) the obstructions. In conclusion, the writer emphasizes the importance of early diagnosis. The time that has elapsed between the onset of the attack and the opening of the abdomen is the real deciding factor in the ultimate issue of the case—far more so than the skill of the individual surgeon. He believes he speaks for all surgeons when he says that he infinitely prefers to meet in consultation the practitioner whose diagnosis, made in the early hours of the attack, is limited to "something gone seriously wrong in the belly" than one who, *forty-eight hours later*, can give a cut-and-dried and possibly perfectly correct description of what an operation will reveal.

3. The Effect of Pregnancy upon the Size and Weight of Some of the Organs of the Body.—P. T. Herring bases the following conclusions on observations made on the female albino rat: In the healthy albino rat the occurrence of pregnancy has little effect upon the length and weight of the body, excluding the increase of weight due to the uterus and its contents. The heart, kidneys, and spleen are little affected; there is certainly no enlargement of the heart in pregnancy. The liver is

greatly enlarged. The thymus undergoes rapid involution, and is much diminished in size. The suprarenals are slightly hypertrophied. The thyroids are diminished in size in pregnancy, and there is a notable diminution in the weight of the pituitary body, attended by histological changes in its glandular lobe.

The Practitioner.

December, 1920, cv. 6.

1. Medical Aspects of Carcinoma of the Breast. Robert Hutchison.
2. Insanity and Responsibility for Crime. William A. Brend.
3. Recent Work on Anesthetics. J. Blomfield.
4. The Beginning of Disease. O. C. Gruener.
5. The Afferent Nerve Supply of the Female Genito-Urinary Organs and the Bowel. W. A. Ogilvy.
6. Different Modes of Auscultation. Charles W. Chapman.
7. The Wassermann Reaction. C. Lundie.
8. Diet after Gastroenterostomy. A. MacLennan.
9. Intestinal Stasis: A Suggestion. J. C. Watt.

1. Medical Aspects of Carcinoma of the Breast.—Robert Hutchison holds that recurrence in the internal organs after removal of the breast for cancer, or the deposition of secondary metastases in various parts of the body, may give rise to clinical symptoms and signs, which are often difficult of interpretation and which lead to errors of diagnosis. The lung and pleura are more often involved than any other organ, when recurrence takes place after removal of a breast for cancer. The symptoms are those of primary carcinoma of lung or pleura. Recurrence in the mediastinal glands without direct involvement of a lung sometimes occurs. The symptoms are those of mediastinal tumor. Recurrence may be mainly in the abdomen, and if the peritoneum is extensively involved, a puzzling picture may be presented. The bones may be the seat of recurrence or metastasis, forming a characteristic group. The writer recalls two cases in which great thirst and polyuria were the prominent symptoms in recurrence after mammary cancer. Not uncommonly cases are met with which are characterized chiefly by the occurrence of neuralgic pains in various parts of the body. Recurrence or metastasis may take the form of an intracranial growth with all the usual symptoms of a cerebral tumor. Cases are given in brief to illustrate the different categories mentioned.

Le Progrès Médical.

October 23, 1920, xlviii, 43.

Origin of Pellagra.—Bory gives a short résumé of recent labors in this field, with special reference to the part played presumably by vitaminic deficit. He quotes from a recent article by Goldberger and Wheeler in which a certain restricted diet appeared to be responsible for the appearance of the disease in prisoners. This diet was restricted to cereals, presumably decorticated. Two months were required for the development of the disease picture, which was classical. Other inmates of the prison, staff members, etc., who were on a balanced diet, presented none of the manifestations. In an insane asylum with cases of pellagra the staff did not contract the disease and an increase in the ration of meat and milk—which had been extremely scanty—appeared to control the disease in the inmates. There were further tests made in orphan asylums and in small villages where pellagra had appeared, with the same results. There is no doubt, then, that pellagra is a deficiency disease, but we do not know whether a vitamin or an amino acid or a mineral ingredient is at fault. The general result is, moreover, offset by the appearance of pellagra in well to do and well fed individuals. But on close inspection some of these were found to have a repugnance to certain dietetic articles—eggs, milk, meat—while others restricted their diet because they regarded certain articles as of difficult digestion. These people showed improvement under the theoretic diet. The author is not satisfied with the dietetic explanation alone, and believes that subjects on an exclusive cereal diet fall victims to some obscure infection. The old spoiled maize theory still holds good in support of this view (recently he could add that experiences in Roumania were due frankly to this cause). He cites an endemic case in France of obscure etiology in which Italian laborers may have brought the germ

from some pellagrous locality. He invokes a mosquito theory of transmission. The diet was favorable for infection, having been largely cereal and not properly balanced.

Le Progrès Médical.

October 30, 1920, xlviii, 44.

New Form of Epidemic Encephalitis.—Hanns describes a case which recently occurred at the Medical Clinic at Strasbourg. The patient, a girl of 19, was attacked suddenly in the midst of health with sore throat, which suggested diphtheria. This was readily excluded by examination of smears. A rash was the next manifestation, and then agitation which culminated in delirium, in the course of which she attempted to jump from a window. She was taken to the hospital, where she was found to be prostrated and cyanotic, these and other symptoms having motivated a bronchopneumonia. There was an intense conjunctivitis, while the exanthem already mentioned was most marked on the extremities, where it was confluent, the digits being swollen but free from all sensations. The closure of the eyes was apparently from photophobia alone. Close observation, however, showed that ptosis was associated with the blepharospasm. The throat was angry and covered with a white membrane. There was no somnolence, but marked rigidity of the nucha with a notable Kernig. Lumbar puncture negative. Despite double bronchopneumonia the temperature was but slightly elevated, save at evening, when it did not exceed 39° C. The delirium was shortlived, as was also the rash; and at the end of eight days all of the symptoms had cleared up. The appetite had been good throughout. The question is now raised as to the diagnosis. This had to be based on the cerebral symptoms, the presence of ptosis (so seldom absent in these patients), the recent prevalence of the epidemic disease, and the resemblance of the case to an atypical one of the latter. But the angina, the peculiar rash and the intense conjunctivitis have never heretofore been recorded as among the symptoms belonging to this disease.

Schweizerische medizinische Wochenschrift.

November 11, 1920, I, 46.

The Wildbolz Individual Reactions.—Imhof, assistant to Wildbolz, gives a detailed account of the urine and serum reactions first discovered by the latter in connection with the diagnosis of tuberculosis. As should be well known by this time to medical men the reaction is a sort of von Pirquet in which the inoculated substance is either the urine or serum of the patient himself—a species of autoserodiagnosis. The active substance involved is a tuberculous antigen, as in the case of all specific reactions in tuberculosis; so that the only peculiarity in the Wildbolz is the source of the antigen. The same difference is seen, of course, in therapeutic sera. The chief points of interest are the percentage of negative cases and the ability of the reaction to develop in the non-tuberculous. The presence of two sources of antigen makes double inoculations possible. Thus far patients positive to the urine inoculation have also been positive to the serum tests with few exceptions in which with positive urine there was a negative serum test, or the converse. In all of these a technical error of some sort was accused. Cases are given in which with a clinical diagnosis of tuberculosis the reactions were negative, and others of positive results in non-tuberculous cases. The few observations are merely paradoxical, and in the absence of autopsy finds the real nature of the disease remains naturally in abeyance. Perusal of such histories shows no record of the control use of the von Pirquet or any other specific reaction. Positive results obtained in cases admitted for chronic appendicitis and other chronic suppurations were clearly due to associated tuberculous foci in the body. In extensive organic disease of the kidney, whether tuberculous or not, the elimination of the antigen may be interfered with and consequently in such a case only the serum can be used in a test.

Society Reports.

SOUTHERN MEDICAL ASSOCIATION.

Fourteenth Annual Meeting, Held at Louisville, Kentucky, November 15, 16, 17, and 18, 1920.

THE PRESIDENT, DR. E. H. CARY, OF DALLAS, TEXAS, IN THE CHAIR.

(Concluded from page 77.)

Breast-Fed Babies Who Cry at Night.—DR. EUGENE ROSAMOND of Memphis read a paper with the following conclusions: (1) Habitual crying in breast-fed babies at a particular time each day—usually late afternoon and at night—is a pathognomonic symptom of hunger. (2) The preternaturally smart, wideawake baby is hungry. (3) Three-months colic is primarily hunger. Starvation, indigestion, and milk imbalance due to the mother's worry, may cause true colic to supervene, but these right themselves if the baby's cries are hushed. (4) Supplemental and complementary feeding is the remedy. (5) Complementary feeding should be given only with a cup and spoon.

On the Administration of Digitalis to Children with Diphtheria.—DR. H. MCCOLLOCH of St. Louis presented a communication of which the following were the conclusions: (1) Diphtheria toxin produces either experimentally or clinically anatomical and functional changes in the structures of the heart by direct action. Clinical manifestations of cardiac failure are due to these alterations of function and not to changes in the vagus center or nerve. (2) The effect of diphtheria toxin on the heart is similar in many ways to the effect on the heart of digitalis, either directly or through the vagus nerve. (3) The administration of digitalis to patients with diphtheria is contraindicated because there would result a summation of effects in the same heart. (4) With our limited means of estimating the optimal therapeutic amount of digitalis, or in controlling its effect on the various structures of the heart, this summation constitutes a real danger to the life of the patient. (5) Measures for providing rest for the heart other than the administration of digitalis should be adopted.

The Dietetic and Medical Treatment of Gastric and Duodenal Ulcers.—DR. SEALE HARRIS of Birmingham, Ala., said that the early diagnosis of ulcer of the stomach or duodenum was of as much importance as the early diagnosis of tuberculosis, because if treated properly before the chronic inflammatory changes had continued too long the ulcer healed with but slight cicatrix, and the cure was apt to be permanent; whereas in the old neglected cases it was much more difficult for the ulcer to heal and recurrences were more frequent. The treatment of gastric and duodenal ulcer should be thorough and systematic with attention to details, which accounted for success in any undertaking. Absolute obedience of the patient was important, and happily ulcer patients could be depended upon to give the most intelligent cooperation with the physician. Rest in bed for a period of three or four weeks, preferably in a hospital or infirmary, should be insisted upon and the patient should be under direct observation from six to eight weeks and should report symptoms to his physician for six months or a year, whether the patient was treated medically or surgically. Every case of gastric or duodenal ulcer should be thoroughly examined by a competent nose and throat man for evidences of focal infections in the nasal passages or sinuses, and for infected tonsils. The diet was of greatest importance and should be carried out thoroughly and systematically. In treating gastric and duodenal ulcers either medically or surgically it should be remembered that it was a secondary condition with which we were dealing, and one which was likely to return unless the underlying causes were sought for and removed.

Some Remarks on Gastric Lavage and the Proper Medicaments Therein.—DR. GEORGE M. NILES of Atlanta said that in chronic gastritis with excessive mucus, a lavage two or three times weekly was generally of aid. The lavage habit into which some patients lapsed, was an unfortunate one. These individuals, having learned to use the tube themselves, and finding

that the emptying of an over-distended stomach would bring relief from epigastric distress, made it a practice to hasten for the tube, and wash out the stomach with the first qualm. Some of these misguided sufferers washed out their stomachs from two to four times daily, bringing their bodies to the verge of caloric bankruptcy by their unwise zeal. It was allowable, under certain circumstances, to teach the patients how to administer to themselves a gastric lavage, when they lived in isolated localities, or when it was impracticable to see the physician at the proper time. Such instruction should be leavened with caution, and the patient informed of the dangers that lay in wait for those who fled to the stomach tube, not wisely but too often. In conclusion, he might say that gastric lavage, employed for a definite purpose, under restriction, and in a deft manner might and should fill a worthy place in gastric therapeutics.

Some Observations on the Fractional Analysis of the Gastric Contents.—DRS. JULIUS FRIEDENWALD and ZACHARIAH R. MORGAN of Baltimore, from a study of 210 cases in which fractional analyses were made, believed that the following conclusions might safely be drawn: (1) By means of fractional analyses we can study the entire cycle of digestion both as to the secretory and motor activity of the stomach. (2) By complete aspirations at any period of digestion we can obtain definite information regarding the amount of secretion. (3) In duodenal ulcer the acidity is usually higher than in any other condition. There is a rapid prolonged rise followed frequently by a fall and a secondary rise, though there may be a continuous prolonged rise from the onset. The highest acidity appears frequently after an hour. Blood is at times found in the contents which lends additional evidence as to the presence of an ulcer. Rapid evacuation is rather characteristic of uncomplicated forms of duodenal ulcer. (4) In gastric ulcer there is no typical curve of acidity though a fall followed by a secondary rise is frequent. Hyperacidity is usually present though there may be a low acidity or a normal acidity, the highest acidity appearing after an hour in most cases. Blood is obtained at times in the gastric contents, which presents further evidence in favor of ulcer. There is usually delayed motility in gastric ulcer. (5) By means of fractional analyses the acidity in any period of the cycle of digestion in ulcer may be noted. The highest acidity frequently occurs after an hour and occasionally before, so that its appearance would be entirely overlooked should we rely entirely upon the hour extraction. (6) The effect of an ulcer curve upon the hyperacid secretion can be followed by means of fractional analysis. In but half the cases, however, is a decided reduction in acidity obtained even though clinical improvement may be noted indicating that the symptoms ordinarily attributed to the excess of acid are not necessarily due to this factor. (7) In pyloric stenosis there is usually a high acidity during the whole period of digestion with delayed motility. Food shreds are observed in the fasting state. (8) In most instances of gastric carcinoma one finds a typical achylia frequently with delayed motility and a rather high total acidity and with lactic acid and blood. The Wolff-Jung-hans test is positive, considerable amounts of albumin being present within three-quarters of an hour, being markedly increased within an hour to an hour and a half. (9) Cases of chronic gastritis present the same characteristics as are usually observed in simple achylia. The total acidity is usually higher, however, and in addition mucus is obtained which is not frequently observed in simple achylia. The motility of the stomach is often delayed. (10) In gastric syphilis the curves of acidity are similar to those observed in cancer. The total acidity is high and there is a complete achylia, the stomach emptying itself rapidly. (11) Fractional analysis of the gastric secretion according to the Rehfuess method is extremely important in all cases of achylia gastrica, inasmuch as by means of this method one can easily differentiate the true achylia from the spurious forms. This differentiation is extremely important, inasmuch as many of the false achylia present a very high HCL acid index; sometimes marked hyperacidity, and are in fact, really cases of delayed hyperacidity. In the true achylia free HCL is absent in every specimen; the total acidity

is low and there is a marked hypermotility. In pernicious anemia one observes the typical features of a true achylia. (12) In nervous gastric affections one observes the various forms of hyper, hypochlorhydria or normal acidity. The hyperchlorhydrias present a rapid rise in acidity 100 or over with a normal motility. One frequently notes among these cases the so-called false achylia, with an absence of free HCl, at the end of an hour yet presenting a hyperacidity before or after this period. (13) In gall-bladder affections one observes a tendency to a lowered acidity and achylia, while in chronic appendicitis hyperacidity is usually observed. (14) While fractional analyses are of the greatest importance and usually present additional evidence in diagnoses, a study of our cases, together with the observations of Rehfuess, leads us to the conclusion that no pathognomonic curve exists which can be considered as absolutely distinctive of any gastric affection.

Some Observations on Sprue and Its Prevalence in the South.—Dr. SIDNEY K. SIMON of New Orleans stated that the clinical features of sprue were in general quite characteristic and, under ordinary circumstances, no difficulty should be experienced in differentiating the disease from other morbid conditions affecting the digestive tract. In a well advanced case, four cardinal groups of symptoms might be recognized: (1) An intensely red, desquamated, raw beef type of tongue, accompanied in most instances by a general ulcerative stomatitis. (2) A greatly inflated abdomen, doughy in consistency with enlarged intestinal coils often visible through the thinly stretched abdominal wall. (3) A chronic fermentative type of diarrhea characterized by unusually copious, pale yellow and foully smelling stools. (4) A progressive deterioration of strength, accompanied in most instances with marked pallor. Sixty-two cases in all were treated by Michel by a vaccine prepared in this manner and, of these, it was claimed that 49 were discharged cured, 12 were improved and only one died. From these figures, it would be seen that the vaccine treatment held out a promising field of therapy for the future. However, it had been stressed by Ashford, Michel, and others that in conjunction with the vaccine treatment, the usual dietetic regulations must be observed in order to obtain the best results.

Intubation Versus Tracheotomy in Laryngeal Diphtheria.—Dr. JOHN H. FOSTER of Houston, Tex., stated that there were four reasons for performing tracheotomy. (1) Greater assurance of relief. (2) Danger of intubation tube becoming stopped up by loosened membrane and patient asphyxiating. (3) Danger of patient coughing up the intubation tube and suffocating before any one capable of reintubating could be summoned. (4) Danger to the integrity of the larynx from pressure of the tube. The advocates of intubation advanced the following arguments: (1) Simplicity and ease of intubation. (2) Aftercare less troublesome than after tracheotomy. (3) Less shock. (4) No scar. (5) Shorter convalescence. (6) Parents did not demur at intubation as they did at any cutting operation. (7) Mortality lower, especially in view of the danger of sepsis and pneumonia following tracheotomy. (8) Less danger of permanent laryngeal stenosis. He did not think that the arguments in favor of tracheotomy were well taken or, at least, that they were sufficiently strong to establish tracheotomy as a routine procedure. His experience covered a period of fifteen years and embraced several hundred cases and he had never seen a death due to the tube becoming plugged up by membrane. In a fairly large number of cases he had seen membrane pushed down by the introduction of the tube and the patient's breathing became cut off. This was particularly apt to happen where the patient was too exhausted to cough vigorously and expel the membrane. It was then necessary to remove the tube and allow the loosened membrane to be coughed out.

Operative Treatment of Chronic Suppurative Otitis Media.—Dr. W. LIKELY SIMPSON of Memphis said that the objects to be attained in operating on a chronic suppurative otitis media were: (1) The prevention of complications as meningitis, sinus thrombosis, labyrinth suppuration, etc., or the relief of these conditions if they already existed. (2) The preservation and improvement of the hearing. (3) The cessation of the

discharge. The prevention of complications was the most important of these from the patient's standpoint. In chronic suppurative otitis media with the following complications the radical operation would be indicated and the modified radical contraindicated. (1) Facial paralysis. (2) Tuberculous infection. (3) Sinus involvement or sepsis from same. (4) Intracranial involvement. (5) Cases in which labyrinth suppuration was present might call for the radical operation, especially the subacute and the chronic types. The labyrinth operation usually should be done at the same time as the radical operation, the presence of sequestra, etc., helping in this decision. In the acute diffuse suppuration of the labyrinth there was certainly danger of setting up meningeal complications if the radical mastoid and labyrinth were done. (6) Circumscribed labyrinthitis. (7) Perilabyrinthitis.

Unrecognized Glaucoma and the General Practitioner's Responsibility.—Dr. HIRAM WOODS of Baltimore said that attention should be called to some of the details in the development of glaucoma, which the physician should know. They were: (1) The significance of frequent changes in glasses in persons over 50, especially in the direction of seeming myopia. Dangers of the optometry examination. (2) Misleading influence of the term "incipient cataract" for "lens striations." The latter often did not advance. If they did, uncomplicated progress was painless, and pain or injection meant something else. The cloudy appearance of the lens in glaucoma might be mistaken for cataract unless the ophthalmoscope was used. (3) The pain in progressive glaucoma was unlike that of eye strain. Often it was thought that to be neuralgic or rheumatic. These troubles were now known to be usually due to an infection focus. It was important to search for it. (4) Gastric disorders frequently occurred in progressing glaucoma. It was important to recognize the direction of cause and effect. (5) Recognition of the ocular injection of glaucoma as distinguished from that of conjunctival. A physician should know the differential diagnosis of conjunctivitis, keratitis, iritis and glaucoma or else let every red eye alone.

The Tonsils from a Clinical and Pathological Standpoint.—Drs. ELYRNE G. GILL and KENNETH D. GRAVES of Roanoke, Va., from their series of cases drew the following conclusions: (1) Discard the tonsils that harbor bacteria constantly. (2) There is a definite relationship between the pathology and symptomatology. (3) A history of well defined tonsillitis is a positive indication for tonsillectomy as our pathological investigations show that these tonsils are left in a state of chronic inflammation and serve as foci for infections just as a chronic appendix, abscessed tooth, chronic infection of gall-bladder, etc. (4) With the exercise of judgment and conservatism in the selection of cases for operation combined with thorough operative technique, good results can be expected from practically every tonsillectomy.

A Case of Extradural Abscess Complicating an Acute Left Frontal Sinusitis.—Dr. W. W. PERDUE of Mobile reported this case, from a study of which he drew the following conclusions: (1) Early drainage of the frontal sinus through the nose would possibly have averted the condition. (2) The infection advanced by way of the blood stream or lymphatics. (3) The rapid and alarming symptoms which appeared were those of a circumscribed purulent leptomeningitis, doubtless brought about by the dura mater becoming perforated in one or more places, thus allowing the pus to empty through. In some cases purulent meningitis can be cured by early drainage of the point of infection.

The Eye in Relation to the Ear, Nose, and Throat.—Drs. MEYER WIENER and H. W. LOEB of St. Louis drew the following conclusions: (1) Lesions of the eye and its adnexa occur far more frequently from pathological processes involving the nose and paranasal sinuses than is generally accepted. (2) A study of the minor processes would result in a more fruitful yield than that which has followed the interest in the exceptional and striking cases manifested up to the present time. (3) It is necessary to examine and to study in detail the nose and paranasal sinuses in all eye conditions for which they may be responsible, including conjunctivitis, lacrymal sac conditions, orbital cellulitis and abscess, corneal

ulceration, iritis and its associates, maturing cataract, retinal hemorrhage, retinal detachment, optic neuritis, ocular and retrobulbar, optic atrophy, glaucoma, reduction of vision, diminution of the field and functional disturbances not otherwise explained. (4) It is most important to examine for and to record any changes in the orbital or ocular tissues in all cases of acute or chronic suppurative processes involving the paranasal sinuses. (5) Persistent and intelligent study along these lines must bring about a solution of many of the vexing problems which have been uncovered by the casual study of the relation between the eye and the upper respiratory tract.

The Future Needs of Ophthalmology and Otolaryngology.—Dr. J. A. STUCKY of Lexington, Ky., stated that one of the most complex and important problems confronting the great profession of which we were a part was the food problem and its relation to impaired and distorted metabolism and perverted elimination. Amblyopia, diplopia, deafness, tinnitus aurium, as well as some pharyngeal and laryngeal conditions were frequently due to autointoxication of gastrointestinal origin, the direct action of the toxic substances being brought to the parts diseased from other parts of the body by way of the blood or lymph stream. He believed that what correct feeding and living of infants had done toward its health and the reduction of mortality, would have much to do with the prevention of many ophthalmic and otolaryngological diseases later in life. Our greatest work and ultimate goal must be in the prevention of disease. We were not to be made narrow by our specialty—we were not to be doctors only from the collar up; but as broad-minded aggressive men, qualified to do as well as it could be done, our part toward the protection, preservation and salvation of that part of our chosen field in ophthalmology and otolaryngology.

Eliminative Subjective Testing for Glasses.—Dr. CHARLES A. BAHN of New Orleans drew the following conclusions: (1) There can be but one lens combination which positively affords the best vision. (2) A retinoscopic approximation reduces the innumerable lens possibilities to a comparatively few. These can differ from the one best vision lens by containing first, too much or too little sphere; second, too much or too little cylinder; third, too much sphere with too little cylinder, or too little with too much cylinder; fourth, too great or small inclination of axis. (3) The innumerable lens possibilities can be reduced to one group and to one lens combination of that group, usually in three minutes, and in the manner described, by means of easily changeable test units of definite strength presented in front of more or less stationary tests. The first approximate test is the net retinoscopic finding and each successive approximate test is a closer approach to the one best vision lens and affords better vision than the preceding approximate test. (4) Definite strength test units in plus and minus, sphere and cylinder, depending on the visual acuity and definite strength axis units are employed for definite cylindrical corrections. (5) It is advisable that the patient compare each glass only with the preceding answering 'better or worse,' and employing any letter of the lowest readable line as a basis of comparison; and that not over ten successive comparisons be required of an eye in immediate succession; and that comparisons be required both on presentation and withdrawal of test units. (6) Test units which improve vision are incorporated in the trial frame or phorometer contents, forming, with the net retinoscopic finding or first approximate test, other approximate tests, each of which affords better vision than the preceding. (7) The last approximate test or final test represents the reduction of lens possibilities to one and is usually determined in three minutes. According to the patient's statement at least two times, the final test affords better vision than any other possible lens combination.

Alcoholic Insanity Increasing.—Cases of insanity from alcoholism have increased in the Cook County Psychopathic Hospital since prohibition went into effect, according to the quarterly report of Dr. James Whitney Hall. There was an increase of 33 per cent. in alcoholic cases in December, 1920, over the last officially "wet" December, and of 16 per cent. in November.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON OBSTETRICS AND GYNECOLOGY.

Stated Meeting, Held November 23, 1920.

DR. LILIAN K. P. FARRAR IN THE CHAIR.

Two Cases of Interstitial Pregnancy.—Dr. S. DiPALMA reported these cases. He said that, judging from statistics, the occurrence of interstitial pregnancy was infrequent enough to warrant reporting these cases. The first patient was 29 years of age, II-para, Russian, admitted to the Harlem Hospital July 20, 1920. The last regular menstruation was May 20, 1920. The present illness began with cramps in the lower abdomen five hours before admission. The patient vomited greenish fluid, became pale and gradually weaker. Laparotomy was performed shortly after admission. Upon opening the peritoneum a large quantity of blood escaped. On exploration of the uterus and adnexa the right tube was not found. The left tube was normal. A moderate number of small follicular cysts were present in both ovaries. The body of the uterus was slightly enlarged and the seat of multiple small fibroids. On the upper aspect of the fundus, about 1 cm. from the entrance of the Fallopian tube, a rupture was found which was roughly circular and about $\frac{1}{2}$ cm. in diameter, through which blood oozed freely. The tube was removed. The embryo was not found. The patient was discharged cured on the sixteenth day. The pathologist's report stated that microscopic section through the cornu showed typical chorionic villi. The diagnosis was interstitial pregnancy.

The second case was in a patient 32 years of age, VII-para, white, and a native of the United States. She was admitted to the Harlem Hospital October 16, 1920, with the history that all her labors had been difficult and in several instances were complicated by fever. The last pregnancy resulted in a six weeks abortion. She was not curetted. The menstrual period was two weeks overdue. Her present illness began at 10 P.M., the night before admission, with pains in the lower abdomen, vomiting, and, though she did not faint, she gradually went into shock. A diagnosis of ruptured extrauterine pregnancy was made by Dr. Brodhead. On opening the peritoneum dark blood escaped; the peritoneal cavity was filled with blood and blood clots. The uterus was found slightly enlarged; the left cornu had a small rupture superiorly, which was roughly circular and about 5 cm. in diameter, through which there was moderate bleeding. Both adnexa, with the exception of a follicular cystic ovary, were normal. The left cornu and adnexa were removed. The embryo was looked for but not found. The patient died of sepsis on the eighth day. The blood culture showed anaerobic hemolytic streptococcus. The post mortem examination revealed no peritonitis and no hemorrhage. The pathologist's report stated that microscopic section of the enlarged middle portion of the tube showed a dilated tube, the lumen of which was filled with masses of decidua-like, deep-staining cells—syncytial cells—and chorionic villi associated with moderate hemorrhage. The diagnosis was interstitial ectopic gestation.

The important features connected with these cases were: (1) Previous history of abortion, or pregnancy complicated by fever. (2) Early rupture. (3) Extensive peritoneal hemorrhage. (4) Finding of normal adnexa. These features were important because they tended to explain the course and the cause of interstitial ectopic pregnancy. In reviewing the literature, where a previous history of the patient was given, in most instances a record of previous abortions or uterine infection was obtained. The writer's opinion corresponded with that of Farrar in ascribing the cause, except in rare instances, to a previous low grade inflammation of the uterus. The inflammation being severe enough to affect only a portion of the interstitial tube damaged its lumen to such an extent as to prevent the ovum entering the uterine cavity, yet not enough to hinder the entrance of the spermatozoa. In the speaker's opinion the time of rupture and the amount of intraperitoneal hemorrhage depended upon the site of the implantation of the

fertilized ovum and the relation of its chorion frondosum to nearby blood vessels. If implantation occurred near the uterine end, the possibility of an early abortion in the uterus would be apparent; if at the isthmic end, by the trophoblastic action of the chorion frondosum in a place of least resistance, rupture would take place early, generally into the peritoneal cavity, occasionally in the folds of the broad ligament, depending upon whether the attachment of the ovum was on the superior or inferior aspect of the tubal lumen. The hemorrhage from arterioles usually present in this location would be extensive. If implantation should take place between the uterine and isthmic ends, the thickness of the musculature of the fundus and of the uterine wall being considerable in this location, it would seem probable that before rupturing, the pregnant sac would attain a large size, and the uterine rupture would be attended by a very extensive hemorrhage from hypertrophied blood vessels if these were involved.

A Delivery by Cesarean Section after a Previous Normal Delivery.—Dr. EDWARD C. LYON reported this case. He said that they were familiar with the type of case in which the first delivery was difficult and subsequent ones normal, and also with the rarer type of case in which the first delivery was normal and succeeding ones required interference (due to the first child being small, or the head settling into the inlet early in pregnancy and being more readily moulded). The case to be reported did not fall into either of these groups, for the first child was delivered by high forceps; the second normally, and the third by cesarean section, and yet the cesarean baby was smaller than the one delivered normally. The patient was white, born in Austria, and gave a negative history. The physical examination showed no deformities. Fortunately the three deliveries were in hospitals and accurate data were obtainable. In the sixth month of her second pregnancy the pelvic measurements were normal although the external conjugate was almost borderline, being 18.50 cm. The sacral promontory was not felt. When admitted to the Prenatal Clinic of the Woman's Hospital in the sixth month of her third pregnancy, May 18, 1920, the measurements were practically the same as before. The sacral promontory was not felt at this time though examined for. The chart showed a note stating that there was "some sacral flattening." The patient was admitted to the hospital at term, two hours before pains began. The head was unengaged (L.O.A.). The first stage lasted seven hours. The membranes were ruptured artificially at the beginning of the second stage. After six hours of hard labor the head was still unengaged and showed no tendency to pass the promontory. There was a large caput with marked overriding, and apparently good flexion. The sacral promontory could be reached. The diagonal conjugate was found to be 11.50 cm., making the true conjugate at least 9.50 cm. A cesarean section was performed and a child weighing 7 pounds 11 ounces delivered in good condition. This baby weighed six ounces less than the one delivered without interference, in the same hospital two years before, and was normal in every respect. The mother and baby were discharged in good condition on the fifteenth day. Examination in the Follow-up Clinic, one month after delivery, showed the promontory large, irregular, and projecting well forward into the inlet. The diagonal conjugate was again measured and found to be the same as before. The case was reported without comment as Dr. Lyon said he had no explanation to offer as to why such difficulty was encountered.

Dr. DOUGLAS BISSELL said Dr. DiPalma's case was identical with one, the only one of its kind he had had in his practice. It was a type of interstitial pregnancy which was the exception and not the rule. The rule in interstitial pregnancy was that the embryo developed to considerable size before rupturing, and that seemed logical because the ovum, when implanted in the uterine portion, had the uterine wall to protect it. When the case to which he was referring came under his care the woman was conscious but not exsanguinated, and with an almost imperceptible pulse. The patient was brought to the hospital with no history, but as the abdomen was greatly distended by fluid and the cause seemed self-evident, the abdomen was opened immediately. On opening the abdomen 500 c.c.

of salt solution was administered intravenously. At operation a great quantity of blood was removed from the abdominal cavity. The examination of the tubes and ovaries showed them to be normal, but near the juncture of the left tube and uterus a small rent was seen in the uterine wall, which he at once determined was the rupture of the interstitial pregnancy. They were more fortunate than Dr. DiPalma for in examining the clots the embryo was found, which the pathologist determined to be a five weeks gestation. This was the only case of interstitial pregnancy he had had, and he related it because he thought all such cases should be put on record.

Dr. GEORGE GRAY WARD, Jr., cited a case of interstitial pregnancy that came under his observation some years ago, which had all the characteristics of this terrible catastrophe. The patient was about 4½ months pregnant and was all right so far as she knew. She had severe pain during the night and a physician diagnosed ectopic pregnancy. He telephoned to the Post-Graduate Hospital that he was bringing her in an ambulance. On the way the ambulance collided with a bus, and the patient was pretty well shaken up and immediately went into profound shock. When she arrived at the hospital she was unconscious and presented all the signs of severe internal hemorrhage. She was taken at once to the operating room and the abdomen opened. The abdomen was filled with blood and an interstitial pregnancy was found. The entire horn of the uterus was blown off. This patient made a good recovery. Dr. Ward said that he also, like Dr. Bissell, cited this case for the reason that he thought all such cases should be reported, and because they constituted a class of cases in which delay was not allowable. If there was any suspicion of interstitial pregnancy, he believed the patient should be operated upon at once.

Dr. HERMANN GRAD said that in the series of 50 cases of ectopic gestation which he had reported at the last meeting of this Section, interstitial pregnancy occurred twice, and both types of rupture were exemplified. There was one in which there was a small opening in the uterus, and in the other the whole horn of the uterus was blown off and the hemorrhage was alarming. In this case the question came up whether or not a hysterectomy should be done. The patient was in no condition to stand an extensive operation, so he simply stopped the hemorrhage by sewing up the rent in the uterus. In the 50 cases there were two cases of ectopic pregnancy in which hysterectomy was done because of complicating conditions. Both of these cases made stormy recoveries. It seemed that it was not advisable to do a large amount of work in these greatly shocked cases.

Dr. FARRAR stated that in the only case of interstitial pregnancy that she had had, she opened the abdomen thinking she was dealing with a tubal pregnancy, and found an interstitial pregnancy that had not ruptured through. She was able to curette out the contents without the necessity of removing the tube that contained the embryo. She was inclined to think that interstitial pregnancy was more common than statistics would lead one to believe, as a case of this variety of ectopic gestation might rupture into the uterus and be mistaken for an intrauterine pregnancy and subsequent abortion.

X-Ray Changes in Two Cases of Fibromyoma of the Uterus, and One Case of Carcinoma of the Breast.—Dr. R. E. HERENDIEN reported these cases. He stated that the first patient, 58 years of age, was referred to the x-ray department of the Memorial Hospital for radiation of a large myoma. She complained of inability to void urine, obstinate constipation, nausea, and vomiting. A diagnosis was made of fibromyoma of the uterus holding the bladder up in front of it. The patient was given a series of x-ray treatments beginning Jan. 1, 1920. Three areas were exposed over the lower anterior surface of the abdomen at weekly intervals, each getting an exposure every three weeks. The dosage was 9—9½-inch spark gap, 4 milliamperes, at a distance of 8 inches for 4 minutes. Later this dose was increased. The patient was not operated upon because of a bronchitis and a heart condition, the heart being 1½ inches below the normal line and enlarged to the left. The second patient was 37 years of age, and was referred to the x-ray department in

April, 1920, for treatment of a large myoma. The tumor was situated in the lower abdomen chiefly on the right side. The patient complained of menorrhagia, weakness, nausea, eructations. She had marked anemia, the hemoglobin being between 30 and 40 per cent. and she was not considered operable on that account. She was given a series of twelve treatments, using the minimum skin toleration dose. This dose was gradually increased, three areas over the lower abdomen being covered, as in the preceding case. The patient now presented evidence of being an operable case.

The third patient was a woman 82 years of age with a carcinoma of the breast, which was inoperable because of her age. The lesion was large, ulcerating, and extended high in the mid-axillary line and to within one or two inches of the right border of the sternum. It was four to five inches in diameter, foul smelling, and there was considerable discharge. Treatments were begun in March, 1920, the entire right breast being covered, including the supraclavicular region and the right axilla. Eight treatments, in all, were given, and at the present time the ulceration was entirely healed. She had some axillary involvement, and a faint indefinite feeling of induration in the right axilla. There were no well marked glandular enlargements and this indefinite feeling of induration might be the result of radiation. This patient, in the speaker's opinion, presented evidence of the results that might be obtained in some apparently hopeless cases. When she first came under observation the lesion was so extensive that it scarcely seemed worth while attempting to do anything for her.

Dr. LEE asked whether in the second case of myoma the hemorrhage had ceased to any extent.

Dr. HERENDEN replied that it had decreased considerably.

Dr. GEORGE GRAY WARD, Jr., asked how much the fibroids had been decreased in size.

Dr. HERENDEN said that in the second case the fibroid had been reduced easily one-half. Perhaps some of the members of the staff of the Woman's Hospital who had examined the woman before she was treated could tell more exactly.

Dr. WARD asked whether the difficulty in urination in the first case had been relieved.

Dr. HERENDEN replied that the difficulty in voiding had ceased, but there had been no marked diminution in the size of the tumor.

Dr. FARRAR stated that Dr. Bissell had seen the first case and advised against operation on account of the bronchitis and cardiac condition. The tumor corresponded to the size of a five months pregnancy. Radium was introduced and there was considerable contraction of the growth. The patient had had great difficulty in emptying her bladder and had to be catheterized before she came to the hospital. This trouble disappeared after the use of radium, but Dr. Ward suggested that she be sent to the x-ray department to see what could be done to further contract the tumor.

Dr. LEROY BROWN asked Dr. Herenden if he had had any opportunity to observe the effect of treatment on the temperature curve. He had seen the temperature curve go up for two weeks after treatment and there was a very profuse uterine discharge.

Dr. HERENDEN replied that as far as he knew there was no change in the temperature. By questioning the patients they found that during the first treatments the bleeding was entirely controlled, but there was a great deal of seropurulent discharge.

Dr. BROWN said he asked the question because he had referred a case to Dr. Herenden and the results had been most gratifying. When the patient came into the hospital her hemoglobin was between 30 and 35 per cent., and she was having profuse uterine hemorrhages. A chronic cardiac condition absolutely precluded surgery. The uterine myoma extended to within two fingers of the umbilicus. The final result was that the tumor had contracted to the size of a three months pregnant uterus. Dr. Brown said he had asked about the discharge because in his x-ray treatment of this patient she developed a profuse mucopurulent discharge with temperature ranging from 102° to 104° F., together with an alarming pulse condition. It was found necessary to discontinue the

x-ray treatments. The patient's temperature gradually subsided as also did the mucopurulent discharge. Her condition steadily improved, hemorrhages ceased, and after the giving of two transfusions of blood of 500 c.c. each the patient was discharged with a hemoglobin of 45 per cent. and in excellent condition. The result was most satisfactory.

Dr. HERENDEN said the fact that the first patient was given a higher dosage was because of the thickness of the abdominal walls. She was a heavy woman and the amount of radiation available in such a patient was considerably less than in a normal person.

Dr. HERBERT L. CHASE, after examining the patient, reported that the uterus had contracted at least one-half since the time he examined her before the treatment. The tumor was practically up to the umbilicus; it was now $3\frac{1}{2}$ fingers above the pelvic brim.

Photographs of a Case of Large Hematoma of the Vulva.—Dr. LEROY BROWN showed two exquisitely colored photographs by Dr. Kilmer, which had never been shown before except at a conference at the Woman's Hospital. They represented an unusually large hematoma of the vulva following normal labor in a primipara. No instruments were used, and $\frac{1}{2}$ c.c. of pituitrin was given only in the first stage of labor when it could not have been a factor in causing this condition. The hematoma was so extensive that it occluded the vagina and pushed back the urethra so that it was almost impossible to catheterize the patient. Six hundred grams (1 $\frac{1}{4}$ pounds) of blood clot was removed, and a great deal was left behind adherent to the tissues. The seat of the original tear was in the left lateral wall of the vagina. The perineum was not visibly torn. While small hematomas were common such large hematomas were rare. In 20,000 cases reported by Dr. Lee there were five cases of large hematoma. The treatment of course was well recognized. The hematoma was incised, the blood clot removed, a few rough sutures inserted to hold the fascial layers together. The vagina was packed with gauze. A second operation would be done if necessary.

Dr. LEE asked how long after labor this hematoma appeared.

Dr. BROWN replied that this was Dr. Bridge's case. He left the patient one hour after labor. At the end of two hours she complained of a tingling sensation and pain. Examination showed a tumor, and at the end of two hours it had increased alarmingly.

An Analysis of Two Hundred Gynecological Cases Treated with Radium at the Woman's Hospital in the State of New York.—Dr. E. W. TITUS of Washington, formerly Resident Gynecologist of the Woman's Hospital, presented this study. He stated that 230 milligrams of radium element were put at the disposal of the Surgical Staff of the Woman's Hospital, in February, 1919. From that date to August, 1920, a period of eighteen months, it had been used in a total of 201 cases. The results obtained corresponded to those of others. In this series there were 95 cases of carcinoma of the uterus, 86 of the cervix, and nine of the fundus. Of the cases of carcinoma of the cervix there were 55 living, of which 24 were under six months after radiation. All but seven of these were too recent to report, were healed, and were free from symptoms. Twenty-four others were between six and twelve months after radiation and seven between twelve and eighteen months. Of these 86 cases of carcinoma of the cervix, 31 had died, 16 less than six months after radiation; 9 died between six and twelve months after radiation; six died between twelve and eighteen months after radiation. Two deaths were due to distant metastases, one to the lung and one to the liver. Another death two months after radiation was due to pneumonia, probably influenzal. As to symptomatic results, 64 per cent. of those complaining of pain had been relieved of it; in three per cent. of those complaining of pain, pain was increased. Hemorrhage and leucorrhoea had been checked in all but two cases. There was an improvement in general health with the disappearance of symptoms. There was a recurrence of hemorrhage in six cases after four to six months. The only sequelae sufficiently severe to demand treatment was occasional bladder and rectal irritation. Two fistulae resulted, one vesicovaginal and one rectovaginal. Seven cases of advanced car-

cinoma were living and free from symptoms, clinically cured a year or more after radiation. Four of these nine cases of carcinoma of the fundus had a complete hysterectomy. One had preoperative and postoperative radiation. All were clinically cured except two. Of carcinoma of the vagina there were five cases, one primary and four recurrent after hysterectomy; two were living, one clinically cured after twelve months, and one after six months. Three had died, one two months and two six months after radiation. There were two cases of cancer of the vulva, both living. One improved and later showed extension; the other was too recent to report. There were three cases of carcinoma of the breast, treated after radical removal. One died seven months later of extension to the mediastinum; the other two were free from recurrence after one year. In carcinoma of the urethra and bladder the results were not so good. There was relief of hematuria, but little effect was produced on the lesion. There were five cases of carcinoma of the rectum, all improved after radiation. Four were living, one six months and three over one year after radiation. One died after resection of the sigmoid from the shock of the operation. Of the non-malignant cases 44, 15 under and 29 over forty years of age, were cases of myoma uteri. The hemorrhage was controlled and there was a reduction in the size of the tumor in all. In two instances the tumor disappeared. There were 39 cases of menorrhagia and metrorrhagia under forty years of age, in which there was a control of hemorrhage in all but three cases. In these cases the dosage was governed by the age of the patient. In young women they had used small doses repeated if necessary. A six hundred milligram-hour application was considered safe. Under this dosage menstruation usually appeared normally in two or three months. With larger doses it might continue irregularly for two or three months and then cease. In one case following a 200 milligram-hour exposure for chronic endocervicitis, conception took place eight months later. Abortion took place at the third month. (Hydatid mole.) All cases in which leucorrhea was present previous to radiation were cured by it. There was a watery discharge for one or two weeks following radiation. Three cases receiving 2400 milligram-hour exposures suffered severe menopause symptoms, and 13 cases which received from 1500 to 2100 milligram-hour exposures suffered from mild menopause symptoms. In eight cases with 1200 to 1800 milligram-hour exposures the results were excellent. In carcinoma of the cervix radium had proven itself (1) the most dependable palliative in advanced cases; (2) a most reliable adjunct to surgery in the operable cases; (3) capable of relieving pain and prolonging life. In properly selected cases of myoma uteri it was a strong rival of surgery. In large tumors requiring operation it would control hemorrhage and allow delay until there was an improvement in health. In intractable menorrhagia of young women it had solved a difficult problem. It could be so applied that the reproductive function was not interfered with. Mortality and morbidity in gynecological practice had been materially reduced by the use of radium. Its power to prolong life made it an economic factor to the State. Radium might eventually remove carcinoma of the cervix from the domain of surgery. Radium was contraindicated in pedunculated subserous tumors and in myomata of young women than could be removed by myomectomy. Myoma associated with pelvic inflammatory disease should not be radiated.

Myomectomy Versus Radium and X-Ray in the Treatment of Fibroid Tumors in Women Under Forty Years of Age.—Dr. HIRAM N. VINEBERG read this paper. (See page 91.)

Dr. GEORGE GRAY WARD, Jr., congratulated Dr. Titus on his painstaking analysis of the records of the Woman's Hospital, and stated that he could bear witness to the care and accuracy with which he had drawn his deductions from these records. Dr. Titus had had the opportunity of seeing the results he reported in the follow-up clinic, so he considered his conclusions of value. Radium had been available at the Woman's Hospital for only eighteen months, hence the results, so far as the carcinoma cases were concerned, were only of tentative value, owing to the shortness of time these patients had been under observation. Dr. Ward empha-

sized the importance of making a thorough examination of the patient at the time the radium was being applied. At the Woman's Hospital they were using an anesthetic and made both an abdominal and a pelvic examination in order to recognize any complications that might exist. Often one's opinion might be changed after this examination under anesthesia. A diagnostic curettage was indicated in all cases with metrorrhagia or menorrhagia, as one might thus discover an unsuspected polyp, and it was known also that a fibroid might undergo malignant degeneration. As an after effect of the treatment there might be nausea and vomiting, though this was usually transient and need not be taken into consideration. As to the leucorrhea that had been reported as very troublesome by other observers, at the Woman's Hospital they had questioned the patients, examined them, and made careful records, and they could not note the excessive amount of leucorrhea which others seemed to have noted. He had talked to Dr. Viol of the Radium Chemical Company about this, and he thought it might be due to the extra distance gained by the use of the 1 mm. brass filter. It was not only that the beta rays were cut off, but there was an increase in the distance of 1 mm. in addition to the silver capsule holding the radium, and in this work 1 mm. made a difference which was of definite value. They had come to prefer two tubes of 50 milligrams placed in the uterus in tandem, because in this way a greater surface could be covered, which was an important point in a uterus that was enlarged, and they had found that they obtained better results when the radium was used in this manner. It was an interesting question as to whether operation should be combined with radium in cancer cases. He believed that in cases that were operable, or might become operable, it was safer to operate than to rely upon radium alone. Dr. Clark of Philadelphia and some others believed operation was unnecessary. He had had one early case of carcinoma of the cervix in which after the use of radium he did a radical Wertheim operation and had the entire specimen examined microscopically, and it showed no malignant disease. That case ought to show a permanent cure, but he had two other cases in which all evidences of the disease had disappeared after radium and in which the Wertheim operation disclosed the disease outside and beyond the uterus. One could not be sure that there was not involvement beyond the uterus in any case, so he thought it gave the patient a better chance if an operation was performed after radium had been used. Reuben Peterson reported in his series of Wertheim cases under observation over five years that 18 out of 47 cases were alive, approximately 40 per cent. If one could obtain such a percentage of radical cures after five years with the Wertheim operation he was very fortunate, and we should not cast aside any method that could produce such results. However, five years was not a sufficiently long period to enable one to say that the cure was permanent. Dr. Ward cited a case in which he did a Wertheim operation and the patient remained cured for five years, but in the fifth year she developed metastases in the bones of the pelvis and died thereof. Therefore, he believed that radium combined with radical operation where possible should give us the best results. He summarized the lessons from this report as follows: "We have three very valuable aids in combating cancer. Operation is very valuable as shown by Peterson. The x-ray is a valuable aid, and so also is radium. In employing these three valuable aids we must learn to individualize our cases, using sometimes one, sometimes another, and also in combination, according to the conditions which are present." Dr. Ward said he was heartily in accord with Dr. Vineberg's statement regarding myomectomy. In young women myomectomy was the proper procedure, and it should always be remembered that if a young woman had a small fibroid that was overlooked at the operation of myomectomy and it subsequently enlarged and caused trouble, still one had radium to fall back upon.

Dr. LEROY BROWN agreed with Dr. Vineberg and Dr. Ward with reference to the treatment of uterine fibroids. He was opposed to their treatment with radium or the x-ray. Of course, they all favored the treatment of hemorrhage with radium or x-ray under circumstances where they felt it would not be wise to submit the patient to surgery. Dr. Brown presented a chart

summarizing the results of a study of 1,500 consecutive cases of myoma uteri operated on at the Woman's Hospital from 1910 to 1917 (*American Journal of Obstetrics and Diseases of Women and Children*, lxxviii, 3, 1918) showing the many coincident pathological conditions associated with these cases, and an operative mortality of 1.86 per cent. Dr. Broun said his object in presenting the chart was to show that the majority of cases referred to the roentgenologist for treatment were sent by the general practitioner who had not had impressed upon him the fact that other conditions might coexist with a fibroid which precluded the use of the x-ray or radium for these cases. If they excluded the cases of carcinoma of the cervix and of pregnancy with fibroids, it would be seen that in the 1,500 cases tabulated 691 cases had some complication which precluded the use of x-ray or radium, and which, on the other hand, made it advisable to do a surgical operation. It was impossible to pick out these cases having complications; we did not know positively what other conditions were present, in addition to the fibroid, which made the general use of the x-ray and radium dangerous. In the cases that they felt were relatively uncomplicated and which were poor surgical risks they adopted the x-ray and radium by choice. As to the question whether the treatment of hemorrhage by radium necessarily abated the menstrual function, he had been under the impression that after a year or two the menstrual function returned. However, he heartily agreed with Dr. Vineberg that it was more conservative to do a myomectomy to prevent the fibroid from becoming large, for the larger the tumor the more likely was it that other pathological conditions would coexist.

Dr. HOWARD C. TAYLOR said there was little in the two papers with which he disagreed. With Dr. Vineberg he agreed entirely that a myomectomy involved a small risk and a small chance of return, and it could be done for extensive growths if necessary. He preferred to do a myomectomy to using radium in young women in most cases. With one statement he disagreed absolutely and that was that the treatment with radium was without risk. That was far from being true. He had seen one death result from radium treatment. That there was a certain amount of risk from radium must be borne in mind. There was a definite risk in overlooking malignant conditions and also in overlooking conditions that made the use of radium unsafe. This was true no matter how carefully an examination was made, even if made under an anesthetic. Dr. Taylor said the work done at the Woman's Hospital tallied almost exactly with his work and with his results. One thing he thought we should have was a standardized nomenclature for the dosage in the use of radium. One man spoke of so many milligrams, another of so many millicuries, and another of so much emanation. This difference in nomenclature was very confusing. At the Woman's Hospital the unit they were using was 100 milligrams, which was the amount used by most gynecologists throughout the country, and the description of the dosage and screening as given by these men were more valuable to him than when other terms were used. If we were going to understand the use of radium we must come to a common language. As to radium in fibroids, he had been employing smaller quantities than Dr. Titus reported were used at the Woman's Hospital, but he had been using the same screening. In regard to a discharge following radium treatment which Dr. Ward said their patients did not have, he thought this was not a matter of great import, because it disappeared in four or five weeks, and therefore could be ignored. Most of his cases, however, did have a watery discharge for a time after the use of radium and he always warned patients against it in advance. As to the use of radium in carcinoma of the cervix, he did not believe that we were going to give up operating in malignant conditions of the cervix. In treating a case of carcinoma of the cervix he gave the patient an anesthetic in practically every case to apply the radium. Under the anesthetic the radium could be placed in the most advantageous position, a piece of the uterus could be obtained for microscopic examination, and the extent of the disease with its bearing on operability could be determined. If the case were operable the operation should be performed in ten days or two weeks. The use of radium would diminish

the chance of implantation of metastases and also lessen the chance of infection by cleaning up the cervix as no other agent in his experience would do. The difficulty of the operation was not materially increased by the use of radium. If the operation were done too early there might be some increased risk of infection due to diminished resistance of the tissues.

Dr. EDWARD WALLACE LEE asked whether the anesthetic was repeated every time the radium was applied. If you repeated the radium treatment in six weeks or two months, would a specimen be taken each time by a punch or curette to determine what the diagnosis was after the first or second treatment. Dr. Lee asked Dr. Titus whether in the series of cases in which the detailed statistics were given the hemorrhage had been temporarily increased after the application of radium. He said he asked that because he had seen a number of cases in which the hemorrhage was increased after the application of radium, and he felt he could not trust to the continued use of radium and immediately resorted to operation. Dr. Taylor brought up a good point when he spoke of the confusing nomenclature in regard to radium emanations, milligram hours, etc. It would seem that we were coming to the time when the use of radium should be in the hands of the specialist. If the ordinary surgeon or the ordinary gynecologist thought he saw an indication for the use of radium or the x-rays he had to turn the patient over to a man who had that in charge. It was just like a drug, we might write the prescription but the druggist filled it, and in the same way we might prescribe radium and the patient went to the radium specialist for treatment, and we should be assured that the radium man knew his business in all the details.

Dr. BAILEY stated that the terms used in connection with the dosage were easy to understand. A millicurie was absolutely in balance with one milligram—they were exact equivalents. In reference to Dr. Herendeen's report of two cases of fibromyoma, the second case was a most excellent result from x-ray treatment. This tumor extended 8 cm. above the symphysis, and was perhaps as large as an orange. It was now one-third its former size. The first case had a large dose of radium and the result could hardly be attributed entirely to the x-ray. There were two different treatments with radium, one being 2,400 milligram-hours and one 1,200 milligram-hours, but with quite different filters from those he was using or those used by Dr. Clark. He had been using a platinum applicator which cut off all the beta rays and part of the gamma rays. This patient received three or four times the dose of radium he would give, so he thought the results could hardly be attributed to the x-ray. Dr. Bailey expressed surprise that more had not been said about the bad results of the treatment. His experience was that cases returned a number of years later showing bad effects, and therefore it was better to use a smaller amount of radium. The effect of the radium was to cause a fibroids which constricted the nerve ends. Even in large fibroids he used a smaller dose than that mentioned by Dr. Titus. It was evident that Dr. Titus's dose for fibroid was larger than his largest dose in cancer of the uterus. The correction, of course, had to be made for the platinum and brass filters. He hoped to get as good results and save one-half the radium by substituting brass for platinum, following the recent work of Dr. Failla on the penetration of the rays through different metals. The cancer problem was very intricate and the most unusual things happened. He had had two cases that after the use of radium had Wertheim operations and no cancer was found, and these patients died within a year or a year and a half. Another case in which the parametrium was filled with cancer cells, which, however, showed signs of the action of radium, was alive and apparently well after a year and a half, so there was a great question as to how we could take these results. He had come to the conclusion that operable cases should have small doses of radium and be operated upon. As to the fibroids, Dr. Broun's presentation was very illuminating. It showed a mortality of only 1.86 per cent. That might be lessened by radium, but the patients treated by radium in most instances still had some remains of their fibroids and there might be a marked morbidity among these. Operable cases of fibroid might be treated by radium only

when it was possible to use cross-fire. Where small doses only were available the operable case should not be treated by radium alone but by radium followed by operation. Of the fibroid cases, about 50 per cent. fell into the class suitable for radium treatment. In regard to the myopathic hemorrhage cases, they should have the amount of radium that allowed the woman to menstruate again. It was true that with a proper dose of radium they did menstruate and they even became pregnant. However, adjusting the dose to cure the condition and yet have a return to normal menstrual life a year later was a theoretical consideration that did not work out in practice with any degree of regularity.

Dr. DOUGLAS BISSELL asked if x-ray was equally applicable to pedunculated and sessile fibroid tumors, and whether radium could be applied successfully to pedunculated fibroids. He made this inquiry because some authors claimed that pedunculated fibroids were not benefited by the application of radium, and that there was at times much difficulty in differentiating between pedunculated and sessile fibroid tumors. Dr. Bissell cited two interesting cases which recently came under his observation, in neither of which could the diagnosis of pedunculated fibroid be readily made. In the first case, a woman married three months, examination revealed a solid mass in the abdomen extending to the diaphragm. The uterus could not be differentiated from the tumor. He was of the opinion that he had to deal with a large fibroid of the uterus complicating an early pregnancy. On opening the abdomen he found a ten-pound pedunculated fibroid attached to the fundus of the uterus by a pedicle one inch in diameter, and was able to remove the tumor without interfering with the existing pregnancy in the uterus otherwise normal. The second instance was encountered that morning. Examination showed two large tumors each as large as a grape fruit. One tumor extended to the region of the liver and the other occupied the true pelvic cavity, reaching as high as the navel. The first tumor he considered either a pedunculated fibroid or a thick-walled ovarian cyst. The second tumor he thought was a sessile fibroid of the corpus. On opening the abdomen he found the first tumor to be a pedunculated fibroid with a pedicle arising from the left side of the uterus, the tumor having been forced over to the right side of the uterus, and the second tumor was also a pedunculated fibroid with its pedicle rising from the right side of the uterus. This tumor was fixed in the pelvis and prevented all possibility of determining its true character. The uterine corpus was extremely small, the cavity measuring only one inch. The situation of the corpus was in the neighborhood of the coccyx, and therefore a very considerable distance from the fibroid tumors. This patient had been advised by a competent gynecologist in a neighboring state to have radium applied through the uterine cavity, and advised against operation. Dr. Bissell stated that after examining the specimen it was his opinion that the influence of radium through the uterine cavity would have been nil, because of the great distance between the uterine cavity and the tumors.

Dr. TITUS said that in regard to the question of increased hemorrhage, he did not recall any case in which the amount of hemorrhage was increased. He recalled a few patients who said they had quite a little hemorrhage following the treatment, but the first menstrual period was not more excessive than previously.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

OREGON STATE BOARD OF MEDICAL EXAMINERS.

July 6, 7, 8, 1920.

(Concluded from page 41.)

GYNECOLOGY.

1. Give the nerve and blood supply of the uterus.
2. What muscles constitute the pelvic floor.
3. Why do some women with retro displacements suffer, while others are free from symptoms of any kind?
4. Give the diagnosis and treatment of acute salpingitis.

5. Give the technique of Watkins' operation for pro-cidentia.

6. Give the diagnosis and treatment of cancer of the ovaries.

8. Discuss briefly the causes of sterility.

SURGERY.

1. Give symptoms, diagnosis and treatment of gall-stones.

2. Give cardinal rules for (a) treatment of recent wounds; (b) treatment of infected wounds.

3. Give symptoms and diagnosis of malignancy of the mammary gland; Give treatment in detail.

4. You are called at midnight to see a man of thirty, taken with severe abdominal pains; he has vomited once or twice and has most pain below the navel—with general tenderness over the entire abdomen; temperature 100°, and pulse 90, respiration 20. What would you do first and how would you differentiate between appendicitis, intestinal colic, and intestinal obstruction? Give treatment in brief.

5. Give the technique of tendon transplantation.

6. (a) Under what conditions may an abdominal wound be closed without drainage? (b) Give reasons for draining an abdominal wound and tell what kind of a drain should be used.

7. Give diagnosis and treatment of osteomyelitis.

8. Give symptoms, diagnosis and treatment of Pott's disease.

EYE.

1. (a) Name the diseases that the findings of the retina aid in diagnosis; (b) Define trachoma and glaucoma.

2. (a) How is the cornea nourished and what is its function? (b) Describe the technique for removing a piece of steel from the cornea. Name after-results that may follow.

3. (a) What is the iris and its function? (b) What do you mean by the fundus of the eye? (c) What is the macula of the eye?

4. (a) Give symptoms, diagnosis of ophthalmia neonatorum. (b) Name the sequelæ of improper treatment.

EAR.

1. (a) Give the symptoms of acute otitis media. (b) Why is the pain at times referred to the teeth?

2. Where should the membrana tympani be opened in doing paracentesis, and why?

3. What is the danger in doing a mastoidotomy?

4. Differentiate the diagnosis of impacted cerumen and furunculosis of the auditory canal.

ANSWERS.

GYNECOLOGY.

1. *The nerve supply of the uterus:*—From the sympathetic system (hypogastric, renal, spermatic and aortic plexuses), and from the second, third, and fourth sacral nerves.

The arteries which supply the uterus are the uterine and ovarian.

2. *The muscles which constitute the pelvic floor, are:*—Levator ani, coccygeus, sphincter ani, transversus perinei, and constrictor vaginae.

3. "There is some difference of opinion as to the part played by a backward displacement of the uterus in the causation of symptoms, which are so often found accompanying the condition. Some hold that retroversion *per se* does not produce troublesome symptoms; they state that normally the uterus is constantly changing its position, according to changes in the condition of the bladder and bowel, and that it may, when turned to the back, trouble the woman as little as when turned to the front. They state that the symptoms which are so often found along with retroversion—*e.g.* pain and weakness in the back, menorrhagia, etc.—are due to accompanying inflammations outside the uterus, inflammations in the uterus itself, subinvolution, or some prolapse of the organ."—(Webster's *Diseases of Women*.)

4. *SALPINGITIS. Diagnosis:* A dragging sensation in the neighborhood of the affected tube; colicky pain, which is increased on exertion or even on standing; abdominal tenderness; menstrual disorders, as amenor-

rhea, metrorrhagia, dysmenorrhea, menorrhagia; dyspareunia; there may be septic symptoms and peritonitis; sterility generally ensues. On examination there will be found a fullness in Douglas' pouch and one or both lateral fornices; in these latter will be felt either the tubes, distorted and possibly adherent, or a sausage-shaped tumor, which is very painful; the uterus is retroverted or retroflexed, and may be bound down by adhesions; there may be an intermittent expulsion of pus accompanied and preceded by a burning pelvic pain.

Treatment: Rest in bed, hot vaginal douches, saline purgatives, liquid diet, morphine (if necessary) for pain, removal of pathological conditions and complications; radical operation (salpingectomy, or salpingo-oophorectomy) may be necessary.

5. **Watkin's operation for procidentia:**—"This operation is specially adapted to cases of extensive cystocele and uterine prolapse in women who have passed the menopause or who have been rendered sterile by operation. The object is to bring the uterus down through the anterior vaginal cul-de-sac and to pocket it between the anterior vaginal wall and bladder. In this way it serves the double purpose of supporting the cystocele and preventing descent of the uterus. The patient being placed in the lithotomy position, the cervix is grasped with a volsella and a crescentic incision made anteriorly at the cervicovaginal junction. A second incision is carried from this along the median line of the anterior vaginal wall to within an inch or less of the meatus urinarius. This incision should be carried down to, but not injure, the muscular wall of the bladder. The bladder is next separated from the uterus by a finger covered with gauze and the peritoneum perforated, either by thrusting a finger through it or by snipping with the scissors. This opening should be stretched sufficiently to permit the delivery of the uterus through it. The firm attachment of the uterus to the bladder along its median line makes it safer in many cases to liberate the sides first. The anterior vaginal wall is now separated from the bladder by blunt dissection, first on one side of the median incision and then on the other. This dissection is facilitated by grasping the edge of the incision with a long-handled forceps and pushing off the bladder by gauze pressure. These vaginal flaps should be sufficiently large to cover the uterus after it is brought into the vagina. The uterus is now delivered into the vagina and covered with the flaps. Two or three stitches at intervals of an inch or more, passed through the edges of the flaps and underlying uterus, secure the latter in place. The uterus should not be drawn down so far as to interfere with urination by pressure on the urethra, though it should be sufficiently low to give support to the cystocele. A continuous catgut suture along the line of incision completes the operation. The after-treatment is such as is usual for vaginal operations."—(Gilliam's *Text-Book of Practical Gynecology*.)

6. **Cancer of the ovaries** "Ascites is one of the first symptoms to attract attention. This is especially true of the cauliflower variety, where it declares early and becomes pronounced. Edema of the feet and ankles from pressure on the large vessels is also an early and suggestive symptom. The progressive loss of flesh and strength, the rapidity of the growth, the ascites and edema of the lower extremities taken together make an ensemble of symptoms that scarcely admits of misinterpretation. Pain is often wanting or of moderate intensity. Early in the papillary and later in the parenchymatous form infection of the peritoneum and adjacent organs occurs, followed by the development of cancerous nodules. Infiltration of the cellular tissue of the broad ligament often leads the growth to the depths of the pelvis. Large accumulations of ascitic fluid may obscure the diagnosis by interfering with the necessary manipulation. In such, the fluid may be drawn off by the trocar, or preferably, through a small abdominal incision, through which a finger may be passed into the abdominal cavity and the character, extent, and location of the growth determined."

Treatment:—"When the disease is confined to the ovary the organ should be removed, with as much of the broad ligament as is compatible with safety. It is also better to remove the opposite ovary even though it be apparently sound. Implication of the broad ligament to the slightest degree should be met by the removal of

the uterus. In case the broad ligament is infiltrated to any considerable extent, or cancerous nodules are found on the adjacent viscera or in Douglas' pouch, operative interference will be fraught with special danger and will be unavailing."—(Gilliam's *Text-Book of Practical Gynecology*.)

8. **The most common causes of sterility are:** Gonorrhea; malformation, maldevelopment or absence of any part of the genital tract; obesity; alcoholism; fistula; traumatism; dyspareunia; pelvic inflammations; lacerations; anemia; incompatibility; frequently the cause is to be found in the male.

SURGERY.

1. **The symptoms of gallstones are:** "Indefinite pains; fullness in right hypochondrium and epigastrium. *Paroxysms of colic* begin in hypochondriac and epigastric regions, spread toward navel and right scapula; generally begin in daytime, during exercise, and last a few minutes to several hours; collapse, sickness, or vomiting. *Sickness and malaise*, quite independent of colic. *Vomiting*.—At end of paroxysm; bile-stained vomit; calculus is rarely vomited. *Collapse*.—Feeble pulse; clammy skin, low temperature. *Calculi in feces*.—Absence in some cases accounted for by stone having failed to reach the intestine. *Jaundice*.—Usually occurs 12 to 36 hours after colic; skin, urine, conjunctivæ are yellow; feces are clay colored and offensive; rarely, and in old people, jaundice occurs without preceding colic; does not occur when stone is in cystic duct; is partial, i.e. feces contain bile when obstruction is partial, or when fistulous communication exists. *Temperature*.—Sometimes rigors, with temperature 103° or more, occur after colic; probably due to septic infection at seat of ulceration; fever may be of an intermittent type, associated with catarrh of bile-ducts and an impacted calculus; may be remittent, and lead on to septicemia or septic endocarditis; associated with suppuration in bile-ducts."—(Synopsis of Surgery.)

Diagnosis.—Usually follows from association of colic with jaundice, and there may be palpable gall-bladder or stone in feces.

From renal colic.—In this: Pain radiates into pelvis and thigh; vesical irritation, crystals in urine.

Lead colic.—In this: Chronic constipation, blue line, etc.

Gastric ulcer.—In this: Relation of pain to meals.

Cancer of head of pancreas—In this: Fixed tumor, loss of flesh, deep jaundice associated with enlargement of gall-bladder.

Membranous colitis.—In this: Casts and shreds of colon are passed.—(Synopsis of Surgery.)

Surgical treatment. Cholecystostomy is done through an incision parallel to and 1½ inches below the costal margin over the gall-bladder. The liver is drawn up and the intestines packed away with gauze. If the gall-bladder is distended the fluid is removed by tapping it with a trocar and cannula. The opening is then enlarged, and the stones are removed with a scoop. The bile-ducts are examined along their whole course by a finger externally, and by a long probe internally. If the interior is fairly healthy, the opening is sutured with two layers of continuous sutures and the abdomen is closed. Usually it is necessary to drain the gall-bladder for a time, in which case the margins of the opening are stitched to the peritoneum and transversalis fascia of the abdominal wound. The fistula thus established soon closes if there is no obstruction to the passage of the bile into the intestine. If not, it must be closed by a plastic operation or cholecystenterostomy.—(Aids to Surgery.)

2. **The general indications in the treatment of recent wounds are:** To stop the bleeding, combat shock, remove foreign bodies and dead tissue, make aseptic, put the edges in apposition, drain (if necessary), dress, secure rest to the part, allay undue pain, and combat inflammation.

In treating infected wounds, the first principle is to disinfect.

"Infected wounds should be opened freely to secure drainage, and hopelessly damaged tissue should be curetted or cut away. The wound should be washed with peroxide of hydrogen and then with corrosive sublimate, dusted with iodoform or orthoform, either drained with a tube or packed with iodoform gauze, and dressed with

hot antiseptic fomentations. The part must be kept at rest and internal treatment should be stimulating and supporting. If lymphangitis arises, the skin over the inflamed vessels and glands is to be painted with iodine and smeared with ichthyol, and quinine, iron, and whiskey are given internally. The temperature is watched for evidence of general infection or intoxication. The patient must be stimulated freely, nourishing food is given at frequent intervals, pain is allayed by anodynes if necessary, and sleep is secured."—(Da Costa.)

3. The breast should be thoroughly and carefully examined. Diagnosis is generally easy in advanced cases; "but in the early stages, when radical treatment is so essential, a cancerous tumor may be confused with inflammatory and other benign swellings. In *chronic inflammatory thickening* the skin may be pitted, and the tumor fixed in the breast, and ill-defined; but the whole gland is often uniformly enlarged, scars of old abscesses may be visible, and the glands are swollen at an earlier stage, and to greater size than in cancerous conditions. *Adenomata* are generally clearly limited and freely movable; there is no dimpling of the skin, and the lymphatic glands are not enlarged. *Tense cysts*, when fluctuation cannot be elicited, are similar in most of their symptoms to adenomata; and differ from 'malignant cysts' by the absence of adhesions or extension of the disease to lymphatics. *Sarcomata* are more rapid in growth and soon involve the skin, and do not affect the glands in the early stages. *Duct cancers* are apt to be multiple, are more circumscribed, and are specially distinguished from scirrhus by the bloody discharge from the nipple; they differ also from simple papilliferous cysts of the ducts by the tumor invading the breast. *Epi-thelioma* of the areola or nipple differs from eczema in its intractability to soothing treatment; and from scirrhus in its superficial and more localized situation, at all events in the early stages. In cases of *doubtful* diagnosis it is advisable to prepare for a radical extirpation of the disease; but first to incise the tumor and remove a piece from the growing edge for immediate examination."—(Buchanan's *Surgery*.)

The presence of a tumor, dimpling of the skin, retraction of the nipple, with cachexia, enlarged lymphatic glands in axilla or above or below the clavicle, and microscopical examination of an excised piece of the tumor all aid in the diagnosis of malignant growth of the breast. *Treatment* should be early and thorough. However small the tumor may be, the entire breast and its corresponding lymphatic area, as high as the apex of the axilla, should be removed; for, once infection of the lymphatic spaces has occurred, the whole lymphatic area must be looked upon as infected. Successful operations depend upon a knowledge of the *lymphatics* and *extent* of the breast. The lymphatics begin in plexuses around the acini, which converge to vessels running along with the ducts and end in a sub-areolar plexus. From this three or four main lymphatic trunks run to the axillary glands. In addition, lymphatics run along the suspensory ligaments to the skin all over the prominence of the breast from the interacinous plexuses. Also vessels leave the deep part of the breast to join lymphatic plexuses in the pectoral fascia. The plexuses in the fascia run to the axilla, and also communicate with those in the pectoralis major. Lymphatic vessels pass into the mediastinum, and also communicate with those of the opposite breast and axilla. The extent of the breast is much greater than the prominence would lead one to believe. It extends almost to the clavicle, just to the edge of the sternum, down to the seventh rib, and out to the mid-axillary line. The points, then, in operating are that the whole breast, the skin over the prominence, the pectoralis major muscle (except the clavicular portion), the fat, fascia, lymphatic vessels and glands of the axilla must be removed, and in one piece, for if cut across at any part there is danger of stranding cancer cells on the wound and so infecting it with growth. Removal or division of the pectoralis minor facilitates the cleaning of the axilla.—(*Aids to Surgery*.)

4. What is the *first thing* to be done will depend upon circumstances. Ordinarily one should not give morphine until the diagnosis is clear, as opiates are certain to mask some of the signs. On the other hand, if the pain is relieved to some extent a better examination can be made, and so there may be more certainty

in the diagnosis. The case is probably one of appendicitis.

Diagnosis of acute appendicitis: "When the three cardinal symptoms of the disease are present—that is, sudden onset of acute abdominal pain, followed by vomiting, occurring in one previously well; unilateral rigidity of the right lower abdominal wall; tenderness over the site of the appendix—the diagnosis of appendicitis is warranted in nearly every case. . . . Failures in diagnosis, however, may often be explained by the fact that the initial symptoms were insignificant, were lost sight of or were obscured by the injudicious use of opium. The commencement of an attack of acute appendicitis may very closely simulate acute indigestion, in that there occur vomiting, colicky pains, often implicating the entire abdomen, and tenderness. But in acute appendicitis there is nearly always a certain *sequence of symptoms*—pain, vomiting, tenderness—and rigidity of the rectus muscle is nearly universal. If this sequence of symptoms—(1) pain, (2) vomiting, (3) tenderness—is altered, the diagnosis of acute appendicitis may well be considered doubtful; and where acute appendicitis is present and these symptoms have not occurred in the order described, other signs are generally present which render the diagnosis certain. Fever nearly invariably appears later than the three symptoms first mentioned."—(Deaver.)

"In *acute obstruction*, as in appendicitis, the pain is first appreciated about the umbilicus; but in acute obstruction it remains in that region, does not pass to and localize itself in the right iliac fossa, and is not associated with tenderness of the right iliac fossa. In obstruction the vomiting is persistent; in appendicitis, except in the beginning, it is usually trivial and often absent, although in children it may be violent and persistent. In acute obstruction shock is much more pronounced than in appendicitis, and early and great distention of the abdomen is noted. The temperature in obstruction is usually subnormal; while in appendicitis, at least in the majority of cases, the temperature is distinctly elevated. Further, in acute intestinal obstruction the constipation is absolute, except in cases of intussusception."—(Da Costa's *Modern Surgery*.)

In *intestinal colic*, there may be vomiting, diarrhea, and flatulency. There is no local rigidity or tenderness, and the pain is more diffuse.

Treatment of acute appendicitis: The patient should be kept in bed; no food is to be given for the first twenty-four hours; after this, fluid and jellies may be given; cooling drinks may be allowed in moderation; the pain can be relieved by hot or cold applications on the right iliac region, or morphine may be given if necessary (and only after the diagnosis has been made); an enema of olive oil or glycerine may be given to empty the bowels (if loaded).

The indications for operation vary according to the views of the surgeon. Some maintain that every case of appendicitis should be operated on as soon as the diagnosis is made. Others would operate only in case of rupture, or when suppuration occurs, or in cases which do not improve in a week or so, or in cases which are steadily getting worse. Probably all would agree in taking out every appendix that has undergone more than one mild attack.

5. *Tendon transplantation*: "Having exposed the field of operation by an incision harming the adjacent structures as little as possible, and having isolated the involved and the sound tendons, the technic of grafting may be accomplished in several ways—one of which is—*Tendon-grafting by lateral attachment*: In the case of a divided tendon, the distal end is freshened by an oblique paring. In the case of a paralyzed (undivided) tendon, it is divided obliquely. That portion of the sound tendon to which the involved tendon is to be attached is freshened upon its lateral aspect—to which the obliquely divided distal end of the injured, or paralyzed, tendon is now sutured with gut by peripheral coaptation sutures, or other form of suturing. Sometimes the paralyzed tendon is not divided, but its lateral aspect freshened, just as in the case of the sound tendon—these aspects being then brought together and sutured. Especially would this be indicated where it is possible for the structure of the paralyzed muscle eventually to regain its functioning. The wound is finally closed in the usual way, and the limb put up

upon a splint in such a position as to secure relaxation of the parts."—(Bickham's *Operative Surgery*.)

6. *An abdominal wound may be closed without drainage*, if the wound is an aseptic one, if there has been no severe hemorrhage, and if there has been no damage to any viscus. *Drainage is necessary* if there has been a severe hemorrhage, if the stomach or intestine has been ruptured and the contents have escaped into the abdominal cavity, and if there has been any damage to the liver, spleen, pancreas or kidneys; also if pus is present. Drainage is necessary in most cases of peritonitis, and may be effected by rubber or glass tubes with or without gauze wicks, or a cigarette drain.

7. *Osteomyelitis. Symptoms:* Sudden onset; pains, tenderness, fever, chills, swelling of soft parts; sometimes the joint can be moved gently without pain; septicemia or pyemia may be present. It is to be diagnosed from (1) *Rheumatism*, in which more than one joint is affected and the tenderness is in the joint, and not near it. (2) *Tubercular arthritis*, in which the onset is slow and the trouble starts in the epiphysis rather than in the diaphysis. (3) *Cellulitis* in which the bone and periosteum are not affected, and in which there is always a wound.

The treatment consists in relieving constitutional symptoms and preventing the bone from necrosing. An incision down to the bone is made; if pus is beneath the periosteum, the latter is also incised; a piece of bone is removed by chisel or trephine, pus is removed, the endosteum is hurt as little as possible, the wound is irrigated with hot bichloride solution and packed with gauze; the soft parts are closed and the wound well drained. If this fails, amputation may be necessary.

8. *Pott's disease of spine:* "There are three typical signs—pain, rigidity, and deformity; and there may be abscess and paraplegia. Rigidity is the most important of these signs. 1. *Pain*.—In the early stages it may be only of an aching character. Local pain is that felt in the situation of the diseased bones, and tenderness may be elicited by percussion over the spinous processes. Referred pain is produced by pressure on the roots of nerves in the intervertebral foramina, and is felt at their cutaneous terminations. If in the lumbar region pain may be felt in the legs; if in the dorsal region, pain may be felt in the abdomen, chest, or arms; if in the upper cervical region, pain may be felt over the upper part of the chest or back of the head. 2. *Rigidity* is invariably present. In the early stages it is due to muscular contractions to steady the painful part. In an adult it can be demonstrated by getting him to go through various movements while a hand is kept over the suspected area. The limitation of movement is better felt than seen. In a child, it is better to lay it on its face and test the flexibility by grasping the ankles, and so raising the legs and pelvis. If rigidity is present, the whole body is raised instead of the back being curved. In the later stages, when repair has taken place, the rigidity is due to bony ankylosis. Secondary curvatures restore the upright position of the body. 3. *Deformity* is due to falling forward of the upper part of the spine as the vertebral bodies become destroyed, so that cases cured in the early stages present none. Where only two are involved the deformity is angular; where a large number are affected the deformity is a curvature. When the curvature is in the dorsal region, the sternum becomes convex anteriorly, and the intercostal spaces are diminished or obliterated."—(*Aids to Surgery*.)

The diagnosis of spinal caries is easy when the characteristic deformity is well marked; but in the early stages the most reliable sign is rigidity. Tumors of the spine and aneurismal erosions may simulate caries; but as a rule other signs are present, and the symptoms steadily progress in spite of treatment.

Treatment consists chiefly in immobilizing the spine and taking the weight of the body from above the seat of disease by some form of support.

EYE.

1. *Diseases, the diagnosis of which may be aided by the findings of the retina:* Errors of refraction, retinal hemorrhage, optic neuritis, optic atrophy, embolism or thrombosis of the central artery, tubercles of the choroid, cerebral lesions, syphilis, tuberculosis, locomotor ataxia, arteriosclerosis.

Trachoma is an inflammatory condition of the conjunctiva, accompanied by hypertrophy, granule formation, and subsequent cicatricial changes.

Glaucoma is a diseased condition of the eye, produced by increased intraocular pressure, and resulting in excavation and atrophy of the optic disc, and blindness.

2. The cornea is nourished by lymph.

The function of the cornea is to render the entering rays of light slightly more convergent.

To remove a piece of steel from the cornea: "Small sharp objects often become firmly fixed in the cornea, and if not readily seen by daylight should be searched for with the aid of a lens or binocular magnifiers and artificial illumination. Apply a 2 per cent. solution of cocaine until the conjunctiva is insensitive, and then, standing behind the patient, remove the foreign body with a small spud, or if firmly embedded, with a mounted needle. If a piece of steel or iron has been fixed for some time, a ring of rust will remain after it has been extracted; this need not be removed. Bandage the eye for twenty-four hours, and if the irritation is severe use atropine and hot fomentations. The removal is rendered easier by gently fixing the globe with the left index-finger, pressing through the lower lid.

"A foreign body, especially a chip of iron or steel, is sometimes driven almost through the cornea, so that one end projects into the anterior chamber; it is then impossible to remove it by the ordinary way, and a broad needle must be entered toward the margin of the cornea, and its end used to press up the foreign body, while the wound is enlarged and the foreign body extracted; this operation requires much care, and it is best to give an anesthetic before it is attempted. The foreign body may be driven right through the cornea, so as to rest in the anterior chamber, or to be fixed in the iris or lens; to remove it make a small corneal section, and seize the fragment with fine iris-forceps. If the foreign body be iron, it may be removed by the fine point of an electro-magnet introduced through a corneal wound, or with the help of Haab's giant magnet. Some of the modern hard steels are non-magnetic; inquiry should be made as to the source of the fragment. If the lens capsule has been wounded cataract will certainly follow. If the foreign body be fixed in the iris, a small piece of the latter may be excised, bringing with it the fragment.

"When a piece of iron or steel remains embedded in the eye it becomes firmly encased in fibrous tissue. Chemical action set up by the presence of the metal causes changes in the eye, vitreous degeneration and opacities, gross pigmentation of the choroid, and optic atrophy. If iritis should supervene or the eye be blind, it should be excised without delay for fear of sympathetic disease."—(*Aids to Ophthalmology*.)

3. "The iris is a colored membrane, circular in form, hanging behind the cornea immediately in front of the lens, and perforated in its center by an aperture of variable size, the pupil; it serves to regulate the amount of light admitted to the interior of the eye, and cuts off the marginal rays which would interfere with the sharpness of the retinal image. Its peripheral border springs from the head of the ciliary body and the ligamentum pectinatum. Its free inner edge, the boundary of the pupil, lies upon the anterior capsule of the lens when the pupil is contracted or moderately dilated; with maximum dilatation of the pupil it hangs free in the anterior chamber. The iris separates the anterior from the posterior chamber of the eyeball. Its anterior surface presents great variation in color in different eyes, and is marked by radially directed, wavy lines, converging toward the circle of irregular elevations and small depressions (crypts) situated near the pupil; other finer lines are seen extending from this ring to the pupil. This appearance is produced by the subiacent blood-vessels."—(*May's Diseases of the Eye*.)

The functions of the iris are: (1) To regulate the amount of light which reaches the retina (in intense light the pupil becomes smaller); (2) to lessen spherical aberration by cutting off peripheral rays of light.

The fundus of the eye is the posterior part of the interior of the eye as seen through an ophthalmoscope.

The macula of the eye is the yellow spot of the retina and is the spot of clearest vision. It is on the inner surface of the retina. It is situated a little to the temporal side of the entrance of the optic nerve.

4. **OPHTHALMIA NEONATORUM.** *Causes:* The gonococcus or some other pyogenic microorganism; the secretions of the mother contain the infecting agent, and transmission may occur directly during parturition, or indirectly by the fingers of physician or nurse, cloth, instruments, etc.

Symptoms: Swollen eyelids, with copious purulent discharge.

Sequelæ of improper treatment: Ulceration of the cornea may ensue, and this may be followed by blindness.

EAR.

1. *Symptoms of acute otitis media:* Pain and deafness in the affected ear, slight fever, prostration, slight tinnitus.

The pain may be referred to the teeth, because ear and teeth are both supplied by branches of the same nerve (fifth cranial).

2. The particular quadrant which should be incised depends upon the condition calling for the operation. The incision should be made sufficiently long; a mere puncture is not sufficient. If possible the incision should be so placed that the opening will extend from near the floor of the canal upward and through the bulging portion of the membrane. The surgeon should avoid touching the auditory ossicles.

3. The danger in mastoidotomy is: Infection of or entry into lateral sinus or cranial cavity.

4. In impacted cerumen, there is generally sudden deafness without other symptoms such as vertigo or pain; there may be a feeling of fullness and discomfort, and cough.

In furunculosis there is severe and throbbing pain which is made worse by talking and by eating.

Inspection is necessary.

Books Received.

THE MEDICAL RECORD is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.

REPORT OF THE U. S. INTERDEPARTMENTAL SOCIAL HYGIENE BOARD for the Fiscal Year Ending June 30, 1920. 272 pages. Government Printing Office, Washington.

SLEEP WALKING AND MOON WALKING. By J. SADER, M.D. 139 pages. Published by the Nervous and Mental Diseases Publishing Company, New York.

INJURIES OF THE PERIPHERAL NERVES. By HENRY S. SOUTTAR, M.D., and EDWARD W. TWining, M.D. 152 pages with illustrations. Published by William Wood & Company, New York.

MALARIA AT HOME AND ABROAD. By S. P. JAMES, M.D. 234 pages with illustrations. Published by William Wood & Company, New York.

STUDIES FROM THE ROCKEFELLER INSTITUTE OF MEDICAL RESEARCH, Reprints Volume XXXV. 616 pages with illustrations. Published by the Rockefeller Institute for Medical Research, New York.

TYPES OF MENTAL DEFECTIVES. By MARTIN W. BARR, M.D., and E. F. MALONEY, M.D. 179 pages with illustrations. Published by P. Blakiston's Son & Company, Philadelphia.

TRANSACTIONS OF THE AMERICAN OTOLOGICAL SOCIETY, Volume XV. Part 11. 199 pages with illustrations. Published by the Society Mercury Publishing Company, New Bedford.

SURGICAL PATHOLOGY AND MORBID ANATOMY. By Sir ANTHONY A. BOWLEY, M.D., and Sir FREDERICK W. ANDREWS, M.D. 651 pages with 210 illustrations. Published by P. Blakiston's Son & Co., Philadelphia.

NOUVEAU TRAITE DE MEDICINE. Edited by G. H. ROGER, F. WIDAL, P. J. TEISSIER, and MARCEL GARNIER. Vol. I, Infectious Diseases. 482 pages with illustrations. Published by Masson et Cie., Paris.

NITROUS OXIDE-OXYGEN ANALGESIA AND ANÆSTHESIA IN NORMAL LABOR AND OPERATIVE OBSTETRICS. F. H. McMECHAN, M. D., Editor. 97 pages. Published by the National Anesthesia Research Society.

Therapeutic Hints.

Carbolic Acid in Influenza.—C. B. Richardson, if called to see an adult having temperature, headache, pains, etc., gives phenacetin, grs. 3-5, every four hours for a day or two. Then the following carbolic acid mixture is given every four hours if cough and lung symptoms predominate, every three hours for milder and suspicious cases:

R Glycerini acidi carbolici.....ꝑꝑ lxxx
Glycerini 5iij
Syr. papaveris 5iij
Aq. ad 5viii

Sig. q. q. iv. h. vel ter in die.

He has never observed carboloria or unpleasant symptoms, and patients do not mind the taste, which is to an extent covered by syr. papaveris. The mixture rapidly relieves the cough, cleans the tongue, and tends to abort lung complications, if the case is seen early.—*The Practitioner.*

Toothache.—David I. Macht calls attention to the use of benzyl alcohol for toothache. Benzyl alcohol either alone (100 per cent.), or, still better, when mixed with an equal part by volume of chloroform, furnishes a most efficient anodyne for toothache, when introduced on a pledget of cotton into a tooth cavity, or applied to an exposed nerve. The relief thus obtained is almost instantaneous, marked, and long-lasting. He knows of no other drug, with the exception of cocaine, which is more efficient in relieving toothache. As benzyl alcohol is the least toxic of all the well-known local anesthetics, the repeated and free use of such a combination as described is free from the objections which are raised by the employment of cocaine, and it can be administered with impunity even to small children.—*Journal of the American Medical Association.*

Epilepsy.—John McCartney, from his experience in the treatment of epilepsy in an asylum, recommends a mixture containing potassium bromide and sodium bichlorate. The benefit of this treatment was very marked in all the wards; in two, where it had been in use for four months, the fits were reduced by 64 per cent., and in two other wards in which the treatment was commenced about six weeks before this report there was a reduction of 68 per cent. This method has been tried in forty-two cases. In all there was marked improvement in the mental state of the patients, and in all except one the number of fits was reduced. It was also noted that there was a great reduction in the amount of sedatives used and a marked diminution in the number of accidents which occurred.—*British Medical Journal.*

Ether Injections in Whooping-Cough.—In certain quarters in France the treatment of choice for whooping-cough is by intramuscular injections of ether. Weil and Dupur, who introduced the method in 1914, claim excellent results, while Variot and Audrain have noticed remarkable cures and complete failures. Audrain explains the failures on the basis of faulty diagnosis, holding that acute congestion affecting adenoid conditions of the nasopharynx may give rise to symptoms resembling those of whooping-cough. Up to the age of eight months a dose of 1 c.c. is sufficient; in other children 2 c.c. are injected. The injections are made every second day. Bronchopneumonic complications appear to be benefited thereby.—*The Medical Press and Circular.*

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AMNESIA—THE SUBCONSCIOUS WAREHOUSE.

By J. ALLEN GILBERT, Ph.D., M.D.,

PORTLAND, ORE.

THE following history teaches so many lessons and illustrates so beautifully many of the characteristics of the subconscious that it is deemed advisable to give it permanent record. The name in the record has been modified somewhat so as to conceal identity and yet so changed as not to destroy the peculiar coincidences which occurred during treatment.

Mrs. B. came to me Oct. 8, 1920, referred by Dr. James F. Bell. She had arrived at Portland at

11 A. M. about one month previous, with her past an absolute blank. Feeling hungry, she went to a nearby restaurant, ate breakfast, and from there went to a hotel to think things over and get her bearings.

So far as conscious memory was concerned, there was nothing—not even her name. The morning newspaper lay open before her in the restaurant. Realizing that she did not have much money, she took the telephone number of an advertisement for an attendant in a hospital. She went to see the place and found, to her disappointment, that it was a hospital for the Alaska insane. When she went to register her name in the hotel, she started to write rather automatically without any definite ideas as to what she was going to write. Automatically she wrote "Broo—" and having nothing in mind to complete a real name she hastily added "ks." When she came to my office, she insisted that her name must be something like Brooks, because that name seemed to feel all right to her.

As soon as she took up her duties at the hospital she figured out that she had better keep a diary so that, if anything further of unusual nature should happen, she would not be without knowledge of the crucial events. Consequently she wrote out important events, continuing the process at my request after she consulted me nearly a month later. These notes are so significant that they are transcribed below, preliminary to a narration of the treatment as such.

I will try and write down what I can remember since yesterday. My head aches all the time and I forget so easily. I am in Portland and do not know how I got here. I found myself on the train in a sort of a daze with little money and no place to go. I got off with the other passengers and walked along and went in some place to eat. I picked up the paper that was on the table, hoping that it would help me to remem-

ber. The name Portland seemed familiar. So I ate my breakfast and read what I could, but was unable to locate myself. I seemed to feel somehow that I was alone. I did not feel sick. In fact, after eating I felt better and with so little money wondered what I should do. I had a bundle with a brown silk dress, umbrella, and also had a big brown coat and night dress, but nothing else. I never thought of applying to the police for help until to-night and now I'm glad I didn't. I am perfectly sensible, but have forgotten even my name. I ate my breakfast and went to the nearest hotel and thought I would lie down, as it was very early. I have forgotten the name of the place, but it is near the depot. They asked me to register and as I was about to write my name I seemed to get mixed. I know it isn't what I wrote, but it will have to do until I can remember better. I bought another paper of another kind, but neither places nor names were familiar. I read the ads and saw where they wanted an attendant at a local hospital. So I went to the telephone and I called up the place. It was a hospital and I told them I would go out. I came, thinking that if I were to take sick it would be the best place for me, and I found when I reached here an insane asylum for Alaska patients. I was very nervous about staying, but as I had so little money and no place to go I said I would come back. I asked to go to the toilet and found a bond for \$100 in my stocking. I knew perfectly that it was a Liberty bond and worth money. So I went back to the hotel. I had written down the name and by asking people I found the place. I had to spend a little money for aprons and some gingham dresses and then I came back to Morningside, the hospital for Alaska insane patients. I thought at first that I would tell the doctors all about myself if I could not remember in a few days. But a woman here frightened me from doing so and I'm glad now I didn't, for she seems all right. I don't seem sick, but very nervous—sort of a trembling inside. They asked me where I was from and "east of the mountains" seemed to pop in my head, so I said that. Will write again to-morrow. Perhaps I can remember then.

Sunday Night.

I got up this morning, but was in a sort of a panic when I remembered where I was, for, strange to say, I did remember yesterday and everything that had occurred. It was hard on me here to-day because I was here alone. It was the other nurse's day off. If it had not been for the kindness of a patient, a colored woman, I don't know how I would have managed. I trembled so inside and the continual headache. However, after I had eaten my dinner I felt much better and am all right to-night except that I get so awfully hot at times. I think I shall be all right soon, for tonight a man named Barnes, an elderly man who is working here, walked around the grounds with me, and he was talking about farming and I remembered a lot of sheep and cows, but it seemed so far away.

Monday Eve.

Today I remembered Harry [her son], but not his name. He is 16 and I can almost see him. Tomorrow or next day I get an afternoon off and I am going into Portland. The name seems so familiar and I shall buy some out of town papers. I am still afraid to speak of myself to the Drs. here, although they seem very nice. If it were not an insane asylum I suppose I should feel differently. I still have severe attacks of trembling and felt today as though I was going to

be sick. However, it passed and I trust everything will be all right.

Tuesday.

Harry is in school somewhere, I am sure. I can't tell how I know, but I am sure I shall remember everything soon. If I could only trust these Drs., but I am still afraid. That awful trembling comes on so suddenly that I have to go upstairs for a little while. I can remember England. That all my people are dead. Is Charlie my husband or my brother? He is dead, I am sure. People ask me questions and I must answer them some way. They were talking about Alaska today, and I know I had a brother killed up there, and it seems as though some one else was there also that I knew. I told some one that my husband is dead. Please God, help me to remember.

Thursday Eve.

I got out of town papers—Tacoma and Seattle—but I cannot find anything in them to help me. If I was not afraid, I would tell these Drs. here.

Friday Night.

I'm sure that before very long everything will come back to me, because I keep remembering incidents, but I am horribly nervous.

Saturday Night [a week later].

I went down to Portland today, but I did not meet anyone I knew, and bought Tacoma and Seattle papers again, but I cannot find anything. Guess I shall have to wait a little. No one seems to own me, and I am sure I shall be all right. Everything seems so far in the past to me. So long ago and so much trouble.

Sunday Night.

I was talking with Dr. Luckey today and he asked me quite a lot of questions about my rings, and I told him about Harry going to school and about losing money in the lumber business—all we had. It does not seem to me as though I had a home. I can shut my eyes and see furniture all piled up in a room. I shall wait a little longer. Surely, by reading the papers some one will claim me. I don't want to ask anyone to help me, for I am afraid they might not understand. Am not demented, as these poor creatures are. I have simply forgotten. I pray God that I have no dear ones looking for me, and surely if I had I would find out some way. I have a feeling that Harry is all right, and today I remembered that my mother left him a lot of money. So, surely I shall remember the rest soon, and yet there stays with me that feeling of trouble, trouble. Business or something. I can't sleep well. I try and interest myself in these poor unfortunate people, and it is only by the grace of God that I am not in their place. I remembered today that I can play on the piano a little, and on the shelves are a lot of books I have read. When we talk of medicine I can see an old doctor I used to know and also lots of little things he told me, but it is names and places that escape me. Help me to be patient, dear Lord, and be thankful that I can help these poor creatures. I won't write anything for a few days and see if that will help. I have told them that my name is Brooks and I am sure that it is something like that. I may give this to the doctors here after I know them better. If it were not for that feeling of fear that is ever present and that I cannot define. I realize that a hospital for insane patients is the last place for me, but what can I do? The work here is nothing—only to be careful—and should I be unable to remember more about myself I am probably more safe here. Everybody is nice and kind and the food is good, and I am sure I shall be all right soon.

October 7.

I have made up my mind to consult a doctor tomorrow. There is no use trying any longer to fight this battle alone. I am so upset tonight. We had such a horrible day. There is a poor Indian woman here who has been doing my laundry. She asked me today to pray for her, and I told her I would if she would pray for me. Poor Jessie and poor me. I wonder which the Lord pities most.

Friday, Oct. 8.

Today I consulted Dr. J. Allen Gilbert, a specialist on nervous cases, and he was most encouraging. I

am to write every day what I can remember and also what I dream. I have read over again what I had previously written and find a number of incidents which I neglected to tell him, or to be frank with myself, which I had forgotten until I read them tonight. So I must write every time I think of something. Just now the lady knocked on my door and handed me a check for \$16, the amount I earned last month. This is the first check I have seen for some time, and I have written hundreds of them. The Portland Telegram is advertising for a Mrs. Vina Dial. Why does not some one call for me? No more tonight.

Saturday Morning.

My dreams last night were of grain fields and a large quantity of grain in sacks and making out of checks for a lot of men and such an overwhelming desire to get away from it all. So much worry over something. This morning one of the men who works here asked me if his little cat did not resemble a coyote, and I remembered preparing meat with strychnine to poison them. I have read the morning paper, but with the usual results except that I felt disappointed when I read an item that the price of wool was lower. I find myself unconsciously looking up the price of butter fat, hay, grain and feed. I feel so much better this morning since confiding in Dr. Gilbert yesterday. He was so very nice to me Saturday afternoon. Some one asked me the name of the flower growing in the yard, and I answered immediately, "Rhododendron, the Washington State flower."

Tuesday.

Yesterday was blank as far as my remembrance of my past life is concerned. It is very depressing when it rains and I feel most awfully lonely.

Wednesday.

I dreamed almost all night of large fields and lots of sheep. There seemed to be quite a little snow, and I was helping to feed them and constantly such a desire to get away from it all. So much trouble and unhappiness. Some one asked me today if my husband was dead, and I said yes, and that I preferred not to talk about it. As time passes I feel almost indifferent. I find much difficulty in expressing myself. There seems so much to write, and yet when I try there is nothing to say after all.

Later, a gentleman said to me just a few minutes ago, "What part of Washington did you come from?" and I said, "Who told you I came from Washington?" "Why, you did. You said when you first came here that you were from east of the mountains." I felt myself blushing, and to hide my embarrassment I laughed and told him that was quite definite enough and that he could guess the place. I am going to Portland this afternoon and will take this to Dr. Gilbert in the Selling Building. I find myself looking with repugnance at the name on my check. I haven't cashed it yet. It seems almost impossible for me to indorse it. I look at it and study it, trying in vain to picture the name as it should be. I wonder if I should be more satisfied if I did know. I'm afraid my people, if I have any, will never understand such a peculiar illness. It certainly does not seem possible. "Aspasia," loss of memory. [She means "amnesia."] I know I have never heard of that before, anyway. I have a boy. But my husband, if I have one, what will he think? It will be suspicion the rest of my life. A feeling of being watched. I shall never be allowed to leave home alone, and what will that mean to me? I shall wish myself dead.

Thursday.

It is just 3 o'clock in the morning and I was awakened by the barking of two dogs. I got up and going to the window to locate the sound, found to my astonishment that the windows were in the wrong place. For a few moments I was in another room other than the one I now occupy. It was a large room with open windows at the side of the bed, the left side. The bed is a double one, with a table at the head on the right. I have been accustomed to sleeping alone in a large wooden bed. It was only a moment before I knew where I was and turned on the light. But I could still see that other room and the dogs were still barking. I am writing now so that when daylight comes I shall not forget.

Thursday a.m.

I went back to my little iron bed and fell asleep at once, but remembered everything when I awoke at six o'clock. (Religion—ask Dr. Gilbert.) [This was evidently a note to ask me what my religion was, which he did at her next call. She has a deep-seated aversion to the Catholics.]

Friday.

Every time I open my purse I miss my bank book. It is black with gold letters, and I think the checks are ink.

Saturday Morning.

I was busy all night long, it seems to me, figuring up accounts. I was sitting at a desk with a lot of checks and statements, tax receipts, and bills of all kinds. A door at my left flew open, scattering all the checks on the floor, and as I picked them up they seemed to be drawn on two different banks, some pink ones and the rest white. I was very tired this morning when I first rose and my head was aching again. The first time this week, also the same feeling of depression. I don't know much how things go and wouldn't try so hard to remember if it were not for the thoughts of my boy. I know I must have loved him, and yet I feel very indifferent about it all. The life I am now living seems to occupy my thoughts and takes up all my time. It is only at night as I lie in bed that I have such a lost, regretful feeling, and I can hear the wind blow through great, big trees; one can hardly tell whether it is wind or rain. I came across a Sunday school lesson, the simple story of Joseph and his coat of many colors. I closed my eyes and the picture of a number of small children to whom I was talking came to me. Also an old-fashioned organ on which I played. But I am sure that it is all a memory of long ago when life was as simple a story to me instead of what it has turned out to be, for when I look forward into the future and try to picture the past everything spells ruin either way. My people and friends, to say the least, will always think of me as queer and I might as well face the facts now as later and make up my mind what to do. If I find them it will mean life-long sorrow and an eternal fear of the same thing happening again, or perhaps something worse. I am going to be unhappy anyway. So perhaps it will be best that they remain in ignorance and, if I ever do remember who I am, to keep silent and go away where there is small chance of anyone finding me. I have no feeling of love for anybody and yet I am utterly desolate and homesick for something.

Friday, Oct. 20, 1920.

I had the same experience last night that occurred five nights ago. I was awakened at 3 A. M. by a voice calling "Mamma, Mamma, Mamma," and I jumped out of bed and ran to where the window should be (and in the bedroom previously described). I bumped into the dresser and immediately recognized my present surroundings. The voice was that of a man, I am positive. I went to Portland on Wednesday, as usual, and great, big letters saw "Portland Wool Warehouse Co." We shipped wool to them, and I had to wait a long time for the money owing to the war. Government inspection, I think. I don't seem to be interested in picture shows, but was having a little dental work one Wednesday and had to do something to put in the time and so I went to the Hip. In a picture shown there was a girl named Peggy, and that is the name my husband called me. But it is not my real name. I read in the papers of the disappearance of the Mayor of Vancouver and saw later that friends and police feared a lapse of memory. So possibly there are others afflicted besides myself. There is some kind of a memory connected with the Agricultural College at Corvallis, Ore., and I cannot grasp it. I have tried and failed.

Sunday Evening, Oct. 24, 1920.

I have not had any more dreams—only waking ones. His morning I went to Sunday school. Baptist. It is the nearest church, but I did not care for it. So after Sunday school was over I walked about half a mile to the Methodist Episcopal Church. I knew all the hymns and the church was much like the one I have been attending, only smaller, but the same arrangement. I did not care particularly for the pastor. In the afternoon I accompanied my patient for an automobile ride

on the Columbia Highway. It was very beautiful but absolutely new to me. After dinner I walked about two miles to a little Presbyterian church. I arrived in time to attend the Young People's meeting and enjoyed it immensely. As I sat there a picture of long ago came to me of the Junior Endeavor League and my small son, about eight years old at the time, leading the meeting, singing a song called "I'll Be a Sunbeam for Jesus." And one incident stands out so plainly that I know it must all be true. The fact that he asked his father to pray at the close of the meeting, and I also remember that my husband was very much affected by it. The evening service was good and I liked the minister. I took one of the hymnals home with me and find that I can play most of them. I walked nearly eight miles today and was not at all tired.

As stated above, Mrs. B first consulted me on Oct. 8, 1920. We had four consultations in all, the last being, by all odds, the most remarkable and instructive. During the first three consultations but little could be elicited aside from flashes of memory which I felt sure related to real events in her past life, though neither she nor I could feel absolutely sure of the fact. Almost a month had elapsed since she first landed in Portland. Fear of being adjudged insane made her keep her trouble to herself.

The case being plainly one of amnesia, no thorough physical examination was made. She did not know her age, but it was estimated to be about 46. There had been three menstruations in the past month. This fact and her age made it probable that she is in the midst of the menopause. Practically all that could be got from her at the first sitting was what she had previously written down in the histories cited above.

Hypnotism was refused for two reasons:—(1) she was greatly afraid of hypnotism, and (2) She dreaded being introduced suddenly to a memory of her past life, for she had an indefinite dread and fear of it as though she had passed through some great trouble or deep sorrow.

At the time it was a decided disappointment not to be able to see whether through hypnotism full memory could be restored by direct suggestion. But, in the light of what is to follow, it is exceedingly fortunate that the case developed as it did for the future development threw so much light on the activity of the subconscious, which would have been lost had hypnotism succeeded.

Vague "hunches" made her feel that money was in some way connected with her trouble and that her past contained things to which she had no desire to return. She described it more as an uncomfortable feeling when she considered the possibility of recovering her memory. She was refined in appearance, used good language, and was far above the average in intelligence. She was interested in papers and politics and had vague memories of having a son who, she thought, was about sixteen years of age and in school somewhere. She felt positive she had not come from the South, for she had flashes of day dreams in which snow figured positively.

Having been refused the privilege of hypnotizing her, I decided to try psychoanalysis by the so-called hypnoid method. After she had relaxed perfectly with her eyes closed I started her out of her reverie and asked her what she saw or thought. She seemed greatly surprised at seeing an old Doctor. She

could not get his name nor where he lived but could recall a number of things he had said to her some time in the past. After sitting a while in an abstracted state of mind she looked up and said, "I have had typhoid fever at some time in my life. I do not know how I know it but I feel sure that I have had typhoid fever. Maybe that is what is the matter with me." Her general appearance belied that supposition. Later, when full memory was restored all details of this typhoid fever were recalled. It occurred at the age of 14.

Further attempts at psychoanalysis brought up large flocks of sheep, a man with a dog, et cetera. This man later proved to be her husband with a valuable dog they had on the place.

While the clothes she had on did not seem familiar to her she said she felt positive that she had made the hat she was wearing because it seemed so familiar to her. She felt sure that she had either a husband or a brother—she could not say which. Just a little later she broke down and cried, saying, "that man must be my husband. I see my brother in Alaska. He was killed in Alaska."

Psychoanalysis seemed to worry her and make her nervous. It increased her depression and she felt sure that her memory of her past life would bring back some awful sorrow or tragedy and she shrank from regaining her memory. These flashes of memory worried her and made her nervous and depressed. The sitting was closed with the request that she pay as much attention as possible to her dreams, some of which are recounted in her written histories cited above.

One thing became manifest at the first consultation, viz., that but little was to be got by asking her to concentrate her attention on the point in question. But if she were asked or allowed to talk on other subjects or on related subjects there would be flashes of memory, just as though the subconscious was venturing up into the conscious but was frightened back as soon as it caught your eye. During the first three consultations there was but little to be got beyond these fragmentary and momentary flashes of consciousness which were undoubtedly outcroppings of the subconscious depicting actual occurrences in the former life that had lapsed from memory.

The last consultation was exceedingly interesting and instructive and an attempt will be made to give it as nearly as possible in its real setting. It occurred on Oct. 27, 1920. She came into the office unusually depressed. I remarked the fact and she said that she did not feel well because there seemed to be such a weight hanging over her as of impending disaster or some awful sorrow or something.

Several important things had happened to her on the way over. On a previous call she had passed a window in which there was a farm tractor on exhibition. Unconsciously she glanced at it and said to herself, "That tractor looks like ours." When she came to the office she narrated the incident and drew the inference that she must belong on a farm somewhere. During the next consultation she recalled the incident and added that she could now give the name of the tractor. It came to her as she passed the window to-day. The name was "The Bull with a Pull." I made every effort to locate the agency for that particular type of tractor but failed.

Two important incidents occurred on the street car on the way into town. She was sitting absent-mindedly and suddenly said to herself with some irritation, "This is a much longer ride than I am accustomed to. Ours at home is only 20 minutes." The thing surprised her and she recognized it as a possible flash of memory. When she came to the office she had it figured out that she must live about 20 minutes' ride from town wherever her home was. After the above incident in the street car she lapsed again into her absent-minded state, as is typical for the average street car passenger. The conductor was calling the streets as they went along. When he called 50th she caught herself rising automatically to leave the car and then inhibited the act after coming to herself and realizing where she was. From this she drew the inference that she must be accustomed to getting off at 50th street, where she lives.

A third experience during this trip was of deep interest. As she was coming along the street she noticed a sign, "Portland Wool Warehouse Co." Reflexly and automatically she said to herself, "We had to wait a long while for our money from those people," and then came to a realization of what she had said and figured out that she must have had some dealings with those people if she could only remember the facts. This flash of the subconscious was of great assistance a short time later, as will be seen.

As stated above, she was greatly depressed during this consultation. She recounted how she had gone to a picture show and one of the characters was called "Peggy." Like a flash it came to her "That is my name. That is what my husband calls me." She explained that that was not her real name but she felt sure that her real name was a very common name. It seemed to her that she ought to be able to say it right off but she could not. As is so frequently the case with subconscious data it "was on the end of her tongue" but it would not off. I said to myself, "Peggy is the nickname for Elizabeth." In this I was in error as it is Margaret instead of Elizabeth. I said, I guess your name must be Elizabeth. "No, that does not sound right to me but it is a very common name." Then I said I guess it is not worth while to try so common a name as Mary. Her eyes opened wide with astonishment and pleasure and she said, "That's my name. Mary is my name." I said, "Mary What?" "I don't know." Then she would begin to attack the problem by trying to concentrate her attention on it but this was always a failure. This instance proved no exception to that rule. I then called up the Portland Wool Warehouse people, explained the situation briefly and asked them if they could recall any female customer who had sold them wool and whose first name was Mary. They searched a while and then said they would call me later after a more thorough search. Having been successful with her before by surprising her into quick uncensored answers to questions, I turned to her abruptly and said rather forcibly and sharply, "What is the name of your bank?" In a perfectly automatic way she said, "Bank of California, National Association." and then opened her eyes in perfect surprise as if she had heard some one else answer my question and then added, "Yes, that must be my bank." This

gave another clue. I called up the local Bank of California and learned that there were four such banks, at San Francisco, Portland, Seattle and Tacoma, respectively. Here was definite help but we were still without her whole name. The pain seemed blocked.

I then suggested that in her memory she should go back to the time when she got off the train in Portland and tell me as nearly as she could all that she could remember. She started out by saying, "Well, when I got off the train from Olympia— (Here her eyes opened wide with astonishment again and she added after a pause)—Oh! I must live at Olympia." Here was another important dip into the subconscious. Always when these automatic reflex answers would come out she would look surprised as if somebody else had given the answer and then immediately begin to reason on the basis of the answer given.

We did not seem to be able to get very much more and the consultation had already lasted considerable time. She was always nervous and anxious about her imposing upon me for so much of my time when she was not able to pay me. She explained that she must have money and would probably be able to pay me. She knew she had money because she missed her check book every time she opened her purse. Furthermore, she had appealed to a jeweler regarding the value of her rings and learned that they were worth at least \$1,500 or \$1,600 at a rough estimate. At this time again she began apologizing for imposing on my time and got up to go. I had remonstrated repeatedly against her worrying about the money side of the problem and, being deeply interested in the case, I said somewhat impatiently, "Oh, pshaw, sit down and quit your worrying about my pay." In perfect surprise, her eyes opened and she said, "That's my name." I said, "What's your name," entirely ignorant of what she meant. "Shaw, Shaw is my name." After a little thought, I said, "Is that your name before you were married or since you were married?" After a little hesitancy she answered, "Before I was married." I recalled that her flashes from the subconscious had depicted checks. She had disclosed her bank and so I asked her to sit down and do some things for me just as quickly as she could. I then gave her a pad and asked her to write her name. She wrote "Mary Shaw." While she was doing this I hastily took my check book from its pigeon-hole and as soon as she had finished writing Mary Shaw I substituted my check book for the tablet with the check book open at a blank check and asked her to write her name on there as quickly as possible. What followed now was perfectly beautiful psychologically. She hastily wrote "Mary" started to write "E" and then in surprise glanced straight ahead of her and then with a quick glance at me said, "My name is Broodville." She then went back to finish the writing of the name, finished the "E" and after adding "Broodville," hesitated a little and then quickly added "Ex" and broke out crying. After a moment I asked, "What does that 'Ex' stand for?" "Executrix for the estate of Esther A. Shaw. That's my mother. She is dead." She could then see "the five graves in a row."

I then called up the Portland Wool Warehouse and told them that I had unearthed the name but

still lacked the address and asked them to look on their books for the name Broodville. They immediately answered and said they found two Broodvilles on their books. One was C. A. Broodville and the other was Mary E. Broodville. When my patient heard me speak the name C. A. Broodville as I copied the phone message, she said, "Charlie. That's my husband's name." They gave me the address and when I repeated it to Mrs. Broodville, she said, "That's our farm address. We have a house in Tacoma, too. My son is there now. The address is 5012 South I Street, Tacoma, Wash."

Now her depression increased decidedly. I wanted her to let me telegraph at once but she refused saying that she must be able to picture her husband's face first. "What would he think if he should come and I would not know him. I can see Harry's [her son's] face but I can not see my husband."

Realizing that she was not in proper surroundings where she was working, I urged her to go to my home till her husband came. I feared that memory of her past might precipitate her into further depression with possible increase of her trouble. At first she refused, but finally consented. As we entered my home little similarities between our living room and her own at home called out a description of the differences and her home surroundings began coming to her with more readiness. I startled her again with the sudden and sharp question, "How many rooms are there in your house?" Automatically, as usual, under such conditions, she said, "Sixteen," and then came again the same expression of surprise on her face and after saying, "Yes, it has sixteen," she proceeded to count up and describe the same.

Previous efforts to help her recall her husband had been unavailing. I now surprised her with, "What is the color of your husband's hair?" Automatically again came the answer, "brown," and then as though verifying the statement made by some one else she added, "Yes, it is brown." However, she was unable to recall the face of her husband plainly until he came for her the next morning. Her son and all other details came vividly, but her husband she could not picture.

Up till 11:15 P. M. data kept adding themselves rapidly with progressing ease until, on retiring, she could recall practically all her life except the trip from her home to Portland. When I surprised her and asked her quickly when was the last time she saw her husband, in the same automatic way she answered that she saw him in the door of the red barn talking to two men who had come to buy wheat. He gave a critical and disapproving glance at her high heels and she turned to go to the house. That was the last she could remember. The next morning she was able to recall the details of the trip up to the Ladies' Rest Room at the Olympia depot where she was sick and could recall getting off of the sofa a number of times to get a drink of water. The details from that time till she got off the train in Portland were still a blank. Her intended destination was a little town in Washington where they owned some property that was in need of repairs. How she came to come to Portland was still a mystery when I last saw her.

They live on a 600 acre farm. The care of the

same was recently leased to another party. It had its worries but so far as work was concerned there was nothing left for her to do but look after the wants of her husband and herself. The whole life was utterly distasteful to her, and associations other than her husband were entirely lacking. Sorrows and worries were at times overwhelming and, without going into details, there is an evident incompatibility that has left but little upon which to base the longings of a human soul. The life is a tragedy and she returns to the same conditions which have made her recent experiences possible. The husband in his ignorance came after her in anger rather than sympathy, because he had reached the conclusion that she had voluntarily left home. To add to his suspicions, a mutual friend had claimed to have seen her on the streets of Tacoma at eleven o'clock at night on a given night when she was really in Portland, as records here show indisputably and as was proven to the entire satisfaction of the husband. Notwithstanding all this, in his ignorance again he refused to take her back home because of the suspicions that would be aroused in their acquaintances by a story which, in the early part of our discussion, he was inclined to look upon as "all bunk." He had never heard of such a case and in his Scotch determination he seemed unwilling to surrender a suspicion even though all grounds were disproven even to his own satisfaction. Argument and explanation seemed of little avail and they left. Mother love is carrying her back to conditions that are trying, to say the least.

The foregoing history teems with interest from the standpoint of the activities of the subconscious. It is perfectly evident that the amnesia was only apparent rather than real. Nothing was forgotten. It had only receded to the subconscious and needed only the right association or circumstance to call the lost facts to full consciousness. That passive state of mind which is characteristic of both day and night dreams frequently released from the subconscious the "forgotten" facts that were buried there. Even while dormant in the subconscious they were not without their effect upon full conscious life. Certain experiences were accepted as having fitness or warmth in her life, while others were unreservedly rejected as new or foreign to her real self. For example, her first conscious effort after the onset of the amnesia was of this type. When requested to write her name on the hotel register, she automatically wrote the first four letters of her real name but was unable to finish it and so voluntarily added letters which would make up a substitute name. On top of it all she was able to affirm that her real name, even though she could not remember it, must be something like the one she wrote, for that name sounded good to her. The connection with the subconscious was strong but not strong enough to break through the inhibitory process which had obliterated her past experiences from full conscious life. In the same way she accepted her hat as of her own make but rejected her dress as a boughten article, though she could give no reason for her conviction regarding the fact.

At other times there would be flashes of the subconscious in full consciousness but not of sufficient clearness to be identified with self. At her entrance into the hospital where she worked as an attendant,

she was asked where she came from and "east of the mountains" seemed to pop into my head and so I said that." Subsequent to the return of full consciousness it was learned that she had made an auto trip and stayed some weeks with relatives east of the mountains, so that this was a vague conscious or subconscious impression rather than a mere fabrication.

In her diary she writes and all through treatment she keeps reiterating "—surely I shall remember the rest soon and yet there stays with me that feeling of trouble, *trouble*. Business or something." All through the early part of her treatment she was uncertain as to whether she really wanted to regain her lost memory, for she had an uncanny feeling that behind it all was some terrible sorrow or trouble and she shrank from being brought face to face with it again. One of her main reasons for rejecting hypnotism as a means of cure was a fear that the whole thing would come back to her in bulk and she preferred to approach it gradually, if she could. Books on the shelves at the hospital were familiar to her and she felt sure she had read them but could give no rational explanation for her conviction.

These vague hints or "hunches" from the subconscious were even more plainly marked in such experiences as were related relative to the ride on the street car. A monotonous ride in a street car with nothing to occupy the mind comes about as near the hypnoid state as can be got in everyday life. She came to herself and found that she had been saying to herself that this ride was longer than the one she was accustomed to at home, the one at home being only 20 minutes. She then realized that this must have been a message from former experience now forgotten. Furthermore, as the conductor called 50th street, she rose automatically to go out before coming to a full realization of the fact that she was in a Portland car instead of one at home, and she properly reasoned out that in her previous life she must have been accustomed to getting off at 50th street. On the basis of these facts she announced on reaching the office that wherever she lived she must be about 20 minutes' ride on the street car and must live in the neighborhood of 50th street, both of which proved to be true on recovery of full memory.

"Every time I open my purse, I miss my bank book." What can this be but a subconscious verification of the full conscious experience now lost in the abyss of amnesia?

On sight of the sign "Portland Wool Warehouse" she caught herself saying, "We had a hard time getting our money from those people," but had to depend on inference rather than memory for the fact that she had had dealings with them, which afterward proved to be the case. The subconscious was again caught off its guard when she automatically said to herself that the tractor was like theirs at home and then failed to connect up any conscious memory with this fragmentary message from the subconscious.

The recognition of "Peggy" and "Shaw" as her name under direct stimulation illustrates beautifully how the subconscious will yield its facts under direct forceful stimulation or association.

Furthermore, if caught unawares and then ap-

proached suddenly with a question, the subconscious would usually yield the information reflexly and automatically and the conscious would then verify the information through a process of reasoning, as though the original information had been given by some other and separate individual. As examples might be cited the way in which the subconscious yielded up the facts relative to her bank, where she last saw her husband, the color of her husband's hair, the number of rooms in her house, et cetera.

Still more interesting is the fact that her dream pictures were in terms of her past life. Dream memory had full and unobstructed access to the facts of her past life while conscious memory was shut off from the same absolutely. As examples might be cited the dreams of large flocks of sheep, the checks scattered on the floor, large fields of wheat, the barking of dogs and the calling Mamma, Mamma, Mamma, in direct association with a vivid dream picture of the room in which she formerly lived at home. These were all facts in her past life and not mere new or novel concoctions. In spite of these things assuming all the semblance of reality in her dream life, they nevertheless receded immediately into the subconscious again on the return of full consciousness.

Psychoanalysis called up many facts that proved to be real experiences in her former life.

One other thing of deep interest was very impressive during the treatment. She was continually referring to an uncanny feeling that it would be far better if she never regained memory of her past because she felt sure that in it was hidden some great sorrow or worry. This proved to be true. Furthermore, the things she least desired to recall were the things that came back to her last. One of were the things to come back to her was a rather vague but persistent impression that her son was in school somewhere. The last thing that came back to her was that about which were centered all her sorrows, worries, and anxieties.

This certainly adds endorsement to the view that we only forget the things that we want to forget. It is as though years of conscious and subconscious desire to escape her surroundings had finally crystallized into a definite autosuggested amnesia for the things which she had repeatedly wished might be forgotten never to be remembered. Even in her amnesia there was still the vague feeling that it would be better never to regain memory of the past for fear of what it contained. Consequently, the facts of the subconscious had to be literally dragged out into the light of full conscious memory. Time and again during the investigation I was impressed with the aloofness of the subconscious. It was as though it would furtively peep around the corner at you but as soon as you made any attempt to cultivate its confidence or friendliness it would scamper off again. You either had to look it squarely in the face and scare it into a spasm of revelation or else approach it in a round-about way without addressing it directly. Only glimpses of it could be gotten.

So impressive was the investigation that I seem emboldened to offer the dictum that, in this case at least, amnesia is the result of an autosuggestion, consciously or unconsciously induced, by which conscious data are crowded out of the conscious into the subconscious. It is to be classed as a self-in-

duced negative hallucination. These inhibited data lie dormant until some appropriate association or experience calls them back into proper connection with the conscious life where they belong. Just as, in a good hypnotic subject, negative hallucinations can be produced, just so can the facts of full conscious life can be obliterated from consciousness through the inhibiting effect of an autosuggestion. Coupled onto the thing that we have forgotten is some unpleasant or disagreeable association which makes us prefer to have it out of memory, and out of memory it goes. No conscious fact is ever lost outright. It can be found in the basement rummage. Furthermore, you put it there yourself.

SELLING BUILDING.

HYPERTHYROIDISM.

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THE subject of hyperthyroidism is too broad and far-reaching to permit a detailed discussion within the time allotted me. Therefore, we will omit much that is interesting and speculative and confine our remarks to the etiological theory of the hypersecretion, to the more important signs and symptoms and diagnostic tests, and to the best methods for the relief of this distressing condition.

First of all, it seems pertinent to inquire what is hyperthyroidism? One may define hyperthyroidism as a disease characterized by excessive catabolism of all body tissues, caused by a hypersecretion of the physiological thyroid hormone.

This disease occurs more frequently in women between the ages of 15 and 45, especially at the time of one of the sexual epochs. It is of interest to know that it occurs rarely in suckling babies, in horses, dogs and cows.

In considering the etiology and symptomatology we must keep in mind the physiology of the thyroid gland. Briefly, the thyroid secretion has to do with the regulation of metabolism, detoxication, sex-gland development, circulation, intraglandular equilibrium, and emotional equilibrium.

Now the absorption of an excessive amount of the thyroid secretion is the direct cause of the symptoms which, grouped together, we call hyperthyroidism. But the causes of the increased secretion of the thyroid hormone are exceedingly numerous. However, toxemia, either chemical or bacterial in nature, is practically always the cause. Pilocarpine, phosphorus, turpentine, and silver nitrate are notable chemical poisons. Practically all febrile infections—tuberculosis, syphilis, typhoid fever, scarlet fever, measles, pneumonia, smallpox—have been known to cause the hypersecretion. This is also true of the fetal waste matter and toxins which are thrown into the mother's blood during pregnancy. Infections of the tonsils, nasal sinuses, gall-bladder, appendix, genito-urinary tract; carious teeth, so-called blind dental abscesses and pyorrhea alveolaris, and the absorption of poison from the stomach, in cases of dropped stomach or pyloric stenosis, and

from the intestines, in cases of intestinal stasis, are the starting points of most cases.

The toxins, from whatever source, stimulate the thyroid gland to increased activity, detoxication being one of the prominent physiological functions of this gland. The continued increased secretion which occurs in the chronic infections just mentioned, causes an increased metabolic rate, resulting in the formation of the usual catabolic poison in excessive amounts. The catabolic poisons in turn serve as an additional stimulant to the thyroid gland, and so, a vicious circle becomes established.

Then there is another source of toxemia which provokes excessive thyroid activity. This variety of toxemia constitutes the psychoneural origin of hyperthyroidism. Briefly, we know that any emotional shock or stress, particularly when accompanied by trauma, produces an increased metabolism in the nerve cells. Fear, anger, deep grief, and prolonged mental strain, by subjecting the nerve cells to violent stimulation, bring about disintegration of, or excessive catabolism in, the nerve cells with the production of phosphoric acid, cholin and a particularly poisonous substance called neurin, to which the thyroid is extremely sensitive. In an attempt to detoxicate these neural poisons, the thyroid gland reacts powerfully with the result that the thyroid hormone becomes a destroyer of the nerve cells by causing excessive catabolism of the chromatin and fatty substances, particularly lecithin. In such a way a vicious circle becomes established. We see, then, that the body, in hyperthyroidism, is surcharged with three distinct varieties of poisons: (1) the primary cause of the hypersecretion, (2) the excessive amount of thyroid hormone, and (3) the various toxins resulting from the excessive catabolism of all body tissues.

The manifestations of hyperthyroidism are exceedingly numerous. The severity and number of symptoms are directly proportional to the degree of hypersecretion. The circulatory system is greatly affected. Symptoms referable to the heart are palpitation, dyspnoea, anginoid pains, and a tachycardia which persists day and night. The heart is frequently dilated, which dilatation often results in functional murmurs. Throbbing of the large blood vessels, particularly in the neck, is usually distressing. The pulse is fast and thready. A capillary pulse is often found. The blood pressure in early cases is sometimes elevated; but in advanced cases it is always subnormal in the absence of concurrent disease. Blood examination reveals a moderate degree of secondary anemia; a pronounced leucopenia, with a relative increase in the small lymphocytes. The nervous system is also markedly affected. Tremor is very prominent, which is of a fine, intention type. In severe cases the entire body sometimes trembles. The reflexes are increased. Mentally there are evidences of hysteria and neurasthenia. There are sometimes hallucinations. At times the mental picture is one of hyperactivity of the intellectual centers. At other times the patient is apathetic and depressed. Melancholia is frequent. Suicidal and homicidal tendencies sometimes occur. Thyroid intoxication is not very infrequently the cause of a type of

mental aberration similar to manicdepressive insanity. The gastrointestinal symptoms are mainly nausea and vomiting, abdominal distress and diarrhea. Examination of the gastric contents usually reveals the presence of gastrosuccorria and hyperchlorhydria. The sexual system is usually depressed, there being a decrease in desire and ability. In women, menstruation is usually very little and irregular.

The thyroid gland is usually more or less swollen and soft, comparatively smooth and compressible and frequently it is tender. A pulsative expansion is often felt or seen, and a systolic murmur is usually audible over the gland. When the intoxication is coming from an intrathoracic thyroid, or an accessory thyroid gland, the glandular symptoms are missing.

Among the signs which we notice about the eyes we may mention: (1) lagging of the upper lid when the eye follows a finger downward; (2) spasmodic contraction of the upper lid when the eye first attempts to look at a finger; (3) retraction of lids, resulting in enlarged palpebral fissures; (4) difficult eversion of upper lid; (5) infrequent winking; (6) impairment of power of convergence; (7) exophthalmos; (8) paralysis of the ocular muscles. A rhythmic systolic murmur is often heard over the eyeball, and the eyes of most of these patients have a peculiar luster and a staring or frightened expression. The skin is often flushed and 1° or 2° above normal in temperature. Excessive sweating is common. The metabolic rate is increased anywhere from 10 per cent. to 100 per cent. above normal; this increase in the metabolic rate is directly proportional to the degree of thyrotoxicosis. There is an increased oxygen intake and carbon dioxide output. Loss of weight is usually gradual and often very great. Muscular weakness is often most pitiable.

Several diagnostic tests are of much value. The metabolic rate, as determined by either of several apparatuses, is always increased, and the increased rate is directly proportional to the amount of thyroid intoxication. The hypodermic injection of 8 minims of 1:1000 solution of adrenalin causes an increase of 10-50 in both pulse and blood pressure. This increase is followed by a fall and then by a secondary rise, returning to normal in about one and a half hours. The injection of the adrenalin causes also an exaggeration of the symptoms of hyperthyroidism. The lavender area which usually develops around the site of the injection, lasts, in a case of hyperthyroidism, from one and a half to two and a quarter hours. The instillation of 8 minims of 1:1000 adrenalin solution into the eye frequently causes, in a case of hyperthyroidism, a dilatation of the pupil. It is worth while to remember that digitalis has little or no effect on the heart rate. Cases of hyperthyroidism have a low glucose tolerance. One hundred grams of glucose fed to a normal person does not produce a hyperglycemia; but this amount, even in border-line cases of hyperthyroidism, causes a marked hyperglycemia. Several complement fixation tests have been described, but being still in the experimental stage, they are not yet of value. The administration of thyroid extract is mentioned only to be condemned.

The first objects in the treatment are to discover the cause of the hypersecretion and to remove this cause. Find the chronic infections about the body and get rid of them. In the cases of psychoneural origin, diet and rest are often curable. Certain hygienic measures are valuable. Good nursing; pleasant, quiet surroundings; warm, fresh air; two sponge baths daily, with plain or salt water, and the application of an ice bag to the thyroid and cardiac regions, are all quite beneficial. Absolute mental and physical rest is a necessity in the more severe cases. Rest is beneficial to all. The administration of much water, especially the imported Vichy, is excellent. Likewise, a suitable diet is most beneficial. Due to the excessive catabolism, which occurs in these cases, a very nutritious diet is necessary to overcome this catabolic loss. This diet should consist of sweet milk, buttermilk, cream, butter, cheese, eggs, plenty of bread, vegetables, soups, stewed fruits, cereals and a simple dessert, such as custard or rice pudding. All meats should be omitted, as Falta has found that a diet rich in proteins increases the thyroid secretion, and as Rudiger, on the other hand, has found that a diet of carbohydrates tends to decrease the secretion of the thyroid. Alcohol, tea, coffee and all stimulants are harmful.

Medical measures constitute a most important part of the treatment. These measures have for their object a reduction of the thyroid secretion and an upbuilding of the body tissues. The best agents for the inhibition of thyroid activity are the vasoconstrictors, of which the neutral hydrobromide of quinine, ergotin and the salicylates are probably the best. Pituitary extract, adrenalin, scopolamine and sparteine also constrict the vessels. The bromides and veronal are helpful in relieving the nervousness and insomnia. Likewise is sumbul sedative, especially when combined with hypnol, an excellent sedative. Arsenic, in addition to its tonic effect, depresses the functions of the thyroid. Sodium or magnesium sulphate, or sodium phosphate, are excellent in maintaining intestinal function. The generous use of Vichy will, by its sodium carbonate, neutralize whatever phosphoric acid the blood may contain. Another class of remedial agents is composed of those preparations which tend to restore to the nerve cells their functional constituents which have been more or less destroyed by the thyroid hormone. Lecithin in one drachm doses, three times daily; desiccated thymus gland, which contains phosphorus-laden nucleins, in five grain doses three times daily, and sweetbreads, are the most important. In most cases, iron is of value. Several sera have been tried, some users finding them helpful, others finding them valueless.

Psycho-therapy is beneficial in all cases, and absolutely necessary in some. Often some error in the daily mental or physical life, some unknown worry, some hidden fear, or some secret sin will prove to be the root of the evil. And it is only by gaining the complete confidence of the patient that we are able to find out the inner life of the mental sufferer who is our patient, and then correct any errors or mistakes therein. We must re-

member, too, that all these patients are sick in mind as well as in body; and we must treat them accordingly.

The x-ray is a most excellent agent for depressing the excessive secretion of the thyroid. x-ray therapy is painless and easy; it leaves no scar; it causes no fatalities; when given in conjunction with proper medical treatment, its results are excellent. The results of x-ray therapy are (1) a feeling of improvement; (2) the tremor diminishes, the tachycardia subsides, and there is a gain in weight. The question of dosage is most important and is to be determined by the skilled radiologist. Knox reminds us of several precautions to be taken in giving x-ray treatment, such as a careful estimation of dosage on each occasion, small doses given frequently, adequate filtration, the use of a penetrating ray, and the use of secondary filters of leather, loofah sponge, or any material which will absorb the soft rays. The thymus should be x-rayed each time, also.

Radium, when given properly and in sufficiently large quantities, will produce equally as good results as will the x-ray. Radium may succeed where x-rays fail and vice-versa. The technique may be faultily applied in both instances. When properly employed, radium gives rise to no reaction and produces excellent therapeutic results. Neither the x-rays nor radium should produce a dermatitis.

Injections of boiling water into the thyroid gland have been done by Porter, resulting in some improvement. However, there have occurred three deaths from this procedure. Watson has used injections of quinine and urea hydrochloride with encouraging results.

The surgical treatment has been purposely considered last, as this form of therapy, in the writer's opinion, should be resorted to only after the other lines of treatment referred to have failed. Surgical treatment has been the form of therapy most often used, probably because the average physician considers the statistics in the wrong light, *e. g.*, the mortality from thyroid operations when done by Kocher and the Mayos is practically nothing—which means the deaths resulting from operation and not the cures. Judd and Pemberton of the Mayo Clinic have shown that eight years after operation not more than 45 per cent. of cases are cured. It is evident, therefore, that the mortality rate of the average surgeon is 5 per cent. or more, and that the percentage of cures will hardly reach 30. When the other forms of treatment have failed, surgery is in order. When pressure symptoms develop or malignant degeneration of the thyroid occurs, surgical intervention is necessary. It seems that the chief rôle of surgery in the future therapy of hyperthyroidism will be in removing causes of the hypersecretion.

In conclusion, I wish to emphasize the importance of making the diagnosis of hyperthyroidism before the disease has progressed to the terminal stage. At present, I am making use of the estimation of the basal metabolism, the adrenalin tests, and the glucose tolerance test chiefly in the making of an early diagnosis, and particularly in making a differential diagnosis between hyper-

thyroidism and early tuberculosis, neurasthenia, "disordered heart action," and allied disorders.

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CANDLER BUILDING.

Phagedenic Vaccination.—Blanchard relates that in one of the French colonies cases of phagedenic vaccina pustules were traced to a certain supply of vaccine. Research for the supposed impurities was with negative result. It was learned that cases which did not take gave no trouble and that conversely the phagedenic cases all "took." The incubation period was normal, and the pustule developed in the habitual manner until the third or fourth day of its evolution, when a grayish exudate appeared of fetid odor. Ulceration then developed with adenopathy and fever, but no other symptoms. Bacteriological tests then showed the presence in pure culture of the bacilli and spirillum of Vincent's disease. The abundant flies of the locality were doubtless responsible for the infection, and the act of vaccination evidently prepared the soil for the latter.—*Le Caducée*.

A CONCEPT OF X-RAY PATHOLOGY.

IV. CARDIOPATHY.

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WHEN the heart is greatly hypertrophied there is little difficulty in recognizing the condition by the x-ray. If the hypertrophy is of only moderate extent, its x-ray recognition is increasingly difficult. In spite of the difficulty certainly to recognize a moderate hypertrophy from the x-ray silhouette of the heart, the x-ray study of this organ remains the most accurate measure for the determination of the actual size. The two methods most exploited for the accurate estimate of the size of the heart are those of orthodiagraphy and teleroentgenography. Orthodiagraphy possesses the advantage of giving a graphic outline which corresponds theoretically to the exact size of the object being contoured. It is economical in material; but it requires much time and great skill to effect an orthodiagraphic measure. Teleroentgenology is more simple, quicker and accurate; but it demands the proper allowance for the enlargement of the heart shadow resulting from the divergence of the rays in producing the silhouette. If the distance from target to plate be 2 meters, and the patient exposed always in the ventrodorsal position, the correction for ray divergence becomes fixed and therefore easy to apply.

In the chest the heart contour lies approximately one-third of the distance from the front to the back of the thorax when the measure is taken at the lower part of the sternum during expiration. It is necessary, therefore, that an allowance be made for the divergence incident to the distance separating the heart from the x-ray plate. It is experimentally determined that the silhouette area must be decreased 1 per cent for each 3 centimeters of distance from the front to back of the chest and a given diameter, 1 per cent for each 6 centimeters. As a routine for an adult of average size, 6 per cent reduction of the silhouette area or 3 per cent reduction of a given diameter, will give the exact size of the heart contour with sufficient accuracy to obviate the necessity of measuring the anteroposterior diameter of the chest. Bardeen, in discussing the conclusion incident to heart silhouettes when a shorter distance than 2 meters from the target to the plate is used says:

Allowance must be made not only for this variation in distance, but also for a variation in distance of the heart contour from the plate which enters in as the target is brought nearer to the heart. This factor also enters in at the two meter distance in ventro-dorsal pictures, the heart contour being further from the front of the chest in the dorso-ventral than in the ventro-dorsal position. For determining the average distance of the heart contour from the plate the stereoscopic method gives the best results. This is based on the distance of corresponding points in two silhouettes from a fixed line on the plate perpendicular to the line of shift of the tube. The average distance of a series of such points on the contour gives the average distance of the contour.

Knowing the distance of the target from the plate, the length of the shift of the tube and the distance of the shift of a given point in the two silhouettes it is easy to calculate the distance from the plate of the point on the heart which casts this point of shadow.

The formula is $x = \frac{A \cdot C}{A + B}$ where

x = distance of point on heart contour from the plate.
 A = distance of shift of given point in the two silhouettes.

B = distance of shift of tube.

C = distance from the target to the plate.

The formula for determining the relation of the size of the area of the silhouette to that of the area enclosed by the heart contour is as follows:

$$x = \frac{100 B^2}{A^2}$$

x = area enclosed by the heart contour.

100 = area of silhouette.

A^2 = square of the distance from the target to the plate.

B^2 = square of the distance from the target to the heart contour.

The formula for determining the relation of a given diameter of the heart silhouette to a given diameter of the heart is as follows:

$$x = \frac{100 B}{A}$$

x = length of diameter of heart contour.

100 = length of diameter of silhouette.

A = distance from the target to the plate.

B = distance from the target to the heart contour.

In the two-distances method of estimating the size of the heart two pictures are taken, one with the target a shorter distance from the plate than the other. The most convenient distances are one and two meters. When these distances are chosen the following formula may be used:

$$x = \frac{200 A - 200a}{2 A - a}$$

x = distance of plane of the heart contour from the plate.

A = square root of area of heart silhouette in picture taken at one meter.

a = square root of area of heart silhouette in picture taken at two meters.

If desired a given diameter may be used instead of the square root of the area.

$$x = \frac{A \cdot a}{2 A - a}$$

x = diameter of the heart.

A = diameter of the heart silhouette at one meter.

a = diameter of the heart silhouette at two meters.

$$x^2 = \frac{a^2 (200 - x)^2}{200^2}$$

x^2 = area enclosed by heart contour.

a^2 = area of silhouette at two meters.

$200 - x$ = distance from the target to the plane of the heart contour.

Heart-Body Ratio.—By an exact method of weighing in which he dissected the various chambers of the heart, Mueller established a table not only of the absolute weight but also of the fractional weights of the cardiac parts. In a general way, Mueller found that the weight of the entire heart increased with the body weight, the proportion between the two decreasing as the body weight increases. Grober gives Mueller's table (Table I).

Bardeen provides some tables that can be used only when the x-ray plate is made with the following technique: patient with sternum flat against upper plate holder; target-plate distance six feet; target level opposite spine of the ninth thoracic vertebra; exposure made while the patient holds breath after a moderately deep inspiration. It is well to use an intensifying screen in order to diminish exposure time. Le Wald advises giving the

TABLE I.

Body Weights in Kilograms	Absolute Weight of Heart in Grams.	Ratio of Body Weight Milligrams per Gram.
1-10	28.9	5.87
10-20	78.9	5.20
20-30	133.5	5.49
30-40	193.3	5.47
40-50	230.2	5.10
50-60	264.3	4.81
60-70	297.2	4.45
70-80	322.3	4.37
80-90	359.0	4.28
90-100	376.3	4.01
100-110	358.5	3.46

patient a glass of water to drink immediately before making the exposure and to have the patient swallow air along with the water. This expedient induces the formation of an air bubble in the stomach, which air bubble assists in outlining the apex of the heart. When this technology is used the table furnished by Bardeen (Table II) is found useful in studying cardiac silhouettes.

More recently Le Wald and Turrel in an article entitled the "Aviators' Heart—Roentgen Ray Studies under Conditions Simulating High Altitudes," give the figures for their observation on the relation existing between the weight, height, transverse diameter of the heart—measure both at inspiration and expiration. These figures are not entirely in accord with those of Bardeen. A study of the table supplied by Le Wald and Turrel would indicate that when the body weight is constant, there is no apparent relation between the increase in height and the transverse diameter. Also, when the weight and height are constant, in many instances the transverse diameter varies. The table from Le Wald and Turrel slightly modified and rearranged is reproduced. (Table III.)

THE NORMAL HEART.—In the dorsoventral position the radiopacity caused by the heart silhouette should be studied for two criteria; first, for the measurement of the various parts of the silhouette and also for the total area of the shadow; and, secondly, for the form of the right border of the silhouette and also of the left border of the cardiac contour.

In the measurement of the heart, a median line is drawn on the plate which bisects exactly the cardiovascular stripe. From this median line a tangent is drawn to the right of that part of the cardiac curve that extends farther from the central mark; and similarly, on the left side, a tangent is drawn from the central line to the point farther out on the ventricular shadow. The line on the right is designated MR, and when measured in centimeters gives the right diameter of the heart; the tangent on the left is ML and gives the left diameter of the heart. The sum of MR plus ML gives the total transverse diameter of the heart. Under normal conditions the relation between the values of MR and ML is expressed by the following proportion; MR: ML: : 1:2. Various investigators draw many other lines and make many other measurements in addition to the ones just described. One useful measure used by Hirsch is that of the angle formed by the general shape of the left ventricular contour as it meets the line ML. Normally this angle should be about 45 to 50 degrees. Obtusity of the angle points to hypertrophy incident to mitral stenosis or mitral

TABLE II.

Table showing relations of a heart shadow area of a given size to approximate transverse diameter, body weight, heart weight, heart muscle weight, heart volume in diastole, and height for either sex, at a given age. Individual at rest, sitting. (Bardeen.)

Heart Silhouette Area	Approx. Trans. Diam.	Weight of Body	Weight Heart Empty	Volume Heart Diastole.	HEIGHT AT GIVEN AGE FOR GIVEN WEIGHT.					
					20 yrs.		30 yrs.		50 yrs.	
					Sex	Height Cm. In.	Sex	Height Cm. In.	Sex	Height Cm. In.
Sq. cm.	Cm.	Kg. Lbs.	Gms.	Cu. Cm.	Sex	Height Cm. In.	Sex	Height Cm. In.	Sex	Height Cm. In.
93	...	45 99	247	475	F	140 55	...	...	...	...
94	11.4	45.5 100	251	483	F	140 55	F	130 51	...	...
95	11.5	46.5 102	255	490	F	142 56	F	135 53	...	...
96	...	47 104	259	498	M	145 57	F	137 54	...	...
97	11.6	48 105	263	506	F	145 57	F	137 54	...	...
98	11.7	48.5 107	267	514	M	147 58	M	142 56	...	...
99	...	49.5 109	271	522	F	150 59	M	142 56	F	132 52
100	11.8	50 110	275	530	M	150 59	M	152 56	M	135 53
101	...	51 112	279	538	F	152 60	M	145 57	...	137 54
102	11 9	51.5 114	283	546	M	152 60	M	147 58	...	140 55
103	11	52.5 115	287	554	F	155 61	F	150 59	M	142 56
104	12	53 117	292	562	M	155 61	M	150 59	M	145 57
105	12.1	54 119	296	570	F	157 62	F	152 60	F	145 57
106	12.2	54.5 120	300	578	M	157 62	M	152 60	F	147 58
107	...	55.5 122	314	586	F	160 63	F	155 61	M	147 58
108	12.3	56 124	309	595	M	160 63	M	155 61	M	150 59
109	...	57 125	313	603	F	163 64	F	157 62	F	150 59
110	12.4	58 127	317	612	M	163 64	M	157 62	M	152 60
111	...	58.5 129	322	620	F	166 65	F	160 63	M	155 61
112	12.5	59 130	326	628	F	168 66	F	163 64	F	155 61
113	...	60 132	330	637	M	168 66	M	163 64	F	157 62
114	12.6	61 134	335	645	M	168 66	F	165 65	F	157 62
115	...	61.5 136	339	653	F	170 67	...	...	...	...
116	12.7	62.5 138	343	662	M	170 67	M	165 65	M	160 63
117	12.8	63.5 140	348	671	...	...	...	...	F	160 63
118	...	64 141	352	679	F	173 69	M	168 66	M	163 64
119	12.9	65 143	357	688	M	173 69	F	170 67	F	163 64
120	...	65.5 145	361	696	F	175 70	F	173 68	...	...
121	13	66.5 147	366	705	M	175 70	M	170 67	M	165 65
122	...	67.5 149	371	714	F	180 71	F	175 69	...	...
123	13.1	68 150	375	722	M	178 70	M	173 68	M	168 66
124	...	69 152	380	732	...	...	...	...	F	168 66
125	13.2	70 154	384	741	F	180 72	F	178 70	F	170 67
126	13.3	71 156	389	750	M	180 71	M	175 69	F	170 67
127	...	71.5 158	394	759	F	180 71	F	180 71	F	171 67.5
128	13.4	72.5 160	398	768	M	183 72	M	178 70	M	173 68
129	...	73.5 162	403	777	...	...	...	...	...	...
130	13.5	74 163	408	786	F	185 72	F	185 72	F	174 68.5
131	13.6	75 165	413	795	M	185 73	M	180 71	M	175 69
132	...	76 167	417	804	...	...	...	...	...	...
133	...	76.5 169	422	813	M	188 74	...	...	F	178 70
134	13.7	77.5 171	427	821	...	...	M	183 72	M	178 70
135	...	78.5 173	431	832	...	...	...	...	...	...
136	13.8	79.5 175	436	841	M	191 75	M	185 73	F	180 71
137	...	80 177	441	850	...	...	...	...	M	180 71
138	13.9	81 179	446	860	M	193 76	...	...	M	181 72
139	...	82 181	451	869	...	...	M	188 74	M	183 72
140	14	83 183	456	878	...	...	...	...	...	...
141	...	83.5 185	460	887	...	...	...	...	...	...
142	14.1	84.5 187	465	897	...	...	M	190 75	M	185 73
143	...	85.5 189	470	906	...	...	M	190 75	M	185 73
144	14.2	86.5 191	475	916	...	...	...	...	...	...
145	...	87.5 193	480	925	...	...	M	192 76	M	188 74
146	...	88 195	485	934	...	...	...	...	...	...
147	14.3	89 197	490	944	...	...	...	...	...	...
148	...	90 199	495	954	...	...	...	...	...	...
149	14.4	91 201	500	964	...	...	...	...	M	191 75
150	...	92 203	505	974	...	...	...	...	...	...
151	14.5	93 205	510	984	...	...	...	...	...	...
152	...	93.5 207	515	994	...	...	...	...	M	193 76
153	14.6	94.5 209	521	1004	...	...	...	...	...	...
154	...	95.5 211	526	1013	...	...	...	...	...	...
155	14.7	96.5 213	531	1023	...	...	...	...	...	...
156	...	97.5 215	536	1033	...	...	...	...	...	...
157	14.8	98.5 217	541	1043	...	...	...	...	...	...
158	...	99.5 219	546	1053	...	...	...	...	...	...
159	14.9	100 221	551	1063	...	...	...	...	...	...
160	...	101 223	557	1073	...	...	...	...	...	...
161	15	102 225	562	1083	...	...	...	...	...	...
162	...	103 227	567	1093	...	...	...	...	...	...
163	...	104 230	572	1104	...	...	...	...	...	...
164	15.1	105 232	578	1114	...	...	...	...	...	...
165	...	106 234	583	1124	...	...	...	...	...	...
166	15.2	107 236	588	1134	...	...	...	...	...	...
167	...	108 238	593	1144	...	...	...	...	...	...
168	...	109 240	599	1154	...	...	...	...	...	...
169	15.3	110 242	604	1164	...	...	...	...	...	...
170	...	111 244	610	1175	...	...	...	...	...	...
171	...	112 246	615	1185	...	...	...	...	...	...
172	15.4	113 248	620	1195	...	...	...	...	...	...
173	...	114 250	626	1206	...	...	...	...	...	...
174	15.5	115 253	631	1216	...	...	...	...	...	...
175	...	116 255	637	1227	...	...	...	...	...	...
176	15.6	117 257	642	1233	...	...	...	...	...	...
177	...	118 260	648	1249	...	...	...	...	...	...
178	15.7	119 262	653	1256	...	...	...	...	...	...
179	...	120 264	658	1269	...	...	...	...	...	...
180	15.8	121 266	664	1280	...	...	...	...	...	...
181	...	122 268	669	1290	...	...	...	...	...	...
182	15.9	123 271	675	1301	...	...	...	...	...	...
183	...	124 273	681	1312	...	...	...	...	...	...
184	16	125 275	686	1322	...	...	...	...	...	...
185	...	126 277	692	1333	...	...	...	...	...	...
186	16.1	127 279	697	1344	...	...	...	...	...	...
187	...	128 282	703	1355	...	...	...	...	...	...
188	16.2	129 284	708	1366	...	...	...	...	...	...

TABLE II.—Continued

Table showing relations of a heart shadow area of a given size to approximate transverse diameter, body weight, heart weight, heart muscle weight, heart volume in diastole, and height for either sex, at a given age. Individual at rest, sitting. (Bardeen.)

Heart Silhouette Area	Approx. Trans. Diam.	Weight of Body	Weight Heart Empty	Volume Heart Diastole.	HEIGHT AT GIVEN AGE FOR GIVEN WEIGHT.					
					20 yrs.		30 yrs.		50 yrs.	
					Sex	Height Cm. In.	Sex	Height Cm. In.	Sex	Height Cm. In.
189	...	130 286	714	137.7	..	...	..	...	..	...
190	16.3	131 288	720	1385	..	...	..	...	..	...
191	...	132 290	726	1399	..	...	..	...	..	...
192	...	133 293	732	1410	..	...	..	...	..	...
193	16.4	134 295	737	1421	..	...	..	...	..	...
194	...	135 297	743	1432	..	...	..	...	..	...
195	...	136 299	748	1443	..	...	..	...	..	...
196	16.5	137 301	754	1454	..	...	..	...	..	...
197	...	138 304	759	1465	..	...	..	...	..	...
198	...	139 306	765	1476	..	...	..	...	..	...
199	16.6	140 308	770	1487	..	...	..	...	..	...
200	...	141 310	776	1499	..	...	..	...	..	...

insufficiency. Without adding an additional line it has been the experience of the writer that a useful measure in connection with the diagnosis of heart lesions rests with the estimate in centimeters of the difference that separates MR and ML along the median line. This is virtually another way of measuring the ventricular angle suggested by Hirsch. It gives the same amount of information as does the ventricular angle measurement, and has the advantage that it does not necessitate marking the x-ray plate with needless and possibly confusing pencil lines.

Cardiac Curves.—On the right side, in the normal cardiac contour, two curves are distinguishable. The upper one is that produced by the superior vena cava; the lower one, by the right auricle. On the left side four curves can be distinguished, though most generally only three are present. When four are seen, these are, from above downward, the descending arch of the aorta which bulges out very pronouncedly below the clavicle; a curve just below the aortic arch, the pulmonary artery; below the curve of the pulmonary artery there can sometimes be made out a small curve due to the shadow cast by the left auricle. This last curve is sometimes missing even in normal plates. The largest and most dependent curve is that of the contour of the left ventricle.

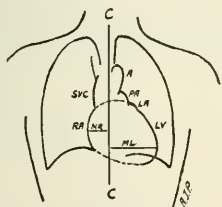


FIG. 1.—A is the ascending aortic arch. PA is the curve cast by the shadow of the pulmonary artery. LA is the left auricular curve and may not always be visualized on the x-ray plate. LV is the shadow of the left ventricle. ML is the maximum length from the median line CC to the point farthest from this median line on the curve LV. MR is the maximum length measured as for ML, but on the right side. RA is the curve of the right auricle. SVC is the shadow cast by the superior vena cava. The diagram illustrates a normal cardiovascular orientation.

A schematic relation of these curves is shown in the accompanying diagram, Figure 1.

MANIFESTATIONS OF CARDIOPATHY.—Myocardial pathology is manifested, when of eccentric type, by

changes in the total area of the heart silhouette and by changes affecting the normal curves just described. Both of these changes can occur as a result of a valvular disease. Obviously, from x-ray pathology, a valvular disease can not be recognized until it has induced manifest anatomical changes in the size or in the configuration of the heart shadow; so that changes due to valvular lesions registering on an x-ray plate point to advanced pathology.

Aortic Stenosis.—Three clinical stages of aortic stenosis are recognized. In the first stage, aortic stenosis produces no demonstrable effect upon the mechanism of the heart. Therefore, first stage aortic stenosis is without x-ray pathology. In the second stage, the initiating of which appears to be dependent upon the peripheral resistance offered by the vessels, certain circulatory manifestations assert themselves characteristic of a progressing hypertrophy of the left ventricle owing to the increased work that is thrown on this chamber. So long as the compensation is good, and the dilatation of the left ventricle is not marked, the blood flow from the lungs is not seriously retarded; therefore, there is no evident congestion visible from the x-ray pathology in the lung areas, neither is there any obvious change in other parts of the heart.

The second stage of aortic stenosis is the first to show in x-ray pathology. In the beginning of second stage aortic stenosis the only x-ray pathology visible in an increase in ML the left transverse diameter, the increase effecting the total transverse diameter, increasing the proportion between MR and ML, and diminishing the perpendicular distance between MR and ML.

As the stenosis increases, or the ventricle weakens, the dilatation becomes greater. The blood flow through the lungs is impeded and this additional pulmonary resistance affects the mitral valve, which becomes insufficient. In advanced second stage and beginning third stage aortic stenosis, then, in addition to the changes affecting the left ventricle the x-ray signs of mitral insufficiency are superadded to the pathology.

Aortic Insufficiency.—When an insufficient valve permits the blood flow from the aorta into the left ventricle, the increased quantity that the left ventricle is thus compelled to propel at each systole induces a dilatation of the left ventricle. This hypertrophy results in an increase of the curve on the left with a corresponding increase in the ML di-

ameter and therefore proportional increase in the total transverse diameter. The curve on the right normally due to the superior vena cava is still present; but in aortic insufficiency it represents the ascending aorta which, by its prominence and superposition, masks the superior vena cava. The descending aortic curve, the pulmonary artery curve and the left auricle curve are barely changed; but the left ventricle curve is markedly enlarged. The perpendicular distance between MR and ML is decreased. The heart assumes a transverse position.

TABLE III

Weight Kgm.	Height Cm.	TRANSVERSE DIAMETER.		Area Inspiration. Sq. cm.
		Inspiration. Cm.	Expiration. Cm.	
264.5	165.0	11.2	.....	91.7
271.2	171.4	12.1	.....	116.8
273.4	170.0	11.46	11.97	105.0
275.8	170.0	11.0	11.52	98.0
280.0	167.6	12.2	13.3	114.6
282.2	168.7	12.0	.....	105.6
284.4	170.0	12.6	13.0	124.8
286.6	177.7	12.6	13.2	132.6
291.0	172.6	13.9	11.7	132.4
295.4	175.1	11.4	14.4	103.0
295.4	177.0	12.7	13.1	136.0
297.6	172.6	12.2	12.2	108.8
302.0	172.6	11.3	12.2	114.6
304.2	162.5	10.3	12.1	93.0
304.2	168.7	12.5	13.8	118.0
308.6	154.8	11.9	12.6	109.8
308.6	167.6	12.5	13.0	118.0
308.6	167.6	13.1	13.6	119.4
308.6	170.0	13.5	14.4	.....
308.6	177.7	10.3	13.0	.....
308.6	177.7	11.5	.....	102.3
308.6	177.7	13.1	13.9	123.0
308.6	180.3	12.6	14.4	123.0
310.8	176.5	9.5	12.3	88.0
310.8	181.0	11.3	13.5	.....
313.0	177.7	13.0	.....	118.0
315.2	172.6	12.2	14.4	117.0
317.5	181.5	10.4	11.7	91.8
317.5	174.5	10.6	12.3	86.4
319.7	172.6	11.4	14.4	103.0
319.7	173.9	11.8	13.5	112.0
319.7	173.9	11.5	.....	111.0
319.7	173.9	12.5	15.2	131.2
319.7	176.5	11.6	.....	94.0
319.7	177.7	11.9	13.9	125.6
319.7	180.3	12.1	13.1	111.0
321.9	180.3	10.3	13.1	104.0
321.9	180.3	12.0	13.0	125.0
326.3	173.9	12.1	.....	109.6
326.3	170.0	10.4	11.0	.....
330.7	170.0	10.4	13.0	80.0
330.7	170.0	13.6	.....	117.8
330.7	172.6	12.3	14.2	108.0
330.7	172.6	13.1	14.5	121.5
330.7	176.5	12.1	.....	134.4
330.7	177.7	12.6	13.9	126.4
330.7	177.0	11.5	13.5	129.0
332.9	180.7	12.6	12.6	122.1
335.1	176.5	13.0	14.1	133.6
335.1	180.3	12.1	13.8	120.0
335.1	181.5	.....	.....	.....
335.1	181.5	12.3	14.3	.....
337.3	176.5	13.9	.....	119.2
339.5	175.2	11.8	14.4	142.4
339.5	182.2	12.2	13.0	117.2
341.7	170.0	12.9	13.0	.....
341.7	173.9	12.8	14.5	.....
348.3	170.0	14.4	.....	138.0
348.3	185.3	10.7	.....	106.4
350.5	175.2	11.7	14.5	119.2
352.7	172.6	12.4	12.6	101.6
352.7	175.2	13.5	14.4	119.0
352.7	180.3	12.6	.....	116.0
354.9	177.7	12.9	14.0	124.8
357.1	170.0	13.3	15.2	131.2
361.5	172.6	14.0	14.2	117.0
363.7	175.2	14.0	14.4	119.2
363.7	179.0	12.1	.....	109.0
363.7	180.3	13.5	.....	109.0
363.7	182.8	12.9	13.0	121.2
363.7	182.8	12.2	13.0	126.4
366.0	180.3	14.4	15.1	153.7
374.8	154.8	13.0	14.4	116.0
374.8	175.2	13.0	14.8	.....
374.8	177.7	12.2	.....	.....
374.8	177.7	12.4	.....	112.0
374.8	177.7	13.2	.....	128.8
379.2	176.5	13.7	.....	110.4

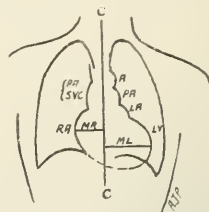


FIG. 2.—On the right side (left in the diagram) the curve above that of the right auricle is due to the shadow of the ascending aorta superimposed over that of the superior vena cava which should normally occur in this location. LV is markedly enlarged. The entire organ has assumed a more transverse position.

Mitral Stenosis.—The chambers immediately behind the auriculoventricular valves possess a weaker muscular wall than the chambers behind the semilunar valves. In mitral stenosis, the flow of blood is obstructed from the left auricle to the left ventricle. The left auricle, having a relatively weak muscular wall, becomes puffed; so that, in mitral stenosis the shadow of the small normal left auricular curve become prominent and gibbous. The heart is not otherwise enlarged. (See Figure 3.)

Mitral Insufficiency.—In mitral insufficiency, so far as the left ventricle is concerned, the effects are very similar to those produced when the ventricle is called on for increased exercise. The left ventricle, therefore, hypertrophies. The x-ray pathology manifests an increased ML and a generally larger total heart silhouette. The perpendicular distance between MR and ML is generally increased; although it may not show an increment proportional to the pathology. (See Figure 4.)

Dropped Heart.—In dropped heart the cardiac silhouette is generally smaller than usually observed. The curves are generally normally retained. The entire position of the heart is relatively low in the thoracic field. The normal ratio between MR and ML is disturbed so that MR and ML more nearly approach equality. It is assumed that dropped heart most often occurs in persons who show a predisposition to pulmonary tuberculosis. From x-ray pathology, the statement cannot be either substantiated or refuted; but in the examination of many tuberculous

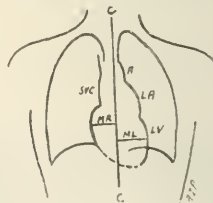


FIG. 3.—Mitral stenosis. In pure mitral stenosis the x-ray pathology is evidenced by the enlargement of LA, the curve due to the hypertrophied and dilated left auricle.

pneumopathies (25,000), the x-ray evidence showed relatively fewer dropped hearts than other forms; the proportion was practically one dropped heart to eighteen others. (See Figure 5.)

Kimoroentgenography.—In the study of sinus arrhythmia kimoroentgenographic evidence is of great use. The pulsations of the various heart chambers can be studied with the x-ray through the

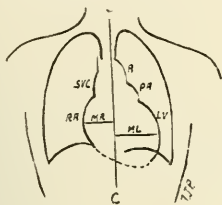


FIG. 4.—Mitral insufficiency. The entire cardiac shadow is enlarged. Although the pulmonary artery is prominent, the prominence is not due to an enlargement but to a displacement incident to the general hypertrophy of the heart.

method first introduced by Gocht and Rosenthal. In this method the patient stands with anterior chest wall against a lead screen in which there is a narrow horizontal aperture. The screen is movable and can be placed opposite the portion of the heart to be studied. Adjustment is made under fluoroscopy, and when the desired heart chamber is localized, an exposure is made while a photographic film or plate is moved against the slit. This method has not been used sufficiently generally to permit of any formulae to present relative to the various sinus arrhythmias and their x-ray pathology.

Pericarditis.—Pericarditis is always due to bacterial infection. Streptococci, staphylococci, pneumococci and tubercle bacilli are the most frequent organisms inciting pericardial inflammation. Acute forms of pericarditis are classified according to their exudates as fibrinous or dry, and pericarditis with effusion. Fibrinous pericarditis may be accompanied with only a slight exudate; but when the exudate increases in volume it forms villi on the epicardium, giving rise to the condition known as cor villosum. The x-ray pathology is manifested by the projection of radiopaque villus masses between the cardiac outline and the pericardial delimitation. When healed, the fibrin may be entirely absorbed; or it may undergo organization leaving sclerotic areas diffusely scattered over the heart surface.

Pericarditis With Effusion.—In this, the fibrinous exudate is accompanied by a serous, hemorrhagic, or purulent fluid. As the fluid accumulates in the pericardial sac it gravitates to the most dependent por-

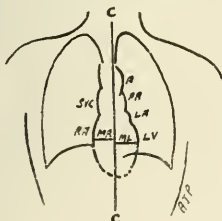


FIG. 5.—Dropped heart. In this the normal curves remain, the entire heart hanging lower in the thoracic field.

tion when the patient is x-rayed in the upright position. As the volume of fluid increases, the pericardial sac distends and becomes pear-shaped. The fluid in the sac is radiopaque; so that the x-ray path-

ology of pericarditis with effusion is that of a pear-shaped shadow replacing the former normal cardiac outline. It is a distinctly recognizable entity. There is nothing that can be confused with peri-

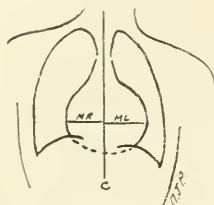


FIG. 6.—Pericarditis with effusion. The cardiac contours are eliminated owing to the distention of the pericardial sac incident to the effusion.

carditis with effusion when the effusion is of consequential volume. The shadow is further characterized by the relatively equal distribution of the pear-shaped rotundity on each side of the mid sternal line. (See Figure 6.)

The non-inflammatory affections of the pericardium, including hydro-pericardium and hemopericardium, are not to be distinguished, from x-ray pathology, from the inflammatory pericardial effusions.

Aneurysms.—Aneurysms are chronic dilatations of arterial lumens in which the wall undergoes a new formation. They may be circumscribed or discrete. The x-ray pathology of aneurysms is elicited by dorsoventral examinations and also a right oblique position. In schematic representation the aorta can be seen in the dorsoventral position as the uppermost curve on the right of the sternum. This is the descending arch. The ascending arch seldom protrudes from the left of the sternal plate. In the oblique view, the aortic shadow is seen as a cylinder of uniform diameter just behind the sternal plate. (See 1, Figure 7.) The aorta may tumefy diffusely usually as the result of a specific aortitis, in which case the shadow to the right of the sternum pro-

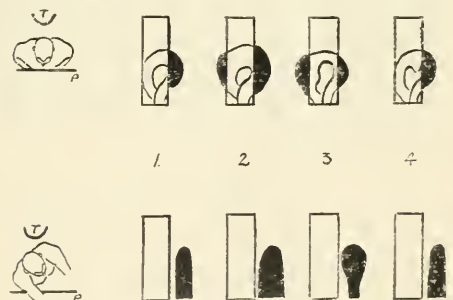


FIG. 7.—Above are shown in diagram the relations between the sternal plate and the aorta when the exposure is made in dorsoventral posture. Below, by exposing obliquely, the aortic shadow is cast to the side of the sternal plate. 1, represents that portion of the aortic arch visible in a normal case; 2, represents a general dilatation or aortitis; 3, represents a fusiform aneurysm. In 4, the sacculated aneurysm is not visible because hidden by the sternal plate.

trudes with greater accentuation, and the shadow to the left of the sternum appears definitely enlarged. In the oblique position the cylinder is much wider than normally. (See 2, of Figure 7.)

In fusiform aneurysms, in which physical signs are more prominent than the symptoms, affecting particularly the ascending arch, there is seen on the x-ray a widening to the left of the sternum with

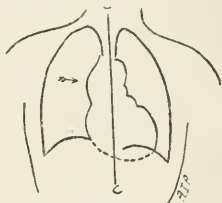


FIG. 8.—Ascending aortitis. The curve normally due to the superior vena cava is masked and replaced by a more greatly accentuated curve incident to the aortic hyperthrophy and dilatation.

little or no change on the right. In the oblique form the cylinder shadow is replaced by a club shadow, narrow at the base and widened and round above. (See 3, Figure 7.)

In the sac form aneurysm, the bulging occurs usually in the transverse arch, interior wall, between the ascending and descending portions of the aorta. This part of the aorta falls behind the sternal plate; so that no x-ray pathology can be depicted in the radiograph. In the oblique position, the bulging of the sac aneurysm does not show. (See 4, Figure 7.)

Under fluoroscopic examination a valuable sign useful in distinguishing aneurysms from other tumefactions is the pulsation present in the dilatation when due to aneurysms. If the pulsation is present, the indications are in favor of aneurysm; but the sign is not infallible, for pulsation may be noticed in some aneurysms, and a wave-like motion difficult to differentiate from pulsation may be present in tumefactions other than aneurysms involving the mid sternum.

It is difficult to differentiate between aneurysm of the ascending aorta and dilatation of the ascending aorta incident to specific aortitis. From the x-ray pathology there is a widened aortic arch above the base of the heart, which widening is less marked in aortitis than in aneurysm of the ascending aorta. The two may in many cases be confused, and clinical methods other than x-ray must be resorted to for the final differentiation. Specific aortitis shows on the x-ray plate in the manner indicated in Figure 8.

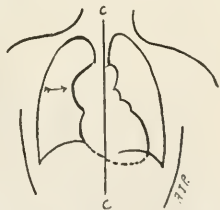


FIG. 9.—Aneurysm of the ascending aorta. As in Fig. 8, aneurysm of the ascending aorta produces a bulging of the ascending aortic curve superimposed on the curve due to the superior vena cava.

Aneurysm of the ascending aorta is typified on the x-ray plate by a more accentuated cylinder as illustrated in Figure 9.

Arteriosclerosis.—Calcific infiltration of the ar-

teries may sometimes be noticed in special regions, as in the popliteal space or over the os calcis. The x-ray evidence is distinct and can not be mistaken for much else. In general, the x-ray fails to indicate calcific infiltration of the arteries unless this infiltration is markedly pronounced. Immediately following a salvarsan injection into the median basilic vein, an x-ray exposure of the arm will sometimes show the course of that vein. There is no great x-ray benefit to be derived from the ability to outline the vein in this manner; but the fact that it can be visualized through the use of an injection might be remembered with the view to usefulness should an occasion arise.

THE DIET AS A POSTOPERATIVE FACTOR IN GASTROINTESTINAL DISORDERS.

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FROM my experience as a gastroenterologist, there has been forced upon me the conclusion that the postoperative treatment, from the dietetic standpoint, of duodenal ulcer, ulcer of the stomach, and gastric conditions caused by extragastric lesions is neglected either because of a poor knowledge of the subject or through thoughtlessness. Statistics have shown repeatedly that the gastric or duodenal condition is not always cured by operative procedures. As a matter of fact the more conservative and more experienced gastroenterologists are absolutely averse to surgical procedure in duodenal and gastric conditions unless there is some immediate danger. On the other hand they prefer medical treatment by the proper and accepted methods for a period even as long as one year or a year and a half when necessary. For it must always be borne in mind that even though, to all intents and purposes, surgery offers much quicker relief, nevertheless, the complications arising during the operation and post-operatively make one hesitate before advising operation.

It is in those cases where there is no question about the necessity of operation, that it is absolutely essential to consider the postoperative care of the patient as well as the surgical procedure itself. For the successful outcome of an operative case, it is very well known that the treatment following operation is as important as the operation itself. To carry this point a step further, it is also of importance that the care of the patient should continue for an extended period after the time that he is discharged by the surgeon as cured. Often the duration of such a treatment will be as long as several months or even a year. There is no absolute means of judging this period. It depends on the symptoms. As a matter of fact there are cases which have experienced considerable relief and even absolute freedom from symptoms for a month or more after operation. The symptoms will recur even after this period of relief when there has been carelessness in the diet. As a matter of fact many of these patients, experiencing for the first time in years such marked relief from their symptoms, are very prone to abuse their privileges with the result that the same conditions that caused their former lesions recur and tend to create a pathologi-

cal state similar to that present before the operation.

In the dietetic treatment following operation for duodenal ulcer, gastric ulcer, and extragastric conditions producing gastric symptoms, there must be considered the pathological condition of the stomach and duodenum. The common conditions are duodenal ulcer, gastric ulcer, and various degrees of gastritis resulting indirectly from appendical or gall-bladder disease. Aside from the injury present in the form of the ulcer, there is added, following the operations, trauma resulting from the operation itself. This trauma results whether there has been performed a resection of the ulcer, a gastroenterostomy, or even a pyloric resection. The existent gastritis produced by extragastric conditions is further aggravated by the action of the ether, either swallowed directly or excreted through the stomach. These in brief present the pathological conditions which must be borne in mind and which must be dealt with postoperatively.

The diet following operations is dependent as a rule upon the institution in which the operation is performed, and also upon the customary method of the surgeon himself. Institutions differ as to the prescribed diets, usually arranging the diet to fit their economic state. From a financial standpoint it is no more expensive to prepare for the patient the proper kind of food than it is to dole out a diet not suited to his particular case. On the other hand another factor, such as insufficient help to prepare the food properly, adds another and more difficult problem. For the first few days the dietetic treatment differs very little whether the operation has been performed on the duodenum, stomach or outside of these organs. The rule is usually to avoid anything which may tend to evoke any irritation producing conditions injurious to the healing of the wound. The patients are given fluids at first in very small amounts and this is gradually increased if there are no untoward symptoms. In the extragastric conditions this is soon followed by a soft diet for a few days, then a semi-solid diet, and later, towards the end of the convalescence and just preceding the discharge of the patient, a more solid diet. After operations on the duodenum or stomach, there is usually a longer interval before the semisolid diet stage is reached. This, too, is dependent to a great extent on the improvement of the patient and the custom of the surgeon.

The expressions applied to the diets such as, fluid, soft, semisolid, and solid are very often too loosely used. It is common practice for the surgeon to order offhandedly a liquid diet or any of the other diets without stopping to consider of what these diets may consist. For example, I have in mind a patient whose condition, a gastric ulcer, was such that only a resection of the ulcer and not a gastroenterostomy was permissible. Within a week after the operation, the patient, having been placed on fluids was given coffee, an article of food which he had not used for years and which had always brought on symptoms. Being assured that coffee would produce no ill results he consumed it with no apprehension. Following his discharge as cured, the symptoms, present before operation, soon re-occurred and were just as bad as before. Similar examples might be mentioned of improper diets given

to patients under the guise of soft or semisolid diets.

In the dietetic treatment of all these cases, the measures employed for a varying period following the operation should be the same as during the medical treatment of the condition. Although it is advisable for the surgeon for his private cases to have a more thorough knowledge of the action of foods, especially their chemical and physiological action, it is much better for him to work in co-operation with a gastroenterologist proficient in dietetic treatment. This should especially be done in the case of ward patients in public institutions. Each patient becomes a case unto himself and should be treated accordingly. He should be watched as to, symptoms, and the diet arranged in accordance with the symptoms. When he is discharged as cured by the surgeon, he should be turned over to the care of a specialist in dietetics for a varying period for further observation and treatment.

All foods possessing any stimulating or irritating action should be avoided. All tendencies toward hypermotility and hypersecretion, especially hyperacidity, should be combated. In other words the stomach and duodenum, as any other part of the body where a pathological lesion exists requiring rest, should be given as much rest as possible. Rest of the part is the greatest asset towards the healing of the injury. And by rest is meant physiological rest as well as dynamic rest. Stimulating foods are to a certain extent irritating. These foods tend to stimulate or irritate by a mechanical or physiological action. The mechanically irritating foods are the coarse fruits and vegetables containing indigestible constituents. It has been found that these foods, even when given in a finely divided state, are irritating, hence, they should be eliminated entirely from the solid food list. The physiological irritants are those that act directly on the musoca producing physiological changes, such as, an increased congestion. For with this increased congestion there follow hyperacidity and hypermotility.

Spicy foods with pepper or mustard and other condiments all tend to have this effect. Other physiological irritants are those that act on the secretory cells indirectly and produce an increase in the acid content. Coffee, tea, meat extracts, and certain meats themselves have this tendency. Foods of another class which act differently and cannot be classified as either stimulants or irritants are the fats or fatty foods. These prevent proper rest to the stomach by unduly prolonging the emptying time of the organ.

With a general knowledge of foods that should be prohibited it is a simple enough matter to make out a diet list of foods that are suitable and proper. For the convenience of those who have occasion to treat these cases postoperatively, I am appending a list of foods arranged in the order of their consistency. These foods have been selected with the one idea uppermost in mind, namely, that none shall be stimulating or irritating to the stomach.

Fluids: Water, whey, strained gruels, lemonade, orangeade, orange juice, plain or malted milk, chicken broth, creamed soups without vegetables.

Soft Diet: All foods in the liquid diet, eggs boiled at least 3 minutes, bread, potatoes (baked, boiled or mashed), peas, milk toast, boiled cereals.

except oatmeal, such as rice, farina, cream of wheat, hominy, wheatina; puddings, such as bread, rice, tapioca, corn starch, sago containing no raisins; custard, ice cream, gelatin preparations, strained jellies, broths containing noodles or rice.

Semisolids: Foods in the above list, chicken, broiled fish, except salmon and mackerel, cream or pot cheese, macaroni.

It has been my practice in those of my cases operated upon privately to cooperate with the surgeon in the after care. As a result of this cooperation, there have been very few recurrences of symptoms in these cases and this success has prompted the writing of this paper. I have been convinced from this that by properly following out the above suggestions and recommendations, there is every reason to believe that there will be a reduction in the number of failures following operation in the class of cases mentioned in this paper. As a result of this, greater confidence will be placed in surgical interference for the cure of duodenal and gastric ulcer and for the relief of gastric symptoms in extragastric disease.

1172 CHAPEL STREET.

THE ACRIFLAVINE IRRIGATION TREATMENT OF GONORRHEA.

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As the use of acriflavine in the cure of gonorrhea and its complications is becoming more common since the original utilization by Davis and Harrel¹ and by Watson² during the World War, it is of interest that the results of such treatment be reported.

It is needless to go into the history of the discovery of acriflavine, its nature, properties, etc.; but it is of importance to consider the advantages of using this dyestuff and the technique employed. Acriflavine is highly gonococcicidal³, inhibiting a growth in cultures in a dilution of 1:300,000, being 600 times as strong as protargol.

The penetrating powers are very great,⁴ as experimental studies show, for after injection into the urethra it is found to penetrate to the muscular layers, making it especially useful when the gonococci have gone deeply into the urethral tissue.

The solution suitable for irrigation, a 1:4,000 strength, is absolutely bland and non-irritating to the urethra and bladder, there being no burning or dysuria following daily use over a period of a few months in complicated cases. When the urethra is considerably inflamed the meatus swollen, and dysuria present, acriflavine may be used immediately without pain or discomfort to the patient.

The technique employed is that of Watson, a 1:4,000 solution of acriflavine in physiological saline, body warm in temperature, being used once daily.

For the sake of convenience and to obviate the necessity of either keeping a great bulk of solution on hand or of making up a solution from the powder each time, a stock solution of a 1:500

acriflavine containing a dram of sodium chloride to each two ounces, is kept on hand. A more concentrated solution will "salt out" and form a precipitate of the dye.

In preparing an irrigation, two ounces of this stock solution is diluted up to one pint with warm water, yielding a 1:4,000 solution of acriflavine in a physiological saline solution.

The treatment of an acute anterior involvement consists of a daily irrigation of the anterior urethra, with one pint of solution prepared according to directions stated; and of retaining the solution in the anterior urethra for ten minutes at the end of the irrigation. Even in cases where there is considerable inflammation with a painful swollen canal and meatus, acriflavine may be used immediately, as it is absolutely non-irritating and because of its marked penetrability will bring the condition under control within a short time. But for the drinking of ten to twelve glasses of water daily, this constitutes the entire treatment, the patient using no hand injections.

If during such treatment the second urine becomes cloudy, indicating posterior involvement or in primary acute anteroposterior urethritis, intravesical lavage is used immediately, providing the symptoms are not hyperacute. In that case, anterior irrigations alone are used until the severity of the symptoms lessen, when intravesical irrigation is instituted.

When a subacute or chronic posterior urethritis plus prostatitis exists, providing there be no acute epididymitis, daily intravesical irrigations may be used immediately and the prostate massaged on the injected bladder bi- or tri-weekly.

The efficacy of the treatment of gonorrhea with acriflavine must be judged by the results.

Watson, who treated 222 cases in the British Army, with no other remedy than flavine, states that in 198 cases, those uncomplicated, the average time for cure was 15.4 days. There were relapses in 6 per cent. of the cases, but the accepted cure was non-recurrence within four days after stoppage of treatment, when his patients were ordered back to duty. Hyman⁵ recommends irrigating for six to eight days after the discharge stops, even though smears be negative, as is generally the case in one to five days after the institution of the treatment.

On controlling cases by smears and observing the amount of discharge, it was found that no matter how profuse a discharge may be, it practically stops in one to five days or becomes very small in amount and of a white mucoid character, no gonococci being demonstrable. Burning and dysuria, if present, abate and the patient is not only relieved physically but mentally.

The results, in a series of 36 cases, complicated and uncomplicated, in tabular form according to diagnosis and to duration of time for cure, are as shown in the table. Imported acriflavine alone gave the results there recorded.

Two of the acute anterior urethritis cases were first attacks, one responding in 14 days and one in 40 days. Of the acute anteroposterior cases one of the patients was suffering from a first attack, and responded to the treatment in 30 days.

BEHAVIOR OF THE BLOOD CELLS UNDER VARYING CONDITIONS.

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Diagnosis	Number of Cases	Average Time of Cure	Mean Time
Acute anterior urethritis	21	13 days. ^a	11 cases cured in 10 days or less
Chronic anterior urethritis	1	This patient had an infected follicle just within the meatus and had two recurrences before this focus of reinfection was discovered having responded promptly to treatment each time, over a period of two months. As he disappeared from view after discharge had stopped for a third time, it is assumed that a cure was effected.	
Acute antero-posterior.	4	28 Days.	Shortest Time. 15 Days.
Chronic antero-posterior with prostatitis	4	41 Days.	10 Days.
Urethritis acute & chronic with prostatitis, vesiculitis, epididymitis.	4	(1) Responded in 3 months. (2) Responded in 4 months. (3) Responded in 2 months with no result. (4) Responded in 4 months.	
Urethritis, acute & chronic, plus stricture.	2	(1) Slight discharge in 20 days. (2) No discharge after 40 days. No discharge after 20 days.	

These cases were controlled by observation of the amount of discharge and by smear; the patients being allowed to go without treatment, irritated by imbibing alcohol and given provocative injection plus massage on a sound. All patients were observed for at least ten days after treatment was stopped, and some were cultured for gonococci.

In conclusion, it may be said that some cases, not included in this series, having had other treatment before acriflavine treatment was instituted, have been fairly uniform in their quick response and good results. In regard to the cases included in this series, I wish to say that the results were more than ordinarily satisfactory and that it seems that acriflavine in a strength of 1:4,000 in physiological saline is, to-day, the best remedy we have for the irrigation treatment of gonorrhea, as may be judged by the records above.

I wish to extend my thanks to Dr. A. Hyman, both for his kind suggestions and help and for allowing me to utilize the records of results obtained in treating cases, in conjunction with him.

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50 WEST EIGHTY-FOURTH STREET.

Sclerodermic Arthropathies.—Adrian and Roederer write exhaustively on the arthropathies which develop in the course of scleroderma. Of these there are three groups. In the first the arthropathies are primary, preceding the scleroderma; in the second the two types of lesion are evolved simultaneously, and in the third the joint lesions appear after scleroderma is under way. The authors eliminate all arthropathies due to familiar causes and discuss only such lesions as apparently have a common origin with scleroderma.—*Annales de dermatologie, etc.*

ON Nov. 6, 1915, and April 1, 1916, I reported in the MEDICAL RECORD the results of a study I had made on the cells in the cerebrospinal fluid and blood, stained with benzidin or benzidin combined with picric acid. At that time I found that some of the white cells contained granules, which granules stained blue with the benzidin stain; that some of the white cells (the entire cell including its nucleus) stained blue. With the benzidin stain which cells I called the transitional cells of Lemchen, as they seemed to me to be forerunners of the plasma cells; that some of the red cells did not stain blue with the benzidin stain; that nucleated red cells, both the cell and the nucleus, stained blue with the benzidin stain; that the blood platelets did not stain blue with the benzidin stain, and that fibrin also stained blue with the benzidin stain. The conclusions I drew at that time from my observations were that the white and red cells have different origins, that the platelets have not their origin in the nucleus of the red cells, and that the red cells may take part in the coagulation of the blood and in the agglutinations in the infectious diseases.

Since I wrote those papers several others have appeared in the Medical Literature. One of these is by McJunkin, in the *Journal of the A. M. A.* on Jan. 3, 1920, who states that by adding a polychrome stain to the blood cells after they are stained with the benzidin stain he is able to find granules in some of the white cells, but these are stained brown instead of blue as I found them when I used the benzidin stain alone. MacLins reported in the *Archives of Neurology and Psychiatry* for April, 1920, in the study of brain repair and staining with the benzidin stain, that he found cells that also stained blue with the benzidin stain, which cells he called macrophages. However, the description of the cells shows that they are not identical with the cell that I described on Nov. 6, 1915, but they rightly claim that those cells have their origin in the endothelium and neuroglia cells.

The interesting part of it is that the same macrophages are found also in the cerebro spinal fluid in organic brain diseases, like general paralysis, meningitis, some forms of encephalitis, etc. While the endothelial cells may have their origin in the blood vessels of the meninges or in the meninges themselves, the neuroglia cells must have their origin from without and therefore the choroid plexus is not as impregnable as the anatomists would have us believe. I myself have reported in the MEDICAL RECORD for July 17, 1920, that in influenza the blood platelets are diminished while the coagulability of the blood is increased. Since I have found that when the spinal fluid contains a large number of red cells that do not stain blue with the benzidin stain, if we let these cells stand in a test tube the red cells will clump in a shorter time and the clump will be firmer than when there are only a few or no red cells that do not stain blue with the benzidin stain.

The conclusions to be drawn from those observa-

tions are, in addition to the previous ones, that, in disease at least, the choroid plexus or the blood vessels in the meninges allow cells to pass into the cerebrospinal fluid and that the catalase ferments, to which the cells owe their power of staining with the benzidin stain, in some way prevent the coagulation of the blood during life.

INFESTATION OF A HERD OF SWINE BY HYDATIDS.

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ON a Southern plantation eighty-seven hogs were being kept in a two-acre pasture, fed all the shelled corn they could eat from self-feeding bins, to fatten them and change their mast-fed fat, which is oily and transparent, to the thicker, white, opaque fat of corn-fed. The man in care of these hogs, who had a *mediocanellata* tapeworm, frequently defecated around the corn bins. Those hogs were all killed within two days, and when the livers of many of them were examined, they all had many hydatid cysts, from 1/8 to 1 in. in diameter. Some larger ones contained a milky fluid which under the microscope showed round bodies from 1/2,500 to 1/1,200 in. in diameter—elongated, flattened at one end, at the other end having a circle of hooklets. The men killing the hogs said that about every liver had the cysts. The plantation store-keeper selected a piece of liver from one of those hogs which he thought did not contain a cyst, and after it was cooked ate it. Later he had the same kind of tapeworm.

Those hogs were taken from a lot of near 3,000, that were born and raised in an uninhabited wooded river bottom, that partly overflowed at times of high water. There was no possible chance of their having become infected there. They were kept in the pasture above mentioned not over two months. The man occasionally went to the R. R. Station and probably got his worm from a lunch in a saloon.

Medicolegal Notes.

Insufficient Evidence of Malpractice—Escape of Tube Into Wound.—In an action for malpractice based on the escape of a drainage tube into the plaintiff's pleural cavity following an operation there was only the fact of the escape of the tube some ten days after the operation and its insertion by the defendant surgeon into the incision made by him, and after the wound had been dressed several times by different hospital nurses. It was held that this evidence was insufficient to support the charge of negligence, which was bottomed only on the manner or sufficiency of the fastenings. The doctor saw the patient about twice a day after the operation. It did not appear that the dressing of the wound was had in the doctor's presence, or that the nurses were not skilled in doing their work. The patient sustained a somewhat different relationship to this doctor, so far as nurses were concerned, that he would sustain if he were a private patient under the charge of nurses selected and placed in charge by the doctor. It was held a pertinent inquiry to ask a witness familiar with the duties of a nurse in a hospital whether it was the duty of the nurses to see that the tube was in and that the stitches were in place at the time they dressed the wound. The jury might well find that the defendant properly fastened the tube and was guilty of no negligence in the manner in which he fastened it, but that

the internes or nurses whose duty it was to dress the wounds were negligent and careless in the dressing, and through this the tube became loosened from its moorings and slipped into the body. The defendant was not charged with any negligence of the nurses in dressing the wound. It was also held that expert testimony as to the malpractice was not necessary where a surgeon, knowing exactly where a drainage tube was located in a patient's body, in an effort to remove it, cut the body at such point as would clearly suggest to the mind of the ordinary layman that the wound was grossly in excess of what was reasonably necessary to reach the tube. For the purpose of negating the claim of the defendant that the plaintiff was not able to take an anesthetic, or to submit to a proper operation to have the tube removed, the plaintiff introduced evidence that a year later he had the tube removed and was able to submit to an anesthetic without suffering any ill effects. It was held that such evidence did not have the intended effect. It is a general rule that a condition shown to exist is presumed to continue until negated, but this rule applies only to permanent and continuing conditions.—*Burriss v. Titzell*, Iowa Supreme Court, 177 N. W. 557.

Choice of Method of Treatment — Negligence of Nurses Will Not Be Assumed.—In a malpractice case the West Virginia Supreme Court of Appeals holds that if a surgeon adopts, in the treatment of a case, a method established and approved by physicians and surgeons generally in the community in which he performs the operation or gives the treatment, at the time thereof, and is not negligent or careless in its application, he is not liable for injuries caused by such treatment. If there are two or more approved methods of treatment of an injury of the kind committed to his care, he may adopt the one which, in his honest opinion, will be the more efficacious and appropriate under all the circumstances, and, in such case, he is not liable for an injury resulting from an error in his judgment, if there be one. He is not bound at his peril to adopt the best method. In such an action it is error to admit evidence of a method of treatment, antedating the treatment involved by a long period of time, and differing materially from the method adopted in the treatment and generally approved and used at the time thereof. The propriety of the use of a plaster of paris cast in the treatment of a compound comminuted fracture of the leg having been established by uncontradicted evidence, it is held error to give an instruction to the jury based upon the hypothesis of negligence in the mere adoption and use of that method, even though an injury has followed which might have resulted from use thereof in an improper manner. If, in the trial of such a case, incompetency of the nurses is relied upon, and no evidence has been adduced for the purpose of proving it, except lack of graduation of the day and night nurses, the head nurse being a graduate, and there is no evidence of any omission of, or any departure from, the instructions given them, nor of any action or conduct on their part resulting in or causing the alleged injury, it is held error to give an instruction founded upon the assumption of evidence of their incompetency and negligence, or either of them.—*Browning v. Hoffman* (W. Va.), 103 S. E. 484.

Statute Authorizing County Support of Hospitals Includes Privately Owned Institutions.—The Michigan Supreme Court holds that the grant of power to a county to support hospitals, in article 8, section 11. of the State Constitution, is limited to those institutions only where "persons suffering from contagious or infectious diseases" are treated, and Michigan Pub. Acts 1909, No. 139, providing for the raising of taxes to support hospitals without such limitation, is invalid in so far as it purports to permit counties to appropriate money for hospitals generally. However, the words "public and charitable institutions" in the said section of the Constitution providing for county support, do not refer exclusively to institutions owned wholly by the municipality, and where a hospital incorporated under Pub. Acts 1903, No. 171, receives "persons suffering from contagious and infectious diseases," it comes within the purview of such constitutional provision, which is self executing, and warrants a county appropriation therefor even though a legislative enactment under the section is invalid.—*Sault Ste. Marie Hospital v. Sharpe* (Mich.), 177 N. W. 297.

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REPORT OF THE SURGEON GENERAL OF THE ARMY.

SUFFICIENT time has now elapsed for the compilation of statistics of mortality and disability resulting from the World War. It is possible now to contemplate the great struggle in terms of final results. In his annual report for the year 1920, the Surgeon General of the Army catalogues the final results up to the end of 1919, the latest date for which definite statistics could be stated at the time of formulating the report. Thus, 5,768 military patients whose admissions had been caused by injuries received in battle in Europe remained in Army hospitals in the United States. This number, we are told, was only 2.57 per cent. of the total number of casualties so handled. Not including marines, there were treated in United States Army hospitals during the years 1918 and 1919, 224,089 officers and men of the Army who had been wounded in battle. Of this number 13,691, or 6.11 per cent., died as a result of their injuries; 158,585, or 70.77 per cent., were returned to duty in France; 70,175 cases, or 33 $\frac{1}{4}$ per cent. of all cases other than those which resulted in death, were returned to duty in 29 days or less, the average time for them being 14.17 days. There were returned to the United States for further treatment, 51,813, or 23.12 per cent. of the total. Of this number 20,588, or 39.74 per cent., were ultimately discharged as unfit for military duty, or with 10 per cent. or more disability. In addition to this number, as stated, there were 5,768, or 11.13 per cent., of the cases that were invalidated home, remaining in hospital at the close of 1919. Of the 2,039,329 men who were reported by the General Headquarters, American Expeditionary Forces, to have arrived in France, 110 men out of every 1,000 men were admitted to hospital as a result of battle injury, and 6 $\frac{3}{4}$ died in hospital as a result of those injuries. The Infantry suffered the heaviest loss in wounded and in killed, the former being 215.66 per cent. per 1,000, and the latter 12.77. The Signal Corps was second, with 52.22 wounded and 3.13 dying of wounds.

The classification of admissions to hospital according to military agents responsible for injuries shows that of the total admissions, gunshot wounds accounted for 147,651, or 65.90 per cent.; gases for

70,552, or 31.49 per cent.; and other military agents for 5,886, or 2.63 per cent. Of the 13,691 deaths, gunshot injuries accounted for 12,192, or 89.05 per cent.; gas for 1,221, or 8.92 per cent.; and other military agents for 278, or 2.03 per cent.

Final results (definite disabilities) have been catalogued for 19,768 of the 20,588 men who were discharged for disability, and for the 5,768 who remained in hospitals on December 31, 1919. It is interesting to note, in this connection, the final setting at rest of the persistent and horrifying "first-hand" reports, heard during and shortly after the war, of so-called "basket cases"—unfortunates who had lost both arms and both legs. Not one soldier, the Surgeon General tells us, lost both arms and both legs; nor did one soldier lose both arms or both legs with one other of the opposite extremities. Eleven lost both legs at the thighs, one both legs at the knee, 9 both legs below the knee, one both feet, and 3 one arm above the elbow with one leg at the thigh. In all, 4,403 soldiers lost part of one or more extremities. Counting traumatic cataract as loss of sight, 66 men lost both eyes or the sight of both eyes, 44 lost partial sight of both eyes, and 644 lost one eye or the sight of one eye; 4,790 soldiers had a partial or complete ankylosis of one or more joints. The final results among the 19,768 wounded men catalogued showed 21,696 separate disabilities; 19,140 of these were the result of gunshot missiles and 2,556 of gas. Of the total injuries by the various missiles, the following percentages were catalogued in the final result for each 1,000 injured: Hand grenade, 24.20; shell, 22.04; rifle, 18.30; shrapnel, 15.44; other gunshot missiles, 7.43. Of the total cases gassed, only 2,556, or 3.62 per cent., showed disabilities in the final results; of this number chronic bronchitis accounted for 2,198.

The four diseases that stood at the head of the list as causes of death in the United States also stood at the head of the list in Europe, but with the order changed. Thus, in Europe, the order was: Influenza, 2.00; bronchopneumonia, 1.80; tuberculosis, 1.43, and lobar pneumonia, 1.27. The mortality from these four diseases accounted for almost 80 per cent. of the total deaths from disease in Europe.

It is impossible here to give a full account of the statistical department to date, but the figures given, compared with the numbers involved, and considered in the light of all the circumstances, give us good reason for thankfulness that fatalities and disabilities among our soldiers were relatively so light. Contrasted with the figures of other wars, the statistics given by the Surgeon General should make us doubly thankful, and deeply appreciative of the splendid work of the Medical Department in the case of the sick and wounded during the emergency and in the trying days of post-bellum reconstruction.

NON-TUBERCULOUS SPINA VENTOSA.

CASES of spina ventosa are occasionally encountered which are not due to tuberculous lesions, being the clinical manifestations of either syphi-

lis or a sporotrichosis infection. These morbid processes, in fact, are capable of infecting bone tissue and of determining numerous clinical types, such as hypertrophic osteitis, purulent osteoarthritis, intraosseous abscess, and osteitis of the vertebrae—sporotrichosis Potts' disease. In some cases it may offer the complete clinical picture of spina ventosa.

Chevalier and Darbois have published typical cases. Usually writers who have observed and described chronic sporotrichosis spina ventosa have insisted on the absence of bone lesions and the low grade intensity of the periostitis corresponding to this clinical phenomenon. On the contrary, in the cases described by Chevalier and Darbois the bone and periosteal lesions found by radiography fully justify the term of sporotrichosis spina ventosa, the process occurring in three different types, namely, ossifying periostitis, rarefying osteitis with decalcification with a reticulated or lacunary aspect, and intraosseous abscess. The resemblance to spina ventosa is thus complete, clinically and pathologically.

Hereditary syphilis may likewise give rise to analogous types and the spina ventosa of hereditary syphilis is much more frequent than has hitherto been suspected. The lesion usually attacks the thumb and index finger, often on both hands. The radiographic findings do not differ essentially from those obtained in the tuberculous variety of the process, and the most that can be said is that there is rarely any very considerable detachment of the periosteum and that the lesions are especially those of rarefying osteitis. But the true diagnosis can be made only when other evidences of luetic taint are present and the Wassermann reaction is positive. Consequently, in all cases in which suspicion of syphilis exists a blood examination must always be resorted to. As to sporotrichosis, it has not the same predilection as syphilis and tuberculosis for young subjects and preferably attacks adult individuals. Radiography is therefore not sufficient for making a diagnosis of the nature of spina ventosa, but it is unquestionably a very excellent auxiliary in confirming any hesitancy in diagnosis and in giving indications for proper treatment. Its usefulness is still greater when the results of radiographic treatment are to be controlled and for following the phases and progress of the process, as well as to appreciate the proper time to interrupt treatment. It must be admitted that the esthetic and functional results obtained by Roentgen ray treatment are almost always equal to those of conservative surgery, especially when the case comes under observation in its earlier phases, and in the tuberculous variety of spina ventosa advanced bone lesions with fistula are no contraindications for the treatment. Carried out with those precautions dictated by experience, the Roentgen ray treatment offers no danger from the viewpoint of the integrity of the integuments or the future growth of bones. In the luetic variety a specific treatment should be instituted at the same time.

PODIATRY AS A BRANCH OF MEDICAL PRACTICE.

On January 1, 1913 there became effective in New York State a law which legalized the practice of chiropody. This legislation was sponsored by the New York State Education Department because theretofore the law of 1895 was merely a makeshift to recognize these practitioners practically regardless of their qualifications. The law of 1913 was largely fashioned after the medical practice act and provided surveillance of all chiropodists by the State through its State Board of Medical Examiners. Provision was made whereby in 1921 every intending student of chiropody must have had an academic education equivalent to graduation from a recognized High School; that certain essential medical studies must have been pursued at a standardized School of Chiropody, and that no one, not heretofore legally authorized to practise chiropody, should be licensed so to do unless he or she had passed an examination (covering two days) before the State Board of Medical Examiners. Since then twenty-six of the States in the Union have passed similar laws and within the next three or four years it is reasonable to suppose that every commonwealth in the United States will have legislated similarly.

In 1919 the New York State Legislature broadened the definition of chiropody and incorporated the term podiatry as synonymous with it. Today podiatry, the care of the human foot in health and in disease, is a quasi-profession, bearing allegiance to medicine. Its sponsors have organized a National association, and throughout the country there are teaching schools of podiatry whose faculties are made up largely of licensed medical practitioners. They teach all branches of medicine, the knowledge of which is essential to a proper recognition of the underlying causes of abnormal foot conditions. Foot clinics have been established in connection with these schools where the students, under proper supervision, are taught the practical features of their intended life vocation.

The outstanding feature which rendered it desirable that chiropodists who for centuries have been tolerated in treating human foot ills because the licensed practitioner of medicine considered such practice *infra dig.*, was and is based upon the fact that the public demands this foot care and that no reason exists why it should not be accorded by those properly groomed to practise it. That the recent graduates in podiatry are being thus equipped is manifest. During the past three years the MEDICAL RECORD and other medical journals have published numerous articles on foot lesions from the pens of graduates of The First Institute of Podiatry, which have proven illuminating. Some of these articles have attracted laudatory comments from well-known orthopedists because of their scientific features and the clarity of expression of their writers.

The question naturally arises, why is this legitimate branch of medicine not taught to the students in our medical schools or how comes it that none of the postgraduate medical schools have as yet estab-

lished courses so that practitioners may be taught the principles of podiatry? The economic question which is continuously obtruding itself in medicine finds in podiatry a means of broadening the doctor's sphere. There are thousands of practitioners of podiatry in the United States, and it is stated that their average annual income is fully equivalent to the average annual income of the doctor of medicine. Here then is a by-product of medicine just as many medicines are the by-products of coal-tar, which, like the gnawed bone, has been swept from the table of the satisfied diner, to furnish a feast for one less fortunate.

While some of these Schools of Podiatry are unquestionably doing good work in a worthy cause, others are probably purely commercial institutions, and it is high time that all of them should be investigated by the proper authorities. If something of this kind is not promptly undertaken and if the care of foot ills is not recognized as a legitimate function of the medical practitioner, podiatry will become an entity, reliant upon its own resources, whereas if properly directed it might profitably come into the medical fold.

AN EPIDEMIC OF HICCOUGH.

At a recent meeting of the Paris Neurological Society several members gave their experience with cases of hicough which were remarkably similar and pointed to the fact that a quasi-epidemic was present in Paris. An account of this is given by Logre and Heuyer in the *Gazette des Hôpitaux* for December 18, 1920, xciii, 106. Both sexes were attacked, and as a rule adults predominated. The disease began as a sort of grippy cold, and after the rhinopharyngitis had persisted for 24 to 48 hours the hicough supervened. The latter was persistent and quite rhythmic and so incessant that there was "one hicough for every two respirations" in certain of the cases. Eating was prevented, and some patients vomited. Sleep was poor, light, and interrupted, and some patients hicoughed through their sleep. Occupation was interfered with, necessarily if conversation was required. A magistrate in the discharge of his duties was much embarrassed. The affection got on the nerves of patients but was altogether benign. As a rule in two or three days, and exceptionally in a week, the attack terminated, usually with a spell of deep sleep. Antispasmodics were of little avail. Perhaps hypnotic anodynes exerted some good effect by making the hours of sleep longer, but there is no evidence that the course of the disease can be shortened. One fatality is known to have occurred but particulars are not stated. Usually the condition has been so mild that the patient has gone to the druggist first; and one apothecary relates that he was approached by seven patients in one week who wished "something for the hicoughs." In speculating on the nature of this malady it is known to be contagious from person to person, which would differentiate it from seasonal influenza and epidemic encephalitis. There was no hicough in the grippal pandemic of 1918, but last year this phenomenon was sometimes

seen in myoclonic encephalitis, due evidently to implication of the diaphragm in the clonus. The two forms of hicough are seemingly not related.

The myoclonic form was of grave prognosis and there is no similarity apparent between epidemic encephalitis and the affection under consideration. At the same time the contagious substance is evidently neurotropic, although thus far only for the phrenic nerve. The rest of the picture is decidedly grippal and of the mildest type. Although in some of the patients there was congestion of the base of the lungs, no case of pneumonia has yet been reported. No case seen has been regarded as serious enough to justify diagnostic lumbar puncture. The portion of the phrenic involved, whether nucleus, trunk or terminal ramification is as yet uncertain. The author appears to suggest that there may be some relationship between the congestion of the lower lobes of the lungs and the terminals of the phrenic but does not urge this point. Attempts were made to produce traction on the phrenic and to refrigerate the cervical part of the trunk; results are said to have been "variable."

TREATMENT OF SEASICKNESS.

NOLF's method of treating seasickness, which has been recently published, is reviewed in *La Presse Médicale* for Nov. 6, 1920, xxviii, 81. The older practitioners often sought to produce a hyperemia of the brain, the syndrome being thought due to cerebral ischemia. Among the remedies are certain vasodilators such as caffeine, camphor, and glonoin. Other remedies are given without theory and represent pure empiricism. Seasickness is due to labyrinthine vertigo, or at least comprises that phenomenon, which in many respects suggests a vagotonic component. According to Nolf, seasickness may be closely simulated in poisoning by pilocarpine, muscarine, or eserine. Upon this theory he has made many experiments with atropine and finds that in the majority of cases it is a specific for this affection. In negative results the dose may be too feeble. This should be sufficient to produce the physiological action of the drug—dryness of the throat and acceleration of the pulse. Ordinarily two milligrams of the neutral sulphate in three doses will answer. The treatment should begin before vomiting sets in. The hypodermic use of the drug in the author's experience has given negative results when injected during the status, hence atropine is rather prophylactic than curative. Small doses taken for some days ahead of the projected voyage seem to confer immunity on the specially predisposed. As Cheinisse states, Nolf is not the first who has recently recommended this treatment. In 1919 Cazamian, on the basis of the vagotonic theory, prescribed atropine, and one of his articles was reviewed at the time in the *MEDICAL RECORD*. He used the hypodermic route and gave the drug in advance of the outbreak. Recently Naame has combined adrenalin with atropine, while Pron has given with success before sailing a mixture of belladonna, cannabis indica, and other sedatives. Nolf began his studies on the subject as far back as 1916. The drug was, however, well spoken of as a remedy for seasickness in the early '90s of the last century.

BUBONIC PLAGUE IN FRANCE?

ACCORDING to the daily press it has been officially admitted that cases of this affection have been recognized in Paris. Thus far the medical journals received have said little or nothing on the subject, but in the *Infectious Diseases and Hygiene* number of *La Médecine* (December, 1920, ii, 3) Joltrain, chief of the laboratory service of the university, discusses the disease freely and states that the bubonic type is the only one which has been seen in France, names, places, and dates being omitted. Whenever the plague enters a country we note the same phenomena. Cases are overlooked or regarded as doubtful in the absence of full proofs; diagnosis may be retrospective, the patient having either succumbed or recovered. Of the other clinical forms there are two, the primary pneumonic and the septicemic, the latter being only a hyperacute case of the bubonic type in which death antedates the appearance of buboes. In any suspicious case we should practise hemoculture or if glandular swellings are in evidence diagnostic puncture of the glands. The pneumococcus is often associated in symbiosis in the spleen, buboes, etc., and confusion may result if only one of these is found in the absence of the other; thus, finding the pneumococcus once caused a negative diagnosis of the plague. The latter affection may appear as carbuncles instead of buboes, and such lesions are preceded by blisters. In either case the puncture fluids should be examined for the *B. pestis*. Suppurating buboes may be free from the latter, but contain the familiar pyogenic organisms.

News of the Week.

Travelers Protected Against Water-borne Diseases.—Within the last twelve months the danger to railway travelers of infection with typhoid fever, dysentery, and other water-borne diseases has been reduced to a minimum throughout the greater part of the United States by the cooperation of the United States Public Health Service and the different State boards of health in the testing of the water used on railway trains for drinking and cooking. Within a few months similar protection will be afforded to passengers on river and lake steamers and to ocean steamships sailing from American ports. This work was begun last June and since that time has been carried on in nearly half the States in the Union, in many of which sanitary divisions were lacking. In nearly all of these such bodies have been or are being organized, and in about half of them surveys have been made of many or all important water supplies, most of which have been found safe for use on trains. Periodic examinations will of course be made. It is believed that the information obtained will permit the United States Public Health Service to frame regulations to govern the water supply of all vessels on American lakes and rivers or sailing from American ports..

Report on War Disabled.—A report submitted by Mr. La Porte, Assistant Secretary of the Treasury, which is based on estimates made by the Public Health Service, declares that 40 per cent. of the discharged disabled veterans of the world war are

suffering from some form of mental derangement. Patients of all classes in the Public Health Service hospitals are increasing, according to Mr. La Porte, at the rate of 1,000 a month. On September 10, 1919, there were approximately 5,250 patients in the care of the service, while on January 1 of this year the number had increased to 22,292. Of these patients, 19,019 were war risk insurance patients, of whom 7,586 were suffering from tuberculosis, 5,743 were general medical and surgical patients, and 5,690 were suffering from mental disorders. It is believed that the peak as regards the number of patients will not be reached for ten years, and that when it is reached there will be from 30,000 to 35,000 patients requiring hospital care.

Dirt Plague and Suicide in Hungary.—A report from Budapest states that Hungarians are suffering from an epidemic of carbuncles, and that the hospitals are overcrowded with patients. Professor Arthur Verebely attributes the disease to the lack of soap and linen and says it might be called "the plague of misery and dirt." In Budapest the suffering from cold and hunger is so intense that, according to an official statement, suicides due to these causes average fifteen daily.

Bill to Control Chiropractic.—Senator Fletcher of Florida introduced a bill on January 6 for the regulation of chiropractic in the District of Columbia. The bill proposes to establish a board of five members, representing the various schools of the profession, for examination of applicants to practice chiropractic.

Chicago Opens Drive on Narcotic Drugs.—A campaign to stamp out the illicit trade in narcotics was started by Federal authorities on January 13. Warrants were issued for twenty physicians and druggists, who, the Federal agents say, have been working together in prescribing and filling prescriptions in violation of the anti-narcotic act.

Amendment to Volstead Act.—An amendment to the Volstead act which would prohibit the sale of liquor containing less than 45 per cent. alcohol has been introduced into the House of Representatives by Representative Vare of Pennsylvania. In submitting this amendment Representative Vare stated that complaints had come to him from druggists that manufacturers of liquor as well as wholesalers and jobbers are selling adulterated liquor for medicinal purposes and he urges that in the interests of the public this should be stopped.

War Achievements in Surgery Reviewed.—A conference, conducted by Lieut.-Col. William L. Keller, for the purpose of demonstrating method of treatment and results in war surgery was held at Walter Reed Hospital, Jan. 8. About fifty convalescent patients were exhibited, while members of the medical corps gave a demonstration of the application of standard war splints employed in the transportation and treatment of fractures and of methods of treating bony defects and deformities following war wounds. Among those who took part in the program were Major Marion R. Mobley, Major Tom S. Mebane, Major Henry K. B. Hufford, Major Norman T. Kirk, Major John S. Gaul, and Lieutenant Philip L. Cook. Following a luncheon given to the participants by the Hospital authorities, Dr. Joseph C. Bloodgood of Johns Hopkins Univer-

sity gave a lecture on the subject of bone tumors.

Peking Union Medical College.—In announcing the appointment of Dr. Henry S. Houghton, who has spent fifteen years in China, recently as a member of the staff of the China Medical Board and Peking Union Medical College, to the directorship of this institution, the Rockefeller Foundation describes the work being carried on there. In seeking to aid Western medicine in China, the China Medical Board of the Rockefeller Foundation is endeavoring to provide pre-medical education, undergraduate courses for physicians, graduate study for investigators, laboratory workers, teachers, and clinical specialists, short courses for private practitioners and missionary doctors both foreign and Chinese, medical research, especially in Far Eastern problems, standardized hospitals, education of the public in modern medicine and public health, and the fostering of professional ethics through the development of character and idealism. The institution now has a new fireproof medical school and a 250-bed hospital, the older buildings being used as laboratories and pre-medical school lecture rooms. Women are now admitted to the courses on equal terms with men, and to thorough courses in nursing. The faculty, numbering forty, includes a number of Chinese scientists. It is expected eventually to turn the institution over to complete native management.

Fight Epidemic of Colds.—By order of Dr. George W. Morse, head of the new medical department of the Massachusetts Institute of Technology, members of the faculty are to send all students who are detected sneezing or coughing to the school clinic where they can be taken care of. This order is the result of an epidemic of colds, and not only those who sneeze and cough but those who show symptoms of any kind are to be made to call at the clinic at once.

Bill to Subsidize Prussian Midwives.—A bill has been introduced into the Prussian National Assembly which provides that obstetricians shall henceforth enjoy a semi-official status and receive, besides their minimum fees, an annual salary of 3,600 marks and have each her own exclusive sphere of employment. The measure was introduced by the Socialists on the ground that 100,000 children had perished because the proletarian mothers had been unable to obtain proper advice and help from midwives.

Medical Examination of Jail Inmates.—The New York State Prison Commission recently adopted a resolution urging the sheriff and board of supervisors of each county in the state to make provisions for the medical examination of every person admitted to a county jail and to arrange that all such persons afflicted with venereal disease, tuberculosis, or other communicable diseases may be segregated.

Diphtheria Increases in New York City.—The *Weekly Bulletin* of the Department of Health calls attention to the fact that the prevalence of diphtheria in New York City, during November and December, 1920, was considerably above that of last year and that of the five-year average. During the last two months of 1920 there were 3,544 cases of diphtheria as against 3,004 for the same period of 1919, and 211 deaths during this period as compared with a five-year average of 175 deaths for

these two months. The Department of Health appeals to all physicians to cooperate in special measures to control the spread of this disease: First by immunizing all children who have been exposed to diphtheria, and, second, by urging all families not directly exposed to the disease to be Schick tested.

New York Quarantine Station Transfer Completed.—The deeds of conveyance transferring from State to Federal control the Quarantine Station of the Port of New York have been sent to Washington. The property transferred includes eighteen acres and buildings at Rosebank, Staten Island, Hoffman and Swinburne Islands, and several boarding and fumigating tugs. The Federal Government has paid \$1,395,275 in compensation.

Women's League to Push Child Welfare Work.—The League of Women Voters of New York State has abandoned the women's welfare bills which it has been supporting at Albany, and announces that a large part of its work this year will consist in promoting child welfare work. This feature of the program is in the hands of Dr. S. Josephine Baker, chairman of the league's child welfare committee.

Fund for Study of Convalescence Problems.—The Sturgis Research Fund of the Burke Foundation, White Plains, N. Y., has been established with endowment by the president, Mr. Frank K. Sturgis. The income is to be used in research in cardiac and allied convalescent problems.

Sanitary Engineers Organize.—The sanitary engineers of the various State Departments of Health have recently organized a conference of State sanitary engineers which will meet annually with the Conference of State and Provincial Boards of Health.

Surgeon Operates Though Insane.—According to a special cablegram to the New York *Herald*, Herr Gebherd, a surgeon of Schwerin-Mecklenburg, has continued to perform surgical operations of a serious nature though evidently insane for a long time. Since Herr Gebherd has been certified to be insane and taken to an institution it has been learned that he has performed many extraordinary operations in his demented state, among them being the case of a soldier whose arm was unnecessarily amputated, and a woman whose ear was cut off because she was suffering from inflammation of that organ.

Dr. George Gray Ward, Jr., has removed his offices to 48 West Fifty-second Street, New York City.

Dr. Henry Helmholtz, assistant professor of pediatrics in Rush Medical School and chief of medicine in the Children's Memorial Hospital, Chicago, has gone to Rochester as professor of pediatrics in the Mayo Foundation and head of the section on pediatrics in the Mayo Clinic.

Dr. Henry S. Houghton, who has spent nearly fifteen years in China, has been appointed director of the Peking Union Medical College, conducted by the Rockefeller Foundation and six missionary societies.

Captain J. F. Wallis of the Army Medical Museum, founder of the art of presenting diseases and wounds in wax and paint, described by Major Shufeldt in the *MEDICAL RECORD* of Oct. 19, 1918, has been retired from Government service and returned to civil life.

Dr. Alfred Gordon of Philadelphia has been elected a member of the Neurological Society of Paris, France.

Medical Editors Knighted.—Dr. S. Squire Sprigge, editor of *The Lancet*, and Dr. Dawson Williams, editor of the *British Medical Journal*, recently received the honor of knighthood.

Harvey Society Lecture.—Sir Arthur News-holme, M.D., resident lecturer in charge of Public Health Administration, School of Hygiene and Public Health, Johns Hopkins University, will deliver the sixth Harvey Society Lecture at the New York Academy of Medicine, Saturday evening, January 29, at 8.30. His subject will be "National Changes in Health and Longevity."

Public Health Service Transfers Tuberculosis Patients to East.—The United States Public Health Service announces that all its hospitals in the semi-arid Southwest are overcrowded with tuberculosis patients and the influx of others from the Eastern States continues so great that the Public Health Service has been forced to transfer patients from Tucson, Ariz., and other western hospitals to sanatoriums near Asheville, N. C., and elsewhere in the East. More than five hundred tuberculous subjects in Tucson are unable to gain admission to a sanatorium. Surgeon-General Cumming has again renewed his warning against tuberculosis patients going to the Southwest on their own initiative.

Ships at Sea to Get Medical Advice by Radio.—By an arrangement between the Seamen's Church Institute of New York and the Navy Department, mariners have been trained so that if called upon to treat a serious case of illness or accident at sea they can carry out instructions communicated to them by radio from the physician in charge at the Seamen's Institute. The new emergency radio call for medical help is "K D K E." It is to take its place with the international S O S of all vessels in distress, and means that individual life is in danger and assistance is being asked.

Bill to Consolidate Government Relief Work.—At a hearing before the House Commerce Committee, on January 7, a number of physicians supported the Rogers bill, which proposes to consolidate into one bureau the Government agencies dealing with relief for ex-service men. Dr. Thomas W. Salmon of New York, in urging the passage of the bill, declared that so far not a cent appropriated by Congress for the care of war veterans suffering from disability or wounds incurred in the service had been spent for hospitals for the treatment of the insane. He stated that one-third of the ex-service men receiving treatment at Government expense were neuropsychiatric, and six of each ten men so affected were insane. He deplored the present policy of the Government in sending insane veterans to local asylums, almshouses and sanatoriums operated for private gain. As the result of this method some of these men, Dr. Salmon stated, were lurking at home, afraid to come forward, and were getting worse all the time. Dr. H. A. Pattison of New York, Supervisor of the Medical Service of the National Tuberculosis Association, also supported the bill.

Red Cross Health Work.—The American Red Cross Executive Committee, according to an announcement made by Dr. Livingston Farrand,

Chairman of the Central Committee, has appropriated \$5,000,000 from the society's reserve fund to carry out its program of furnishing desperately needed medical assistance to children in Europe. The first annual report of the Health Service of the Atlantic Division of the American Red Cross gives a detailed account of its health program now in operation in New York, New Jersey, and Connecticut. Chief among its activities in these three States is the establishment of twenty-six Red Cross health centers, of which seventeen are in New York, six in New Jersey, and three in Connecticut. Various phases of health service have been inaugurated in sixty-one other places. The objects of the health service, as stated in the report, are to support and, if need be, supplement approved work of official and volunteer health agencies.

Epidemic of Hiccoughs in Budapest.—An epidemic of hiccoughs has spread to such an extent in Budapest that physicians are unable to cope with it. The patients are said to be unable to eat or sleep, and in some instances it takes two to three weeks for the malady to run its course. As yet no fatalities are reported.

Experiments in Food Preservation.—Speaking before the American Society of Biological Chemists, Dr. M. J. Rosenau of Harvard University described experiments conducted under his direction to determine how food-canning plants can prevent botulism or similar poisonous organisms from getting into olives, fish, and other preserved foods. The investigation has been directed to ascertaining what causes the growth of these germs, what will kill them, and what will prevent their germination. Speaking before the same organization Dr. F. R. Moulton of the University of Chicago, predicted that the future developments of science and discovery will change the universe beyond our present comprehension, and that radium and electricity will become relatively unimportant in comparison with the greater discoveries to come.

War Against Blindness.—A world-wide war against preventable blindness was inaugurated in Washington on January 10 by a conference at which Miss Winifred Holt of New York made the principal address. A Washington committee has been formed to cooperate with the New York Association for the Blind in carrying on the work. Co-operating committees are to be formed in other large cities. Foreign governments were represented at the Washington meeting.

Obituary Notes.—DR. ROBERT JARED BLISS HOWARD, a well known British physician, died in London on Jan. 9. He was educated at McGill University, at Montreal, and at the London Hospital. He was a Fellow of the Royal Society of Medicine.

DR. JAMES J. O'DEA, a graduate of McGill University, in 1859, died at his home in Stapleton, Staten Island, N. Y., on January 12, at the age of eighty-four years. He was a member of the staff of the Staten Island Hospital.

DR. LEO SCHNEPP of New York City died at Dr. Combe's Sanitarium on January 11. He received his medical degree in Budapest in 1874.

DR. FRED W. EASTMAN of Lees Summit, Mo., died in Bolivia, on January 5 or 6, at the age of thirty-

seven years. He was a graduate of the University of Missouri and Columbia University Medical School, served in the United States Medical Corps overseas, and at the time of his death was physician in charge of the medical corps attached to the Guggenheim Brothers mining forces in Bolivia.

DR. THOMAS NOTLEY McLAUGHLIN of Washington, D. C., died after a brief illness, on January 3, at the age of sixty-one years. He was graduated from the George Washington University in 1882 and was a former president of the Medical Society of the District of Columbia.

Obituary.

WILLIAM ALLEN BARTLETT, M.D.

NEW YORK.

IN the death of Dr. Bartlett which occurred in this city on January 5, 1921, the community lost a valued and patriotic citizen, and the medical profession an able and conscientious practitioner.

Born on September 17, 1858, Dr. Bartlett was graduated from the College of Physicians and Surgeons in 1881. He received an appointment to the House Staff of the New York Hospital, where he served on both the Medical and Surgical Divisions. In 1883 with high ambition and keen enthusiasm, he entered upon his professional career; and from that time until June of last year, he devoted himself continuously to the practice of internal medicine. He was a man of studious habits, high ideals, and unbounded enthusiasm. Quick to appreciate the value of new discoveries and improved methods, he always kept abreast of the times by adopting the many aids to diagnosis and treatment which, during the past three decades, have resulted from the vast amount of scientific and laboratory research. Although of a sanguine nervous temperament and possessed of a vast amount of energy, Dr. Bartlett was essentially a modest man, and never employed even the ordinary legitimate methods of self-advertising which are thought to count so much in professional success. He rarely attended medical meetings, contributed scantily to current medical literature, and aspired to no hospital or teaching position.

The outstanding characteristics of his practice seemed to his colleagues to be painstaking observation, accurate diagnosis, and a willingness to devote any amount of time and effort to the welfare of his patient. Few general practitioners were so prompt to recognize a surgical indication or so insistent on the necessity for early operation in suspected malignant disease or for measures to arrest or combat a spreading infection.

In addition to his professional activities, Dr. Bartlett was always a lover of art. He was devoted to out-of-door life, was especially fond of the sea, and during his later years, he developed the rare gift of being able to reproduce on canvas the beauty of landscape and sky and ocean as he observed them during his holiday outing. Although he never enjoyed the advantages of systematic instruction, his natural appreciation of color and form enabled him, during the last decade of his life, to produce a number of paintings and charming sketches, which have afforded much pleasure to his large circle of friends and admirers.

Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, December 24, 1920.

Births and Deaths.—The return of the Registrar-General for the week ended December 4, shows that in the ninety-six great towns of England and Wales the births registered during the week numbered 7,388, and corresponded to an annual rate of 20.8 per 1,000. The deaths among the civilian population numbered only 4,494, and corresponded to an annual rate of 13.2 per 1,000. In the three weeks ended November 13, 20, and 27 the rates had been 13.4, 12.8, and 13.5 respectively. The infant mortality was 98, against 85, 87, and 92 in the preceding three weeks. For London there were 1,921 births corresponding to a rate of 22.1 per 1,000, and 1,091 deaths of civilians, corresponding to a rate of 13.1, as against 14.9, 13.6, and 14.1 per 1,000 respectively, in the three weeks ended November 13, 20, and 27. The death rate in the four weeks ended December 4 averaged 13.9 per 1,000. The infant mortality was 78 as against 63.80, and 75 in the preceding three weeks.

National Health Insurance.—The first valuations, disclosing the results of the six years' working of National Health Insurance, were issued by the Ministry of Health recently. They show that the financial basis of the act has proved to be more than sufficient, as, in hundreds of branches of the Ancient Order of Foresters substantial surpluses are certified by the Government actuary to be available for increasing the rate of sick benefit from seven shillings and six pence to ten shillings and the maternity benefit from forty shillings to fifty shillings.

Ministry of Health Bill.—The Ministry of Health Bill has been rejected by the House of Lords after having been passed by the House of Commons against considerable opposition. The debate on the bill in the Upper House was brief, the main ground of objection to passing it being that it was unfair to expect the members to deal with so complicated a measure in the few remaining days of the session, when it was impossible for them to submit it to that process of improvement to which they subject measures sent up to them from the House of Commons. In a leading article in the *Lancet* of December 18, it is pointed out that its composite character was against it from the first. Clauses 10 and 11, around which medical interest especially centered, embodied an attempt to deal with the questions of incipient mental disease and of hospital accommodation in accord with the really urgent needs of the moment, without too heavily committing the future. One great objection against the bill was that the measures proposed would cost a considerable amount and another objection was that it was of a complicated nature. With regard to hospital provision the insistent necessity of the day, which was to some extent considered in the bill, the hope may be expressed that the committee appointed by Dr. Addison to investigate the financial position of voluntary hospitals will do their work as quickly as possible. The need is pressing.

Twenty Thousand Pounds for London Hospitals.—Mr. D. B. Gibb has just left practically all the property amounting to £23,000, of which he died possessed, to various London hospitals. These are St. Thomas's, Guy's, Bartholomew's, The Middlesex, The London and Earlswood Asylum.

Memorial to Dr. Lyster.—It will be remembered by the readers of these letters that some few months ago the death of Dr. Lyster, the director of the Middlesex Hospital X-ray Department, who fell a victim to his devotion to science, was recorded. The chairman of the Bolingbroke Hospital at Wandsworth, near London, has published a letter recently in the public press which reads as follows: "Nearly forty years ago the late Dr. Lyster was appointed resident medical officer at Bolingbroke Hospital, and it was at this institution that he began his experiments with the x-rays. To his unremitting devotion to this work the present-day efficiency of the x-ray as a curative and remedial agent is very largely due. Dr. Lyster's studies assisted in perfecting that which proves day by day to be of incalculable benefit to mankind, but in the end his services to science have cost him his life after many years of intense suffering. It is suggested that a memorial to such a public benefactor could not be provided in a more appropriate place than the hospital in which his experiments were instituted, or that no form of public appreciation under the circumstances could be more fitting than an x-ray apparatus and equipment, which would enable his great work to be carried on."

A memorial certainly ought to be raised in memory of Dr. Lyster. He probably did more than any one man in this country to advance the knowledge and scientific application of the x-rays for medical and surgical purposes.

Surgical Treatment of Malignant Disease of the Colon.—At a meeting of the Medical Society of London, held on December 6, last, surgical treatment of malignant disease of the colon was discussed by some of the best known British surgeons. Sir Berkeley Moynihan opened the discussion by reading a paper on the subject. He described various symptoms which usually herald the presence of a tumor in the abdomen or the occurrence of some form of intestinal obstruction, subacute or acute. With regard to radiological examination, it was pointed out that a bismuth or barium meal gave little help. So far as operation was concerned, he laid stress on the mobilization of the colon as the first step. The amount to be removed was such that operations could now be standardized. If a growth appeared in any part of the colonic midgut the whole of that was removed. When the growth was in the distal part of the transverse colon or near the splenic flexure the left half of the transverse colon and almost the whole of the descending colon were removed after mobilization. Growth in the descending colon necessitated its entire removal and growth in any portion of the pelvic colon, the removal of the greater part or the whole of this with perhaps the termination of the descending colon. If the growth was in the middle of the transverse colon it was only necessary to excise widely. Subsequent anastomosis of the bowel could be obtained

by three methods: (1) End to end, (2) Side to side, and (3) End to side. Moynihan never employed the end to side method. End-to-end opposition he regarded as quite satisfactory. A side-to-side anastomosis, he thought, was probably the safest for any but the very skilled operator, and was just as satisfactory. After the anastomosis had been completed the question would arise as to whether the intestine should be opened at some point proximal to the new junction to give vent for a few days to flatulence or liquid feces. In recent years he had abandoned removing the appendix and inserting a small tube in the cecum, and instead had stretched the anal sphincter. Sir W. Arbuthnot Lane dealt first with the causation of cancer of the large bowel, showing that the factors which determine its existence are three, viz., traumatism, a degenerative process in the tissues, which is usually the result of intestinal autointoxication and less frequently of syphilis, and thirdly, an unknown factor. He pointed out that the nature of the surgical interference must depend on a large number of conditions, such as the locality and extent of the growth, the condition of the intestine at the time of the operation, especially as regards accumulated contents, the vitality of the individual, the invasion of adjacent viscera and abdominal wall, the presence of secondary growths, and many other important factors. He urged radical measures when possible as being frequently the most easy to perform, as reducing the risk of recurrence and as improving the health and happiness of the individual. Mr. Garnett Wright emphasized the importance of early diagnosis, and said that cases of colonic growth were rarely seen by the surgeon before they had been greatly complicated by acute obstruction. Mr. J. P. Lockhart-Mummery said that cancer of the colon was one of the least malignant forms of cancer in the alimentary tract. It was the slowest to spread to surrounding structures, and when freely removed there was less danger of recurrence than with any other form of cancer of the intestinal epithelium. If cancer of the colon was to be successfully treated it was most important that the surgeon should get the case at an early stage, and, therefore, early diagnosis was of the utmost importance and should be made before the obstruction had occurred, and before there was palpable tumor in the abdomen. The most valuable aid to diagnosis was the sigmoidoscope.

Obituary.—A cable received at her home at Dover a few days ago recorded the death at Nazareth, Palestine, of Miss Edith Johncock, Matron of the British Hospital at Nazareth. Miss Johncock was a prisoner of the Turks for several years of the war, but remained in charge of the Nazareth Hospital for a great part of the time, attending on British and Turkish wounded prisoners of war.

Mechanotherapy, Unregistered as Physician, Cannot Recover for Services.—The Missouri Supreme Court holds that under Missouri Rev. St. 1909, sections 8311-8315, making it unlawful and an offense to treat the sick without being a registered physician, a mechanotherapy, not being such, cannot recover for services rendered in treatment of ailments and diseases of the human body.—*O'Banno v. Widick* (Mo.), 220 S. W. 853.

LETTER FROM BELGIUM.

(From Our Own Correspondent.)

LIÈGE, December 20, 1920.

Status of Medical Science in Belgium.—Science in Belgium has made strenuous efforts to regain the energy which it had before the great cataclysm but in general the universities are suffering from an intellectual apathy due to two causes. The first of these is the lack of material. The Germans stole much and they broke even more, and the material which was destroyed has not been replaced to any extent. The second, and this is to be deplored, is a general haste to obtain the final diploma. Serious work is rare and the laboratories are doing little. Those formerly in the service enjoy special favors permitting them to go up for examination in one branch at a time and at any time they desire, even when the Board of Examiners is not in session. They take advantage of this naturally, for having suffered so much during the war they want to profit a little from peace. But this utilitarian tendency has done great injury to medical science which demands that its votaries shall be fervent and disinterested and consecrate themselves to its service *perinde ad cadaver*. I shall hope to return to this subject in a future letter.

Surgical Education.—The creation of a surgical and experimental laboratory at Liège is announced. It is an annex to the Military Hospital and is due to the initiative of the Commandant, Dr. J. Voncken, Chief of the Surgical Service at this hospital. This is the first undertaking of the kind in Belgium, at least as regards the establishment of a laboratory where all the students can gain instruction and benefit from the practical teachings there given. Young military medical students are gathered together in groups of four or five in which are performed various practical operations on animals which are progressively more delicate and more difficult, beginning, for example, with simple costotomy and going on to operations on the biliary passages and abdominal surgery. The results obtained by this method of teaching are excellent as regards the development of personal initiative, manual skill, sang froid, and experience.

Honors for Professor Bordet.—Prof. Jules Bordet, Director of the Pasteur Institute of Brussels and Professor at the University of the same city, has just been awarded the Nobel Prize for 1921. His notable work on Immunity is what has gained him this distinction. All his works on this subject during a number of years past have now been collected in his "Traité de l'Immunité dans les Maladies Infectieuses," which was published by Masson in Paris early this year. On Saturday, December 18, the recipient of this prize was fêted by the Royal Academy of Medicine and by the entire scientific body in Belgium, which rejoiced in the honor conferred upon one of our chief citizens. Many French and English scientists were present assisting in this celebration. Following the meeting of the Academy, a solemn session of the Free University of Brussels was held in the Palais d'Egmont in his honor. Among those present were M. Max, Mayor of Brussels, who presided and also

MM. Roux, director of the Pasteur Institute of Paris; Calmette, assistant director of the same institute; Walter, professor of the University at London, most of the Belgian Cabinet, the Ministers of Sweden and of the United States, as well as the King and Queen of Belgium. Many speeches laudatory of Prof. Bordet's work were delivered.

Prof. Bordet, in acknowledging these eulogies, first thanked the King and Queen for their presence, and then expressed his gratitude to the Nobel Committee and all his friends who had organized this celebration. After the solemn assembly the Mayor of the city presented M. Bordet and his family to the King and Queen and to the others present. A grand banquet completed the celebration where numerous speeches of congratulation were delivered and were feelingly replied to by Prof. Bordet. Prof. Bordet, after having described the impressions which he brought back from his journey to America, spoke with appreciation of the intervention of the Americans in the war, in which they had come to the defense of humanity, and alluded to the linguistic question, saying that the Americans who were not disturbed by this question, having apparently settled it satisfactorily, might perhaps be surprised to learn that there was a small country in Europe which an attempt was being made to divide on this very language question.

Progress of Medical Science.**Boston Medical and Surgical Journal.**

January 6, 1921, cxxxiv, 1.

1. Presidential Address, New England Surgical Society. Homer Gage.
2. Sliding Hernia.—Edward H. Risley.
3. Torsion of the Fallopian Tube. Sam S. Dearborn.

2. **Sliding Hernia.**—Edward H. Risley calls attention to this condition, only 36 cases of which were found among 2200 cases of hernia at the Hospital for Ruptured and Crippled. Hernia *par glissement* of the French, or "land-slip of the colon" (cecum or sigmoid) of Treves may be found at either the inguinal or femoral openings. It may occur in children, where it is usually congenital, or in adults, where it may be either congenital or acquired. When one suspects a sliding hernia he should open the sac as high up as possible in order to be able to get into the peritoneal cavity at all, and also to avoid cutting into the intestinal wall, which may form a portion of the lower part of the sac. One should not attempt to dissect the sac free from the colon, as this is practically impossible to do, and much injury to the blood supply may result. Avoidance of any injury to the nutrition of the gut is of greatest importance in these cases.

New York Medical Journal.

January 5, 1921, cxlii, 2.

1. The Familial Distribution of the Migraine-Epilepsy Syndrome.—J. Arthur Buchanan.
2. Animal Versus Vegetable Protein. William Henry Porter.
3. Prevention of Venereal Disease. Paris Experiences. Ettie A. Rout (Mrs. Hornibrook).
4. Present and Contemplated Anti-Narcotic Legislation. Thomas S. Blair.
5. Serious Ear Conditions and Complications in Ambulatory Patients. M. Rosenbluth.
6. Woody or Ligneous Phlegmon of Reclus. John J. Gilbride.
7. Traumatic Intramuscular Ossification. Russel F. Maddren.
8. Proctological Examination as an Aid to General Diagnosis. Arthur A. Landsman.

1. **The Familial Distribution of the Migraine-Epilepsy Syndrome.**—J. Arthur Buchanan, having noted a high percentage of migraine in the study of the epileptic, was led to the investigation of a series of epileptics in which the family history contained a definite statement

of the number of children, the presence or absence of migraine in the family, and the presence or absence of epilepsy, with a numerical statement of the number affected with either condition. Forty-six epileptic families were studied from the viewpoint of the distribution of epilepsy considered as a manifestation of the migraine factor, and in order to learn the heritage of the children when no history of migraine had been found. The families with epileptic parentage were also studied in order to learn if they followed the same general principle. Either the father or the mother of thirty-five patients (75 per cent.) had migraine, six patients (13 per cent.) had no knowledge of migraine or epilepsy in the family, and five (10 per cent.) fell in the heterozygote parentage group. The forty-six families studied consisted of 262 children, of whom 198 were normal, and sixty-four had epilepsy or migraine, giving a mendelian ratio of 3.09 to 1. This ratio is so nearly that obtained previously for migraine alone that they can be considered identical. Forty-four (68 per cent.) of the sixty-four children had epilepsy, and twenty (31.2 per cent.) had migraine; of the latter two were the offspring of an epileptic woman mated with a normal man. Thirteen (29 per cent.) of the forty-four epileptics had migraine as an alternating, preceding, or combined condition. The only patients with so-called arrested epilepsy had migraine as a replacement condition. In the study of the crossing of two pure strains of migraine it was found that all the children from such matings had migraine. One family was found in which a woman with migraine was mated with a man with epilepsy. If epilepsy is considered a manifestation of the same basic condition as migraine, all the children in this family would be expected to have either migraine or epilepsy. All had migraine; in addition one had epilepsy, which alternated irregularly with the attacks of migraine.

7. **Traumatic Intramuscular Ossification.**—Russel F. Madden reports a case and discusses the pathology, biology, and diagnosis. Concerning the treatment he holds that, unless serious disability exists and persists unimproved by active and passive exercises, surgery is contraindicated. If operation is decided upon, the physiology of bone must be remembered. Simple excision is almost certain to be followed by recurrence, because the normal periosteum has been torn loose and no longer fulfills its function as a limiting membrane for osteoblasts. If not operated upon, the mass usually ceases to grow after a time and may even become smaller, owing to reabsorption of bone similar to that seen in some cancellous osteomata. Treatment with radium, the röntgen ray, or potassium iodide, may possibly accelerate this process of consolidation, and does no harm if properly controlled. The patient should be encouraged to exercise in an attempt to restore the normal range of motion. Very frequently vigorous exercise leads to complete functional recovery after a considerable lapse of time.

Journal of the American Medical Association.

January 8, 1921, LXVI, 2.

1. The Prevention of Diabetes Mellitus. Elliott P. Joslin.
2. The Fundamental Classification of Disease by the Basal Metabolic Rate. Walter M. Boothby.
3. Basal Metabolism Determinations: Tests with Two Portable Closed-Circuit Respiration Apparatus. Henry N. Thon.
4. Laboratory Problems of Blood Transfusion. Howard T. Karnes.
5. Excirculation of the Hip Joint, with Preliminary Ligation of the Common Iliac Artery. Barney Brooks.
6. Prophylactic Inoculation Against Yellow Fever. Hildeyo Noguchi and Wenceslao Pareja.
7. Black Spider Poisoning: Report of Four Cases. D. J. Louis.
8. New Roentgenotherapy in Cancer. M. J. Sittenfeld.
9. The Urine in Syphilis: Report of Laboratory Studies, Including the Wassermann Reaction, in Sixty Cases. Joseph Victor Klauder and John A. Kolmer.
10. Serum Treatment of Bacillary Dysentery. Simon Flexner.
11. The Use of Antitoxin in the Treatment of Diphtheria. William H. Park.
12. The Serum Treatment of Acute Poliomyelitis. Harold L. Amos.
13. Antipneumococcus Serum. Rufus Cole.
14. Use of Tetanus Antitoxin in Prevention and Treatment of Tetanus. Matthias Nicoll, Jr.

2. **The Fundamental Classification of Diseases by the Basal Metabolic Rate.**—Walter M. Boothby gives the

following summary of the discussion: 1. The basal metabolic rate is a measurement of the heat production in a person under standard conditions. 2. Like the temperature, the metabolic rate is a measurement of certain heat phenomena inherent in the living organism. 3. The basal metabolic rate differentiates diseases into three fundamentally distinct groups: those with normal basal metabolic rates (a normal heat production); those with increased basal metabolic rates, and those with decreased metabolic rates. 4. The "normal" standard of the basal metabolic rate is not exact, yet the comparatively small "normal" variation, compared to the wide range of pathological variation, admits of fully as accurate grouping of diseases as does the body temperature. 5. It is to be hoped that the value of basal metabolic rates will not be discredited by carelessness in technique and a failure to appreciate the necessity for carrying out all the technical and physiological details requisite for obtaining accurate basal metabolic rates.

6. **Prophylactic Inoculation Against Yellow Fever.**—Noguchi and Pareja consider that sufficient grounds for the possibility of establishing a prophylactic vaccination against yellow fever are furnished by the facts that (1) a person acquires a state of complete immunity enduring for a period of years after recovery from an attack of yellow fever, and (2) the serum of such a person, and also of guinea-pigs once inoculated with the blood of yellow fever patients, contains varying amounts of antibodies against *Leptospira icteroides*. They detail the experiments which show that such vaccination is a distinct possibility. From the results of vaccination in guinea pigs they conclude that when sufficient quantities of the killed culture are given, these animals are usually rendered resistant to a subsequent infection with *Leptospira*. The degree of protection, however, is not strictly proportional to the amounts of the vaccine inoculated. In the vaccination of human beings the results thus far are distinctly encouraging. It is realized, however, that many more observations will be needed before a final decision of its value can be arrived at.

9. **The Urine in Syphilis.**—Klauder and Kolmer review the knowledge that has been accumulated concerning the laboratory aspects of the urine in syphilitic infection, in this report of laboratory studies, including the Wassermann reaction, in sixty cases. They summarize in part as follows: The urine was examined in forty-three cases of untreated primary syphilis, the duration of which was from a few days up to the time of cutaneous manifestations. Urinary abnormalities were present in three cases. The urine was examined in forty-six cases of untreated secondary syphilis. Urinary abnormalities were present in four cases. The positive cases all showed albumin and granular casts, excepting two in which casts were absent. In two cases, red blood cells were present. The albumin consisted of a trace, except that in two of the secondary cases a light cloud was present with many granular casts, and in one red blood cells. The urinary abnormalities disappeared after treatment with arsphenamine and mercury. The urinary abnormalities in secondary syphilis are regarded as due in all probability to an invasion of the kidney by *Spirocheta pallida* rather than due to syphilotoxins—which is the explanation usually given. The clear blood serum and the urine, from the same patient, were mixed for the presence of precipitin, or precipitogens in serum or urine. The serum and urine of twenty acute untreated secondary cases were tested in this manner. The results were negative in all. Either the antibody is absent in the serum, or the antigen from the urine, or both may be absent, as indicated by the results. Clinical and experimental observations show that mercury is considerably more nephrotoxic than arsphenamine or neosarsphenamine. In the conjoined intensive treatment of mercury and the arsenicals, the nephrotoxic action of mercury may retard the elimination of arsenic and in this way cause untoward effects of arsenic. In view of this possibility, conjoined intensive treatment with mercury and the arsenical preparations is not advised. The Wassermann reaction was performed with the urine of sixty patients with syphilis in the different stages of the disease, many presenting acute symptoms and being untreated. Every patient yielded a positive blood Wassermann reaction, the majority of reactions being

strongly negative with three different antigens. Of the sixty cases, the urines in but two yielded positive reactions. Complement fixation tests with urine are exceedingly liable to yield falsely positive results, owing to the highly anticomplementary activity of the urine. Anticomplementary activity varies with individual specimens. It is greater in old specimens than in fresh ones. Heating in a water bath at 56° C. for thirty minutes removes only a slight amount of the anticomplementary substances. *Spirochæta pallida* may be found in the urine of syphilis in the acute stage of the disease. There is no characteristic feature in the urine of paroxysmal hemoglobinuria of syphilitic origin which serves to differentiate it from the same condition due to other causes. Results with urinary tests for syphilis were of no value as a means to the diagnosis of syphilis.

The Lancet.

December 18, 1920, cxcix, 25.

1. The Horace Dobell Lecture on an Experimental Investigation of *Spirochæta Duttoni*, the Parasite of Tick Fever. Maj.-Gen. Sir William Leishman.
2. Optic Neuritis in Encephalitis Lethargica. C. P. Symonds.
3. Sodium Bicarbonate Tolerance in the Toxæmia of Pregnancy. Clifford White.
4. A Note on the Albuminuria of Small White Kidney. Ivor J. Davies.
5. The Danish Treatment of Scabies. Svend Lomholt.
6. Clinics for Inebriates. James A. Davidson.

1. An Experimental Investigation of *Spirochæta Duttoni*, the Parasite of Tick Fever.—Maj.-Gen. Sir William B. Leishman, in concluding this detailed discussion, gives the following as the probable train of events. Starting from a patient suffering from tick fever, whose blood contains *S. p. duttoni*, and who is bitten by a tick, the spirochetes taken into the tick's intestinal tract gradually lose their motility, and many undergo structural changes such as the formation of granules and the extrusion of buds. They do not multiply in the tick in this form and rapidly disappear, few being left by the eighth to tenth day. The granules are either extruded during life or, more probably, are liberated by the breaking down of the spirochetes, either in the gut or within the tissues into which they have wandered. These granules present themselves as small clumps embedded in a homogeneous matrix, and are found chiefly in the cells lining the Malpighian tubules and in the genital tissues. They persist throughout the life of the tick, and are to be found at times in the intraovarian eggs, as well as in the young nymphs hatched from the eggs. In the young nymph the granules are capable of multiplying, sometimes to an enormous extent. The buds formed on the ingested spirochetes contain similar granules, and when separated from the parent spirochete are difficult to distinguish from the other granule clumps. They are rare in comparison with the number of granule clumps arising from the segmentation of the chromatin. Under certain conditions, of which a high temperature is one, though probably not the only one, spirochetes tend to reappear in the tick about ten days after feeding. This occurs suddenly, immense numbers being found in the tissues and cells of the body. These are at first different in appearance from the blood forms, being smaller, thinner, more faintly staining, and showing greater irregularity in their curves; they are actively motile. These young spirochetes have been frequently seen in stained films arising, apparently, from granules, and by the continuous observation of living specimens, at a suitable temperature, this origin has been confirmed. When once young spirochetes have made their appearance they tend to persist in this form throughout the life of the tick, and there is some reason to think that it is this form, or the granule stage immediately preceding it, which is most infective. It appears probable that the relapse in man and in animals may be due to the development of fresh crops of spirochetes out of granules formed by those organisms which caused the first attack. Observations upon other pathogenic spirochetes make it probable that a similar cycle of development is common to them all.

2. Optic Neuritis in Encephalitis Lethargica.—C. P. Symonds reports four cases of optic neuritis in encephalitis lethargica, discusses the diagnosis between it and optic neuritis in disseminated myelitis, and sum-

marizes as follows: 1. Four cases are reported in which optic neuritis was associated with signs of widespread lesions of the nervous system. 2. Despite individual points of resemblance none of these cases corresponds with the clinical picture of acute disseminated myelitis, anterior poliomyelitis, or acute febrile polyneuritis. 3. If the definition put forward by Barker, Cross, and Irwin be accepted, the clinical signs of all four cases are consistent with the diagnosis of encephalitis lethargica. 4. In Case 2 the Wassermann reaction in the blood was feebly positive. In the blood of Cases 1, 3, and 4, and in all four cerebrospinal fluids, Wassermann reaction was negative. 5. In all four cases the cerebrospinal fluid showed changes consistent with the diagnosis of encephalitis lethargica. 6. In the association of optic neuritis with acute disseminated myelitis we have an instance of involvement of the optic nerves in a diffuse inflammatory process affecting the nervous system, which is analogous to the association of optic neuritis with encephalitis lethargica.

5. The Danish Treatment of Scabies.—Svend Lomholt gives the details of a method of treatment of scabies which requires only one inunction, twenty-four hours after which the scabies is cured, and relapses are never seen. The ointment used, which was composed by Marcussen, is given as follows: (1) 1 kg. of sublimated sulphur is dissolved at a gentle heat in 2 g. of a 50 per cent. solution of potassium hydroxide. This makes a clear, yellow solution. (2) 225 g. of vaseline and 225 g. of water-free lanoline are carefully mixed, without heating. (3) To this mixture 375 g. of the solution of sulphur in potash-lye mentioned above is added. (4) Fresh zinc hydroxide is prepared by mixing 28 g. ZnSO₄ and 40 g. 20 per cent. sodium hydroxide, and this is afterwards added to the ointment. (5) Liquid paraffin is added to obtain a total of 1000 g. (6) 5 g. of benzaldehyde is added to check the somewhat disagreeable smell of sulphureted hydrogen. The high sulphides of potassium, he says, are the capital element of the ointment, upon which its activity depends, a production of sulphureted hydrogen taking place when the ointment is placed upon the skin. In making the inunction the patient first receives an ordinary cleansing bath, wipes himself thoroughly, and afterwards rubs the whole of his body, except the head, carefully with the ointment, which is almost of the consistency of butter. The ointment must cover all the skin, but hard rubbing is neither required nor desirable. The patient ought to wait for half an hour, to give the ointment time to get into the skin; after this he can go to bed. The next day at the same hour he receives a second bath and fresh underclothing, and the cure is finished.

British Medical Association.

December 18, 1920, ii, 3129.

1. On Auto-hæmagglutination: A Contribution to the Physiology and Pathology of the Blood. C. J. Bond.
2. Some Points in Midwifery Practice. W. J. Young.
3. Observation on Cases of Rickets in an Out-patient Department. Helen M. M. Mackay.
4. The Value of Extensive Inoculation of a Community During an Epidemic of Typhoid Fever. A. Romanes and G. G. Johnstone.
5. Immediate Surgical Complications of Dysentery. Basil Hughes and Stanley Banks.

4. The Value of Extensive Inoculation of a Community During an Epidemic of Typhoid Fever.—Romanes and Johnstone record observations concerning compulsory inoculation, carried out by German doctors at six public centers, and also in private, during the winter of 1918-1919, shortly after the arrival of the British Army of Occupation in Germany. There were 199 cases of typhoid in the three epidemics in a town and villages of a combined population of about 20,000. Of these cases 34 died, approximately 17 per cent. Four of these deaths occurred in people who had been recently inoculated twice. The onset of the disease began within the first twenty-four hours after the second inoculation (two cases), on the eighth day after, and on the nineteenth day after the second dose. Two other deaths occurred in cases after the first inoculation, and in each case the symptoms began within the first twenty-four hours. There were altogether thirty-eight cases of typhoid following inoculation, and among them there were six deaths—that is, a mortality of 15.7

per cent. With the exception of these six deaths practically all these cases were of a light nature. The writers consider that it is hardly justifiable to arrive at any definite conclusion from these figures. The daily numbers of onset were very much on the decrease before the inoculation was begun, but some of the cases were not removed at once to the hospitals for isolation and were acting as sources of infection for some time afterward. During the early period of inoculation there were probably more sources of infection "at large" than appeared at first sight, and one would be inclined to imagine more people, as a result, incubating the disease. The fact that there was in each epidemic a recrudescence of cases immediately after inoculation tends to support this theory. Romanes and Johnstone hold that the arguments against inoculation during an epidemic do not appear to be supported by facts, and it is further claimed that additional evidence has been brought to light in favor of inoculation under these circumstances.

5. Immediate Surgical Complications of Dysentery.—Hughes and Banks give the immediate complications of dysentery as acute hepatitis; acute liver abscess; perforation of the colon (gangrenous colitis); gangrenous proctitis; synovitis with effusion into the larger joints. In case of doubt as to the diagnosis of acute hepatitis, it is justifiable to give the patient a course of emetine before undertaking any operation. If the condition be one of pure amebic hepatitis, improvement will show itself within three or four days, and the symptoms will soon subside. In acute liver abscess the treatment that gave the writers the best results was an anterior incision about two inches in length through the right rectus muscle. The liver was exposed and packed off with dry sterile gauze from the general peritoneal cavity. A long pair of sinus forceps was introduced into the right lobe in an upward and backward direction, and it was readily felt to enter the main abscess cavity. The contents were evacuated and a large tube was introduced. The patient was nursed in the sitting position. Into the abscess cavity, through the tube, quinine bichloride was introduced three times daily, the patient being lowered for half an hour to prevent its escape. In addition emetine (1 grain) was administered hypodermically daily for the first ten days. At first eusol was instilled through Carrel's tube placed inside the large drainage tube, but this was not successful, the liver being found post mortem to be acutely autolyzed. Out of nine cases operated on there were five recoveries and four deaths. In none of the cases did they employ the transpleural route for approaching and draining the abscess. Perforation of the colon (gangrenous colitis) was notoriously fatal. The writers never saw or heard of a case that recovered. The onset of the abdominal distension is so rapid that when once it has occurred operation seems hopeless. The toxemia is so intense that these patients die within a very short time, and operation only hastens their end. In gangrenous proctitis colotomy seems to be the only possible treatment. From their experience, however, the patients are too ill to stand any surgical interference. In synovitis with effusion into the larger joints, by far the most satisfactory treatment is early aspiration of the contents and the injection of 5 c.c. of ether into the joint cavity during the acute stage. A general anesthetic is usually required.

American Journal of the Medical Sciences.

December, 1920, etc. 5.

1. Experimental Studies in Diabetes: Series II. The Internal Pancreatic Function in Relation to Body Mass and Metabolism. Frederick M. Allen.
2. Diagnosis of Myxedema. J. M. Anders.
3. The Influence of Protein Food on Increased Blood-Pressure. Herman O. Mosenthal.
4. The Management of the Heart in Pneumonia. Harlow Brooks and John Carroll.
5. The Role of the Electrocardiogram in Prognosis: A Study Limited to Hearts Under Sinus Control and Contracting at an Approximately Normal Rate. James D. Heard and Gordon E. Hein.
6. Observations on Negativity of the Final Ventricular T Wave of the Electrocardiogram. P. A. Willis.
7. Ileal Regurgitation, Nerves and Diet in the Chronic Intestinal Invalid. John Bryant.
8. The Significance of Small Amounts of Sugar in the Urine. Ludwig Kast, Emma L. Wardell, and Victor C. Meyers.

9. Pathogenesis of Acute Leukemia: Report of a Case of Acute Myeloblastic Leukemia, with the Association or Complication of Vincent's Angina. Maurice Packard and Edward P. Flood.
10. The Contents of the Stomach: Its Study and Interpretation. Elbridge J. Best.

3. The Influence of Protein Food on Increased Blood-Pressure.—Herman O. Mosenthal records blood-pressure determinations made on patients who had been in bed for several days. This allowed the arterial tension to assume the lower level which mental and physical relaxation bring about. The manometer readings were made at approximately the same time every day. The patients were kept in bed continuously during this study. The long period over which some of the observations were carried out serves as a control for the fluctuations that may occur in the level of blood-pressure of individuals suffering from hypertension. During the periods of low-protein feeding the diets did not contain meat, meat products (such as soups or gravies), or fish. These foods were taken in considerable amounts on the days of high protein feeding. From these observations, which are tabulated, it would appear that it is exceptional for a low protein diet to diminish the blood-pressure or a high protein diet to raise it. One case, however (Case 9), shows that this may occur. This patient was extremely ill, as the great impairment of renal function indicates, and was necessarily maintained in a state of undernutrition, since any attempts to increase the food resulted in uremic symptoms. However, even in this case a second period of low protein feeding failed to bring the blood-pressure to the low level previously obtained. The diminution of the waste products in the blood, as indicated by a lowering of the blood urea nitrogen, was without effect upon the blood-pressure. Changes in the caloric value of the diet, for a short time at least, did not influence the blood-pressure. The demonstration by Benedict and his collaborators that by underfeeding the blood-pressure of healthy young male adults could be distinctly reduced, and that this change was accompanied by various other phenomena, among them a secondary anemia, furnishes a suggestion as to the therapeutic application of diet to hypertension. A subcaloric mixed diet may be continued for a considerable period, probably with beneficial effect. If the health and strength of the patient are to be maintained it is advisable to regulate the amount of the diet according to the hemoglobin content of the blood. The hemoglobin percentage should not fall below 85 per cent. In most instances in the writer's observations a low protein diet continued for a period of a few weeks is without effect upon the blood-pressure.

7. Ileal Regurgitation, Nerves, and Diet in the Chronic Intestinal Invalid.—John Bryant gives the results of the nonsurgical treatment in a consecutive series of fifty chronic intestinal invalids as follows: No improvement, 6 per cent.; improvement, 8 per cent.; improvement plus, 86 per cent.; total improved, 94 per cent. On the basis of these results Bryant considers it justifiable to tell the chronic intestinal invalid that he has a better than 90 per cent. prospect of improvement and a better than 80 per cent. prospect of being very much improved as a result of a few months of nonsurgical treatment. This applies to the cases in which ileal regurgitation is proved. For the chronic intestinal invalid without ileal regurgitation progress should be proportionately more certain and more rapid.

10. The Contents of the Stomach: Its Study and Interpretation.—Elbridge J. Best outlines a method for the fractional stomach examination which makes it possible to complete all the tried tests of gastric study in two hours and gives connected pictures of the secretion during this period. The procedure is simple and can be carried out by any practitioner with the aid of his nurse. The gastric curves are placed in five groups, no stress being laid on the actual acid figures, but emphasis is placed upon the position of the apex and the two-hour level of the curves, the difference between the free and total acid curves and the behavior of the free HCl curve. By repeating an examination a more stable, reliable curve is obtained. By carefully following out the procedure given it is possible to become more intimately acquainted with the detail of gastric activity, thus making it possible to carry out treatment by diet and medication in a more intelligent manner.

Book Reviews.

WIENER ARCHIV FÜR INNERE MEDIZIN. Geleitet von W. FALTA und K. F. WENCKEBACH. 1 Band. 1 & 2 Heft. Vienna and Berlin: Urban & Schwarzenberg, 1920.

THE war had a powerful influence upon medicine as it had upon every other branch of human activity. One of the effects upon the medical profession was to increase tremendously the percentage of those men who are "specializing." It was a frequent happening that a medical officer was detailed to one particular line of work and becoming proficient in it he often continued it into his civil practice. Physicians were roused from the isolated devotion to far country practices and thrust into an existence rushing along under high pressure where he who failed to measure up to the opportunity soon was lost. In consequence there has appeared since the war a host of new journals devoted either to the comparatively narrow field of some specialty or to the scientific aspect of a broader but still somewhat restricted branch of medical work. This journal is one of the latter group. Fathered by the Vienna school of medicine it aims to publish the scientific accomplishments of Austrian workers in the field of internal medicine. It will contain purely clinical studies and such experimental investigations as apply to clinical problems or are of undoubted significance for internal medicine. Among the contributors to the first two numbers are Wenckebach, Eppinger, Economo and Kaufmann, so that it can be seen the journal starts out with a high grade of material. The Editorial Board represents ably the leading men in Austrian medicine and it is reasonable to expect that the articles found acceptable by them will generally be worthy of study.

THE FUNDAMENTALS OF HUMAN ANATOMY. Including its Borderland Districts. From the Viewpoint of a Practitioner. By MARSH PITZMAN, A.B., M.D., Professor of Anatomy in the Dental Department of Washington University, St. Louis. With one hundred and one illustrations. St. Louis: C. V. Mosby Company, 1920.

THE author of this work, in the preface, touches on the weak points of most of the modern text-books on Anatomy. With much of what he says on this subject we are in thorough agreement. But when we come to his own treatment of the matter, we must confess that we are disappointed. It is hard, in the first place, to see for what class of readers this book is intended. It contains snatches of anatomy, bits of histology, scraps of embryology, fragments of surgical or applied anatomy; and yet, in spite of the title, it contains less anatomy than any of the compends,—less even than some of the books written for nurses. In the next place, the book is poorly balanced; for example, more space is given to the development of the kidneys than to the description of either the humerus or the femur; the cerebrospinal fluid is treated at greater length than the small intestines; the clitoris and the penis, each, occupies more space than the hip joint; the description of hermaphroditism occupies more space than the description of the temporomandibular joint. The references to surgery imply a much greater knowledge of anatomy than can be gained from this book. Some of the descriptions are far from clear, for example:—"The pancreas is divided for descriptive purposes into a head, a hook process or neck, a body and tail, averaging roughly one-quarter times one times six inches in diameters." The illustrations are useful, and the book is well printed.

PRACTICAL VACCINE TREATMENT. For the General Practitioner. By R. W. ALLEN, M.A., M.D., B.S., Late Capt. N.Z.M.C. Paul B. Hoeber: New York, 1920.

VACCINE therapy has suffered at the hands of both its incredulous opponents and its overcredulous friends. The result is that at the present time it is either not given or else used in a routine perfunctory manner, often, it must be confessed, because the giver is ignorant of the proper method of administration. Allen emphasizes four points of importance in successful vaccine treatment. The proper organisms must be selected. The proper surgical treatment must have been carried out. The doses must be large enough and

it is very desirable to produce distinct though mild reactions. He is obviously an enthusiast but no less obviously not an unthinking one. He has some curious ideas as to the etiology of pneumonia and he does not approve of American-made vaccines. Some of the claims he makes as to the results he has obtained are so extreme as naturally to excite some suspicion. Nevertheless he recognizes some of the limitations of the treatment and it must be admitted that in his hands vaccines are given with a care and close supervision that is rarely approximated by the average physician. Under the circumstances it ill behooves us to criticize the results he claims to have achieved. The book is a stimulating one and will well repay a critical reading.

THE INDUSTRIAL CLINIC. A Handbook dealing with Health in Work. By several writers. Edited by EDGAR L. COLLIS, M.D. Oxon, M.R.C.P. Talbot Professor of Preventive Medicine in the University of Wales. (Late Director of Welfare and Health, Ministry of Munitions, and H. M. Medical Inspector of Factories). Modern Clinic Manuals. New York: William Wood and Company, 1920.

THIS little volume is likely to prove very useful to all who are interested in Industrial Medicine. The health, and hygienic conditions surrounding the workers are here given the attention which they merit. The chief topics discussed are:—The medical examination of the worker, choosing the worker, industrial efficiency and fatigue, hygiene and working conditions, the hygiene of the individual, food values in relation to occupation, food at the works, the ambulance room, and industrial employment of women. The chapters are all quite short, but contain much information, and are evidently written by physicians with special experience in this line of work. This book will prove of value to most physicians, and it would be a useful addition to the reference library of all who are in any way interested in the employment of many workers.

A TEXT-BOOK OF ORGANIC CHEMISTRY. For Students of Medicine and Biology. By E. V. MCCOLLUM, Ph.D., Professor of Chemical Hygiene, School of Hygiene and Public Health, Johns Hopkins University. Second Edition Revised. New York: The Macmillan Company, 1920.

THIS book was noticed on the appearance of the first edition. The present edition contains an introductory chapter on the purification and analysis of organic substances, and a concluding chapter of some forty pages on proteins. These two chapters add to the value of the book. Students looking for a small and attractive work will find this a useful introduction to an important subject.

EPIDEMIC ENCEPHALITIS (Encephalitis Lethargica). By FREDERICK TILNEY, M.C., Ph.D., Professor of Neurology, Columbia University; Attending Neurologist, the Presbyterian Hospital and the New York Neurological Institute; Consulting Neurologist, Roosevelt Hospital, New York; and HUBERT S. HOWE, A.M., M.D., Instructor in Neurology, Columbia University; Assistant Visiting Neurologist, the Presbyterian Hospital, New York. New York: Paul B. Hoeber, 1920.

IT would be difficult to imagine a much more effective presentation of the subject than is found in this book. The authors have devoted about one-third of their space to a review of the present knowledge of sleeping-sickness; in this section the tentative clinical types are discussed with free illustrations from cases and a résumé of the symptomatology, diagnosis, prognosis and treatment is included. In the other two-thirds are found eleven instructive cases, reported at much length, the neurological reports being especially good. A bibliography is appended.

This book is a notable illustration of the present tendency towards the case-history method of presenting a subject, which is especially valuable in neurology and psychiatry, as it is also in any subject which is comparatively new to the profession for one reason or another. Dr. Tilney and Dr. Howe have judiciously admixed their didactic parts with their illustrations so that the whole gives the impression of a clinic of excellent cases, well presented and illuminatingly explained.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Anniversary Meeting, Held November 18, 1920.

THE PRESIDENT, DR. GEORGE DAVID STEWART IN THE CHAIR.

DR. GEORGE DAVID STEWART, in introducing the speaker of the evening, said that in his farewell address the Father of his Country urged his people to indulge in such habits of thinking as might inspire caution in those entrusted with the conduct of the Government to the end that there might be no encroachment of one department on the domain of another; that was no consolidation of the various branches. For this usurpation he said was the customary weapon by which free governments were destroyed. Could he today revisit the glimpses of the moon, he would find I fear the habit of straight thinking sadly neglected for the most part by both the governments and governed. Still there were heartening exceptions, one of these exceptions was the speaker of this evening. A man of trained mind, who had devoted himself to the study of history, of politics and economics and who, regardless of self interest, contemptuous of party, mindful only of principles, had made strenuous efforts to have the people understand the moral and spiritual significance of their form of government as planned by the exceptionally able men—and there were giants in those days—who framed the American Constitution. His analysis and interpretation of that instrument was the finest with which we were acquainted. Of the Constitution he said, it was something more than a written formula of Government: it was a great spirit, the most quickening that now existed in the world. It was the highest assertion and indeed vindication of the morality of government that the science of politics had yet given to the world. Underlying its formal provisions was a profound moral philosophy and it was this fact that gave to its perpetuity a deep ethical significance. So illuminating was his analysis, and so reassuring his interpretations in this time of trial that Dr. Stewart said he wished every one could be familiar with his writings; for then might the wish of the founder of this great Nation be fulfilled. This was the Anniversary Lecture. Our founders realized that man could not live by bread alone, that medicine touched all the sciences, all the humanities, and so it was provided that the Anniversary Lecture be not at all or only remotely related to medicine. He took great pleasure then in introducing Mr. James M. Beck, of the New York Bar, who would speak on "One Cause of the World Neurosis."

One Cause of the World Neuroses.—MR. JAMES M. BECK of the New York bar delivered this address which he prefaced with an apology for having come before the audience without having prepared an address in a literary form such as the intelligence of the members of the New York Academy of Medicine and the dignity of the occasion required. He said, in part, that he had not come to demonstrate a thesis, but simply to suggest a thought that might be new and which he trusted would be found deserving of further thought and consideration, and which might be the subject of speculation that would lead to conclusions far more definite and valuable than any he might suggest tonight. The subject he had selected, "One Cause of the World Neuroses," might perhaps have been stated as "One Unsuspected Cause of the World Neuroses" for it was one to which he had heard very few refer. To establish his premises, since some might ask him to establish the fact that there was a world neurosis, he would quote from an address delivered before the New York Academy of Medicine on October 16, 1919, by an eminent Princeton Professor, Dr. Stewart Paton, who said "A great deal of the present emotional unrest seems to be due to two causes: On the one side there has been an exaggeration of the previously existing and well recognized types of emotional instability, and on the other a definite psychosis with certain specific symptoms and markedly epidemic tendencies, affecting persons possessing intellectual ability, has become a menace to

civilization. The effects of this disorder have already imperilled the permanence of many human institutions, have made the establishment of conditions essential to the restoration of peace increasingly difficult, and have jeopardized the rational control of behavior which men acquire only after ages of toil and painful experiences." (MEDICAL RECORD, Nov. 15, 1919.) Dr. Paton then enumerated a few characteristics which had come to be accepted as indicating the presence of a sound mind in a sound body. These signs were subjectively: (1) "Joy in living." (2) Pleasure in work. (3) No desire "to varnish the fair face of truth with the pestilent cosmetic of rhetoric." (4) Temperance in wishful thinking. (5) No apologies for self-insufficiency. The objective signs of sanity as given by Dr. Paton were: (1) Prompt action in emergencies. (2) Behavior controlled by normal and not supernormal idealism. It was to the first of these two evidences of a normal state as opposed to psychoses to which Mr. Beck particularly drew attention—joy in living and pleasure in work, and a sense of adequacy and self-sufficiency which was the greatest and least appreciated of all man's possessions. Dr. Paton went on to say "Remember that the muscular system, which is millions of years older than the nervous system, gives the 'set' to all our activities, and to a very large extent determines our attitude in general toward our environment." While the psychoses from which the world was suffering could have many symptomatic indications, it was the lessening joy and satisfaction in work that was most marked in man today. It was a matter of experience that within reasonable limits the more a man worked the more he wanted to work, and the more a man worked the more he enjoyed work and the better was he able to work, and on the contrary, the less a man worked, the less he liked to work and the less able was he to perform work. All over the world today, notwithstanding higher wages, shorter working hours, all manner of machinery to lighten toil, and a higher degree of comfort and luxury than man had ever known before, there was a lessening efficiency, a lessening ambition, and a lessening ability. If there was an instability marked by a lessened desire to work, what was the cause? Before answering this question, Mr. Beck said he wished to use an analogy drawn from a source from which he liked to draw illustrations. One of the most profound metaphysicians whose works had come down to us, though he never laid claim to preeminence in that domain was Shakespeare. His characters were fashioned from marvellous insight into the human mind. He selected a particular trait or emotion and then fashioned all the characters and circumstances of the play to bring out this particular characteristic. In Othello it was jealousy; in Macbeth ambition. In Hamlet, the young Prince of Denmark, Shakespeare drew the picture of a man most superbly endowed by Nature, a man of wonderfully perfect physical form who could best be described in Shakespeare's own words,

"The courtier's, scholar's, soldier's eye, tongue, sword;
The expectancy and the rose of the fair state,
The glass of fashion and the mould of form,
The observed of all observers."

and again, in the words Hamlet used in speaking of his father,

"A combination and a form indeed,
Where every god does seem to set his seal,
To give the world assurance of a man."

These words fittingly described the favorite child of the poet's fancy. But we found this man beloved of the multitude, with all the advantages of birth and culture, never compelled to act, reading, philosophizing, soliloquizing, but never acting. We found him forever putting off the duty of the hour. Hamlet himself left us in little doubt as to the cause, which he indicated in the following lines.

"And thus the native hue of resolution
Is sicklied o'er with the pale cast of thought
And enterprises of great pith and moment
With this regard their currents turned away
And lose the name of action."

There were in the play two very significant intimations to account for Hamlet's lack of will: He said, "I have of late—but wherefore I know not—lost all my mirth, foregone all custom of exercise." Reading further we find that by reason of the destruction of the nice equilibrium between physical action and mental activity the whole world had become clouded. "This godly frame, the earth, seems a sterile promontory. This most excellent canopy, the air, look you, this brave overhanging firmament, this majestic roof fretted with golden fire, why it appears no other thing to me than a foul and pestilent congregation of vapours." With less poetic touch his mother said, "He's fat and scant of breath." Commentators had rebelled at that and had substituted "faint" for "fat," but Shakespeare meant what he said, Hamlet was fat and scant of breath. He had been brought up as a prince of royal blood with no necessity for action and no incentive for action; he was lost in his books. The life at Wittenberg was having its results, it was destroying the equilibrium between mental and moral and physical activities, by excessive meditation and denial of action to his physical powers. Samuel Taylor Coleridge said, "Action is the chief thing in existence. No faculty of the intellect can be considered valuable, or otherwise than as a misfortune, if it renders us repugnant to action."

After going still further into an analysis of Hamlet's character, Mr. Beck said that the practical thing that we got from this analogy was the necessity of a just equilibrium between the outer world and the intellectual processes, and that failure to maintain this equilibrium was at the peril of psychosis. The first essential to a healthy mental state was joy in work. If we could get at the root of the satisfaction that man got in work we might then find what was causing the present unrest that was shaking the foundations of governments, and even of our own government. He believed that one cause of the present world neuroses was the lessening satisfaction in work, which was the legitimate development, and it was to be hoped the culmination, of a profound revolution—a revolution not caused by the great war—though its evils were profoundly exaggerated thereby. The fact that the world war gave opportunity for a demonstration of physical and moral power the like of which we had no record or parallel, did not in any way militate against his theory of psychoses, for even lazy men were known to arouse themselves and to exert unusual energy when actuated by the instinct of self-preservation. Even Hamlet in the final act had aroused himself to activity, so the fact that the nations of the world gave a demonstration of physical and intellectual power when their existence was threatened in no way affected the conclusion that there was today a malady in the human soul that was poisoning human life. That malady was the lessening joy and satisfaction in work and it marked millions of men. It was the result of a revolution which had been going on for one hundred and twenty years. Mr. Beck then went on to show that in the history of the evolution there was nothing to show that man had changed physically in 500,000 years, or if there had been a change it was in the direction of weakness rather than strength. During all the centuries preceding the Nineteenth of which we had record, man had lived under an agricultural system. During all those centuries man had sowed and reaped in practically the same way, and had traveled in the same way. In the last one hundred and twenty years, since the invention of the steam engine, man's methods had been revolutionized. While man physically had not advanced a particle, that is to say as a specimen of a genus, during 500,000 years, yet in the brief space of one century, through the powers of his mind, he had passed from the state in which he had existed for centuries to the state of superman. These changes, so stupendous that they staggered the imagination, had been brought about largely in two ways. The first of these was the recognition of the value of concerted action, the realization of the fact that by association with others man could increase his powers of achievement and extend them over a period far beyond his allotted three score and ten years. Then too the strength of an association was not only as great as the aggregate strength of those composing

the organization, but this strength was intensified by the aggregation and acquired a progressively increasing power which under certain circumstances became a menace we could not afford to ignore. As to the second and greater conception, this was that man could annex to himself the powers of Nature. He could add to himself what Samuel Butler termed the *extra corporum*. To illustrate, when man took hold of the handle of a hoe the hand grasping the handle of the hoe became a new elbow, and the hoe blade became a new hand, and the man thus acquired a new hand that could do things that he could not do without it. In other words, the hoe became an *extra corporum* annex. This principle was applied on a more stupendous plan when a man annexed an aeroplane. Man had by annexing the aeroplane become not only a superman but a superbird. This had been expressed by a French aviator recently, who, after performing maneuvers in the air, when he came to a standstill said "The birds do not know how to fly because no bird can fly upside down as I have done." Among other extra corporeal additions were the submarine and the telephone. While we had been slow to appreciate the fact by these extra corporeal additions we had become supermen, and we could truthfully say with Hamlet "What a piece of work is man! how noble in reason! how infinite in faculty! in form and moving how express and admirable! in action how like an angel!" That was all true, but fully conceding these wonderful changes wrought by machinery that had made of us supermen and had enabled us to build up great and over-populated civilizations, what had that done for the human soul? What had been the effect of one hundred and twenty years of development of machinery on the human soul? Mr. Beck quoted from Samuel Butler's *Hudibras* in which he described how man, at first the master, slowly became the slave of the machine, and asked the question "May it not be that man is becoming a sort of parasite on the machine?" Man had come to depend upon machinery to such an extent that if it were all destroyed he would perish and the race would become extinct within three months. Butler went on to say "May it not be that the machine is gaining ground and becoming more and more human? If it has taken millions of years to evolve man from primordial protoplasm, who can say that in the course of millions of years, machinery may not evolve consciousness and exact mastery over man?" Of course this was unthinkable, yet it would be no more wonderful than man's evolution from primordial protoplasm. One of the effects of machinery was laziness. Machinery had destroyed man's incentive to industry, his pride in creative work and his joy in achievement. It had destroyed his ability to work by lessening the need of what was really work. When one spoke of work as action in the sense in which Coleridge spoke of it, he did not mean the kind of employment which was so general today. The man who sat by a ticket chopper and watched others drop in tickets simply idled; he was not working. The man in the subway who guided a motor through a marvellous perfection of machinery and watched the track was employed in a way but he was not doing real manual work. And so it was through all the industries, one scarcely found such a thing as work in the sense of an active effect upon the muscular system. The muscular system was older than the nervous system. If the muscular system was starved one could not have a healthy well-rounded life. Before the invention of machinery man took a pride in his craftsmanship. The cobbler who made a shoe himself took a pride in turning out a perfect piece of workmanship, but the man who stood at a factory bench and watched a machine punch eyelets—perhaps so many thousand per minute—a machine which never made a false move, never stopped a moment, never dropped a stitch—the man who watched such a machine day after day, and week after week, went through a process of boredom that left no wonder that there should be this profound unrest. Increasingly the necessity for work and the incentive to work was being destroyed. At the moment it seemed that man was losing the mastery, leaving all to the machine and becoming the slave of the machine. With this state of affairs we could not but expect the gravest psychological disturbances. Men were taking a less active

part in sports than they formerly did. Men might go to a baseball game to look on, but there was less ball played today than a generation ago. Another form of amusement that typified the laziness of the present day was the "movies" as they were called in the common vernacular. The movie was the final consummation of laziness born of machinery. The movie gave the maximum of emotion with the minimum of mental effort. It was merely looking at pictures—a way of passing time that gave a vivid impression and saved mental effort. A mental and moral psychosis of laziness was at the root of social disorders today and was due to causes which could not be controlled because we had taken from man his opportunity and his incentive to work.

Sir Alfred Geddes had said the next fifty years would be either the most constructive or the most destructive fifty years the world had yet seen. We could make it the most glorious fifty years in human history if we kept before us the three ideals of beauty, service, and truth. Mr. Beck then discussed the effect of machinery on these three ideals. Taking up beauty he took the theater as an illustration, since here we had beauty of thought, beauty of sound, and beauty of scene. Today in New York City there were over fifty theaters, and there went through the box offices of these theaters in 1919 some \$100,000,000, and through the box offices of the theaters of this country \$800,000,000. The theaters never before had such patronage, or so many accessories. The theaters of Shakespeare's time were tawdry things by comparison with those of today, yet the theater was never less productive of works of intellectual and moral beauty. The function of the theater was to amuse, to instruct and to inspire, but today Aristophanes had degenerated into George Cohan and the two Romeos into Mutt and Jeff. There was not only a lack of art but a debasement of wit. As to the power of the theater to instruct, that characteristic of the theater did not exist today. The Greeks held their theater as a shrine and a temple, and a play as a solemn ceremonial which served to inspire. Greece, with a population less than the State of Rhode Island, gave to the world in the brief space of two centuries twenty-five of the supremely great men of all history. It gave a Euripides, a Sophocles, a Socrates, a Plato, an Aristotle. Surely we must acknowledge that machinery has had a deadening effect on beauty. As for the idea of service, there was never a time when the love of service for service's sake was as low as it was today. We had gone far from the idea of service expressed by Orlando, when his old servant begged to accompany him and asked for no wages,

"O, good old man, how well in this appears

The constant service of the antique world

When service sweat for duty not for meed,

Thou art not the fashion of these days."

Millions today regarded work as servitude. The means for supplying the external necessities for a joyous life were never so great, there were never so many devices for making work less arduous, and education was at a higher level than ever before, yet man was less disposed to work than he ever was. The higher the wages the less efficient the work; the fewer the hours of work the less the efficiency and the greater the number of strikes. False trades unionism involved this syllogism: From the time machinery started to be instituted the trades unions taught that the less work men did the more remained to be done, and the greater the demand for labor; the greater the demand for labor the greater the wages, therefore they would not work. That principle was adopted and men did as little work as possible and did it as dishonestly as possible. This principle was not based on sound political economy. One could not lift himself by his bootstraps. This policy inflated values and diminished the value of wages. Machinery by giving *extra corporum* aids to man had enabled him to become greater than man, he had become superman in respect to his control over physical forces. But instead of it making him a greater man morally and spiritually, he had deteriorated in moral fiber, so that he no longer cared for the greatest and noblest thing in life—work. Work was the greatest and noblest thing in life, for without work life was not worth living. Man no longer recog-

nized this truth. A debasing and degrading philosophy, not sporadic and local but almost universal, gloried in minimizing the value of work. That philosophy was one of the effects of machinery, but it was also caused by machinery gradually becoming the master of man. One might recall the fable of Prometheus, who stole the fire from Heaven and was bound to Mount Ida with the vultures preying on his vitals. Man stole the fire from Heaven when he invented machinery and he was now chained to the machine, and the vultures of hatred, insubordination and selfishness were preying on the vitals of all classes.

Mr. Beck then proceeded to note the effect of machinery on the institutions of the family, the Church and the State. He declared that there was no one who claimed that family life was now what it was one hundred years ago. There was a disintegration of that fine loyalty in the family that we formerly knew; and indeed was not the function of the family marked by its abandonment? The Church, no one Church, but the Church as a whole, had lost its hold. Men no longer seemed to feel the need of assembling themselves, as was formerly the custom, to pray to the Great Unseen. Was it not that "The Voice of the Ages" was drowned out by the voice of machinery? One thing Mr. Beck said he had studied all his life, that was the State, and there never was a time when the authority of the State was mocked and flouted as it was today. Human authority was in the process of disintegration. Just as a globule of mercury coalesced and then separated, there was a shifting of power from the State to so-called self-governing groups. This power of association was acting here, and human society through association was destroying individuality; the individual was submerged and became a part of the group and much of his independence as an individual was gone. As an example of this we had organized labor controlled by a few men in Washington. They told a man he could not work unless he had a card and paid for the right to work. They took their group power and used it to blackmail. The robber barons along the Rhine, in medieval times, played fair and conducted a respectable business compared with what we saw today. Using group associations, they said you should not work to support your wife and children unless you paid so much. Then they turned around to the the employers of labor and said "You give us so much or we will call a strike and paralyze your industry or your transportation." All the functions of life were slowly disintegrating into semi-autonomous groups, and all were more or less subject to the power of the group. These groups had grown so powerful that they could say to the State "You do our bidding." It might be recalled that the labor group with stop watches in their hands said to the government, "You sign this statute defining wages or we will paralyze transportation and starve every community dependent upon transportation for the necessities of life." The President and both political parties yielded. Last summer when the Bolsheviks were at the gates of Warsaw and the British Government, fearing that if Lenin and Trotsky dictated terms the civilization of Western Europe would be imperilled, wished to send aid to Poland, the labor group said "You do so and so, or we will cut off the supplies of life." And the British Government yielded. Group association and the power of machinery were dictating to the State and when that form of insubordination was reached the foundations of the State were being menaced. By standardizing men we had destroyed their individuality, and there was no greater element or source of progress than that originating with the individual. The thing that made Greece so great was the free and open expression of individuality. Today everything was fashioned in a common mould and stamped with the dead level of mediocrity.

One other aspect, the ability to see truth clearly—Never was there a time in the history of the world when there was so much muddy thinking. Before the age of machinery man knew but a few things, but he knew them well. He did not try to make his brain a garret as we did by incessant and universal reading. Washington could not talk through a telephone or dictate to a stenographer, but he could write things that will outlive what is written today with the aid of our

modern devices. It took Alexander Hamilton a much longer time to go to Washington than it did us today, but did we go to better advantage? Take the Constitutional Convention, the men who framed that instrument met for four months and worked out a Constitution of 4,000 words, 109 sentences, yet a masterly piece of statecraft, which was not only the admiration of all, but was taken as a pattern by other nations when they had undertaken to draw up an instrument of government. Compare the Constitution with the work of the Peace Conference, a document of 80,000 words, yet no one could claim that it had achieved clarity of thought; on the contrary it was thick with the muddy complexity of the thought of today. Today words were substituted for thought. Words were absolutely without end. We were suffering from a disposition to utter words without any clearly defined or precise idea of their meaning. Why was it? It was because there was such an infinite complexity of thought. We tried to know too many things without knowing how to use our knowledge. There was a vast difference between knowledge and the ability to use it. Machinery had diversified life and added to its complexity but it had not added any new conception of truth. We might know more along certain special lines, but so far as the general philosophy of life was concerned it was doubtful if we knew as clearly as our fathers knew. They had the power to translate thought into effective action, because they recognized that there could be no effectiveness of thought without action; that without action all thought was superfluous.

Mr. Beck stated that he had preferred an indictment against machinery, but he could not dispute that the man who invented machinery was one of the greatest benefactors of humanity. We could not conduct the affairs of life today without machinery. He had only suggested that the effect of machinery on the human mind and soul was in part prejudicial, and it was in his judgment entirely clear that this was one of the causes of the world psychoses. He doubted not someone would say "Well, what is the remedy?" He disliked that question and considered it unreasonable. The fact that he had no remedy to propose did not affect the soundness his remarks might otherwise have. He would, however, suggest the thought that we should more and more counteract the influence of machinery on man's mind and spirit. We must revolutionize in the mind of the manual toiler his whole political philosophy, for so long as he persisted in his present idea of trades-unionism he was not impressed with the dignity and nobility of labor. He must learn that the dignity of labor consisted in doing much, not little. He must become interested in the machine and must find in it a way of giving play to craftsmanship. There must be found a way to give play to muscular activity and to mental effort. We must bring to the attention of every man the necessity of not allowing mechanical appliances, which were extracorporeal additions to man's physical powers, to destroy the equilibrium between his physical nature which found its chief satisfaction in work, and his moral and intellectual nature, which also found its greatest satisfaction in work. We must teach not only the dignity of work, but the holiness of work. Humboldt, years ago, wrote an interesting thing in reference to the etymology of the word America, something which should be taught in the schools and which would help to counteract the debasing effect of machinery. If asked what America meant, the reply usually was that it was named for Amerigo Vespucci, who discovered the continent. According to Humboldt, Amerigo was an Italian corruption of two Gothic words, "amal," to work, and "ric," to conquer. Amalric in Italian, America in English, meant the work that conquered—all conquering work. It was all conquering work that made of us a great nation. In all other days men worked with energy, pride, and joy. All conquering work was good American doctrine. All conquering work was the vital essence of human life.

Dr. M. ALLEN STARR voiced the profound appreciation of the members of the Academy and their guests of the very eloquent address to which they had listened and moved a rising vote of thanks to Mr. Beck, which was given unanimously.

SECTION ON PEDIATRICS.

Stated Meeting, Held November 11, 1920.

DR. CHARLES HENDEE SMITH in the Chair.

Fat Determination in the Feces.—DRS. ROWLAND G. FREEMAN, JR., and EDGAR G. MILLER, JR., presented this paper, in which they reviewed the earlier methods of fat determinations in feces, and described their methods. This consisted essentially in triturating the weighed moist feces with anhydrous sodium sulphate, extracting the resultant dry powder with ether, and weighing and fractionating the ether-soluble material by the usual means. Samples (from one to five grams) of the moist material were weighed out and triturated in a mortar with one to three c.c. of concentrated hydrochloric acid; after about five minutes the mass was triturated with anhydrous sodium sulphate until the whole presented a dry, finely divided powder. About 35 to 40 grams of the sulphate was required for a gram of feces, although this might vary. The material was then transferred quantitatively to a well stoppered Erlenmeyer flask, a quantity of pure ether (about 50 c.c.), free from non-volatile material, was added, and the mixture shaken for several minutes. After a brief time to allow for some settling the ether was decanted through filter paper. This extraction was repeated until no more ether-soluble material was obtained; usually four or five extractions were sufficient. The residue was then washed with a little more ether. The combined ether extracts were then evaporated in a weighed beaker to dryness, dried at 98–100° C., desiccated, and weighed. The weight of the extracted material represented the figure commonly known as total fat. Having the "total fats," these might then be dissolved in hot benzol and triturated while hot with N/10 alcoholic sodium hydroxide, using phenolphthalein as indicator. This gave the amount of free fatty acid. Fatty acids present as soaps might be determined by repeating the extraction on a sample which had not been treated with the hydrochloric acid, and recording the difference between this and the result of extraction of the solidified sample. Pure beef fat and pure stearic acid were recovered by this method to the extent of 99 per cent. The chief claim for this method was its speed and its availability for ordinary clinical testing. Its accuracy, while high, was probably exceeded by some of the longer and more complicated procedures.

Dr. ROWLAND G. FREEMAN said the clinical examination of the feces had been difficult and in many respects unsatisfactory. One of the great values of feces examination was in children with poor digestion, those children who were constipated, poorly nourished, and in a generally miserable condition, and in whom it was important to find out what element in the food was not being taken care of and passed in excess in the feces. The Schmidt test afforded a good method of obtaining this information so far as the proteins and carbohydrates was concerned, but not for the fats. The Sudan III method had been quite generally used in the estimation of fats, and the reports of his laboratory had stated that the fat content was so many droplets in a D field, but gave no idea of the size of the droplets or the thickness of the field, so that it was evident that a more accurate method was needed. In comparing this method with the Sudan III method he found that the Sudan III method was absolutely unreliable and misleading: 8 fat droplets were reported in feces containing from 19 to 29 per cent. fat; 10 droplets in feces containing from 30 to 32 per cent. fat; 11 droplets in feces containing 27 per cent. fat; 12 droplets in feces containing 28 to 41 per cent. fat. So whether this new method was adopted clinically or not it seemed to prove that the Sudan III method was unreliable and not worthy of use. The test described could be carried out so as not to take more than twenty minutes to half an hour per specimen, and was sufficiently accurate for clinical purposes.

Dr. GODFREY R. PISEK said they would all certainly be glad to have a new method that would throw more light on the stools of infants and children. The great trouble was to develop a method that coordinated laboratory and clinical findings. The difficulty in connection with the fats in the feces was that when they

sent a specimen to the laboratory the laboratory and the clinical view often did not coincide. For example, the examination of the feces might show that a large amount of fat was absorbed while clinically they had evidence that the child was not absorbing fat. We did not know to-day just what the significance of the fatty acids and soaps were, hence we would be grateful for anything practical along this line that would be helpful.

Dr. MILLER agreed that what Dr. Pisek had said in reference to the coordination of clinical results with laboratory findings was extremely important, and for that reason they hoped for series of cases from various hospitals in which this method was used. Several such investigations were now under way.

Anhydrous Dextrose in the Feeding of Bottle Babies.—Dr. WILLIAM H. PORTER read this paper, in which he said that physiologists had long known that there was only one form in which starch or sugar could enter the circulation, and that was glucose or dextrose. For this reason and the fact that dextrose was the most soluble of all forms of sugar, the author was led to believe that pure anhydrous dextrose could be quickly and fully absorbed into the circulatory system and utilized by infants when no other form of sugar—not excluding the maternal milk sugar—could be so utilized. For dextrose could undoubtedly be appropriated by the infant economy to produce the heat and energy necessary to innervate the digestive functions, especially during the first day or two of the child's life, when it was so difficult to get the baby's digestive apparatus into a state of functioning activity. The particular product used in this investigation was an anhydrous dextrose, the anatomical construction of which was such that it was much more quickly reduced than any of the other dextrose. They believed this was still another and peculiar isomeric form of dextrose more closely approximating that particular form developed by the physiological transformation of mothers' milk in the human economy than any other isomer of glucose. The reason for believing that this was a special glucose form was further manifested in the clinical results which followed the administration of this particular glucose. The results were not comparable in any degree with those attained by giving dextrose derivatives produced by malting, or developed from grains other than corn. The product under consideration was a chemically pure dextrose, a dextrorotary sugar furnished for these researches through the courtesy of the Corn Products Refining Company. Collaborating in the study were a number of the leading pediatricians and other specialists of New York. The combined number of cases treated by these physicians totaled well over 140. Many of the babies included in the series were institutional babies, in desperate condition, and the observations were made during the summer and fall months, during which the infant mortality reached its most alarming proportions. However, the results of these researches went to prove that the babies did quite as well, and in many cases much better, on dextrose than on any other form of sugar. In cases in which there was diarrhea and green stools, with rapid emaciation, very large doses—2 to 4 ounces—of dextrose was tolerated. In from twelve to twenty-four, or forty-eight hours at most, the diarrhea was stopped, the stools became normal, and the baby was again in a thriving condition. This sugar in small amounts did not primarily inhibit sugar growing bacteria, but, when used in larger doses, it seemed to exert the preserving properties common to all saturated sugar solutions. In this was it inhibited the development of bacterial flora which had heretofore led pediatricians to temporarily discontinue the use of sugar in infant feeding. Also by the ability of dextrose to maintain heat production, the baby's digestive apparatus was stimulated to produce more hydrochloric acid, phosphate of soda and digestive ferments quickly. These secretions were immediately brought back in full amount and quality, thus producing the normal inhibitory agents which arrest pathogenic bacteria and microbial growth in the intestinal tract. The much dreaded primary sugar fermentation was stopped, the infant returned to health. Our first heat-producing food product, dextrose, had thus been turned into a powerful therapeutic agent. And if the results attained in this investigation were fully

maintained, it was quite possible to that 90 per cent. of the 40 per cent. of babies now condemned to die under the past régime would be saved. As a further aid in this inhibiting process it was well to remember that the addition of a little salt would augment very materially the production of hydrochloric acid. The anhydrous dextrose slipped directly into the blood without the expenditure of any digestive energy, augmented the combustion of fat, perfected the metabolism of proteins, especially in their oxidation reduction in some of the gastric cells, and thus stimulated the production of hydrochloric acid by nature's own method. This resulted in generally increased efficiency, and assisted in developing the digestive ferments produced by the liver, pancreas, and the various intestinal glands. With the improvement in these physiological activities, the endocrine glands performed their functions more normally. Hence a more perfect metabolism could be developed and maintained. It might also be mentioned that normal heat production was also essential to the excitation of nerve innervation—a factor which must never be lost sight of in dealing with sub-vital cases. From a summary of 103 bottle baby cases, submitted by the Board of Health and the various pediatricians mentioned in the paper, it seemed that fully 75 per cent. demonstrated a decided gain, there being a fairly uniform increase in weight. There were no complications in the way of vomiting or green stools that could be distinctly referable to the use of this particular sugar form, and in many instances babies who failed to gain on other sugars, when put upon dextrose, immediately commenced to increase in weight. Of the cases which were unfavorable or in which there was an indeterminate result, there was no single instance coming to the knowledge of the essayist in which any other sugar substituted for dextrose resulted in improving the clinical aspects of the particular case. While the pediatric observations were under way the author personally observed the action of the dextrose in some 35 adult cases varying from mild conditions of mal-metabolism up to cases in which death seemed inevitable. In every single instance a decided improvement was secured, many of the patients evidencing a most remarkable change for the better in metabolic and assimilative powers. In practically all of these cases a careful study of the urine was instituted in order to determine whether any of the dextrose came over into the urine, and also the effect of the sugar upon the excretion of albumin. In not a single instance did any glucose appear in the urine. The albumin was pretty uniformly reduced, and metabolism improved in every instance, even in one case which was most desperate. In one of these patients, with the exception of two in whom there was a decided disturbance in the digestion, and in whom absorption was temporarily arrested, was there any glucose found in the feces. In all the severe cases these results were verified by Professor Gies. Blood sugar tests were not made because the contention was that when the sugar tolerance had been exceeded glucose appeared in the urine. Their experience was to the effect that in anhydrous dextrose we had a therapeutic agent of proved merit, a stimulant which had won the merit of many of the leading surgeons of the world and a food product second to none in its carbohydrate value.

Dr. Porter, after reading his paper, said he had one diabetic patient for the last three months on this sugar and taking no other medicine, and there was no increased output of glucose either in the urine or feces, and no increased blood sugar. This patient was taking twenty-four teaspoonfuls daily in addition to the regular diet. He had used it in pneumonia for the purpose of heat stimulation with apparent benefit and had written a paper calling attention to that fact. One military surgeon had used it intravenously in 137 cases with uniformly good results. It seemed that large quantities of this particular kind of dextrose could be used without deleterious effect and with much benefit. He had given over 40 pounds during the last few months and felt that it was valuable both as a health-giving food and for therapeutic purposes.

Dr. HENRY KOPLIK stated that he had listened to the paper with a great deal of interest, but was not quite clear as to which class of patients this form of sugar was to be supplied. Pediatricians had been at great

pains scientifically to work out the underlying causes of the different forms of intestinal disturbances in infants and children so that when a child came under observation they would be able to tell what was going on with the baby and then proceed to remedy the cause of the disturbance. In other words, they had given up the idea that there was such a thing as a placebo, and from that point of view they had been working. The scientific man classified each condition in a rubric by itself or with conditions on the borderline in order that he might apply certain fundamental remedies suitable to that condition. How this form of sugar was brought forward and applied to almost everything. The fact that a baby had green movements and intestinal fermentation did not signify too much sugar unless the cause was known and then the condition might be brought under control. After the trouble was brought under control one then applied other forms of food, and in that way tried to recover the baby, so to speak. A baby might be disturbed by absolutely good food, food wholesome in every way, which in other babies was well borne, but in this baby was not well borne. A perfectly wholesome food might disagree with a baby and likewise a perfectly good sugar. Maltose, for instance, had been found very useful in some forms of intestinal disturbance, but it might be objectionable in others, but the reader of the paper did not say when we should use this form of sugar and when we should exclude it. We knew that in certain forms of intestinal disturbances cane sugar could be used and acted well. There was no particular thing which fitted every case. One had to classify conditions and ask himself what was going on in this particular baby, whether the disturbance was due to sugar, to fat or to protein and whether the baby was getting too much of any of these substances. It was true that certain forms of sugar were absorbed much more readily than others. For instance, Liebig pointed out that malt sugar was easily absorbed and well borne, and we had a form of feeding containing a large percentage of maltose, malt soup feeding. In other words, he would like to know more definitely in what class of infants this sugar should be used as an almost exclusive article of food in these very sick babies. This was not pointed out in the paper.

Dr. GODFREY R. PISEK expressed the hope that he would always be broad-minded enough to receive any new therapeutic or dietetic produce presented for trial; one could not afford to do less than that and be scientific. One must, however, also take the opposite stand and in these cases be prepared to be very conservative in his opinion and not allow any overenthusiasm in regard to any type of preparation to sway him. When this form of sugar was presented to him he thought it might possibly fit into a niche, since other forms of sugar had been found suitable to a particular condition, and if this were true we should like to know it. It was presented at a time just before the summer months to give it a fair trial in even a limited number of cases. At that time he stated that he would not be ready to go on record until this preparation had been tried by others, not only in this city, but in other parts of the country. Dr. Porter did not state and did not mean that he had discovered a panacea. He had just presented it in this way in order that a greater number might know something about it.

Dr. ROGER H. DENNETT said that since his name had appeared as concerned in this investigation he felt called upon to say a word in discussion. As he understood it certain amounts of this new sugar had been distributed among various hospitals, and at his summer service they had received their quota. He believed all pediatricists were supposed to receive a certain share. For three or four years he had been rather enthusiastic about the theory of monosaccharides. It always seemed to him theoretically that monosaccharides used in a certain type of baby not having good tolerance for sugar was a rational procedure, for the monosaccharides were easily absorbed and absorbed high up in the digestive tract. Thus it might be that they could be used without the bad influence that took place when sugars were absorbed lower down in the intestinal canal. Consequently he was very glad to try out this new sugar in a limited way this summer. In a very small number of cases in which he had used he could draw no definite conclusions. It seemed to

him that it would have to be used very extensively by a large number of observers before any very definite conclusions could be drawn by anybody.

Dr. MARSHALL C. PEASE said he hoped he had misunderstood the speaker, but he had the impression that he said that this was a type of sugar in which bacteria would not grow and particularly putrefactive organisms. He happened to know that bacteria would grow in any sugar that would be digested in the animal digestive tract, and that they grew most profusely in maltose and dextrose, and that they would grow though only a small amount of protein was present. But one strange fact was that they produced only a small amount of toxin in the presence of large amounts of sugar. The condition under which they produced toxin was slow growth in protein media and one having a slightly alkaline reaction, preferably 0.5 to 1 per cent. On the other hand, if they grew in a sugar medium of any type after a short time there was an increase in the amount of acid, and as the acid increased one found a smaller and smaller number of bacteria. The bacteria either died or were transferred into spore form. While this process was going on the bacteria were not producing much toxin. If the reader of the paper thought he had a sugar in which bacteria would not grow he was doomed to disappointment; the only fortunate thing was they would not produce a great deal of toxin under those conditions. It was not wise to attempt to prove too much, for such efforts only served to hinder the introduction of a product to the profession; and thus prevented the use of a food or drug which had certain valuable properties for the treatment of the sick.

Dr. CHARLES HENDEE SMITH said he thought the patient who tolerated 10 ounces of glucose showed a very high tolerance. He understood that 150 to 200 grams of glucose was a very fair measure of a child's tolerance, and a patient who could take 250 grams had an increased sugar tolerance. This might be due to hypopituitarism. It had been found that pituitary cases could take as high as 300 grams of glucose.

Dr. PORTER, in closing the discussion, said he did not wish to convey the idea that this particular glucose was a panacea for all kinds of disease. The facts he had tried to establish were whether one could use large amounts of glucose and not have it lost in the feces and how much glucose the individual could tolerate without producing glucosuria. During the last four months he had given over four hundred pounds, and some of the patients to whom this sugar was given were in desperate condition with cardiovascular disease and albumin in the urine. One patient whom he thought would not live two weeks had dropsy extending up to the shoulder blades, dyspnea, and severe pain over the heart. After taking the glucose, without any other change in medication and diet the patient showed decided improvement. In three or four weeks the dropsy disappeared and she was able to go away to the country. The albumin had dropped 75 per cent. At one time during the treatment the glucose failed for three or four days (this was early in these investigations when the supply of the preparation was limited) and the albumin immediately increased. As soon as some more glucose was obtained and taken again the albumin at once decreased, dropping again 75 per cent. He had seen that happen in a large number of cases. The point he wished to bring out was that glucose in the absolutely pure state could be given in large doses without producing loss of sugar in the feces or producing glucosuria and without exceeding the blood tolerance. Glucose was not a panacea, but it would slip directly into the blood and produce the same effect that all glucose did, increase heat production, and one could obtain heat and dynamic energy from it easily and more quickly than from anything else except alcohol. In relation to bacteria, Dr. Gies remarked that housewives in general knew that sugar had a preservative action and that this was due to its special action in connection with bacteria. When one approached a saturated solution of glucose the bacteria did not like it and stopped acting or disappeared; whereas it was a well known fact that weak glucose solution enhanced the activity of certain kinds of microbe life.

Moving Pictures Illustrating the Process of Drying Milk.—Mr. ATERBACKER made this contribution to the program. The films demonstrated the process by which

the dried milk was manufactured and emphasized the fact that dried milk acted like mother's milk in the infant's stomach. Dried milk was free from bacteria, rich in vitamins, and provided a biological substitute for mother's milk.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, Held October 27, 1920.

THE PRESIDENT, DR. HERMAN B. ALLYN IN THE CHAIR.

Symposium on National Health Insurance.

The Medical Aspects of National Health Insurance.—Dr. FREDERICK L. HOFFMAN, Prudential Insurance Co. of Newark, N. J., delivered this address in which he stated that there were at least two sides to this question and he was afraid that the conflict of views did not permit of a reconciliation. As the result of Health Insurance Legislation in England the new viewpoint was strongly in favor of the reorganization of the British medical profession on the basic principles of a trades union and the adoption of a fighting platform including the threat of a strike. The negotiations in behalf of better terms, of a modification of the regulations, and of other matters, were practically as endless as they were seemingly helplessly confused. Letters contributed within the last few days to current medical literature would suffice for the time being to answer the preposterous assertions that panel practitioners throughout England were satisfied with the workings of the National Insurance Act. He was as familiar as anyone with the fact that a large proportion of panel doctors had derived a material share of pecuniary benefit from National Health Insurance. The doctor who practiced among the poor with a bottle of medicine and gave, broadly speaking, largely worthless treatment no doubt had a hard time of it in collecting his bills. He now had an assured income and did not need to worry about competition or the stress and strain of professional skill, for in place of the old time discredited doctor had come the panel doctor who, with the sanction of the State, was engaged in lowering the dignity of the medical profession to the status of a trade bearing the obvious stain of cheapness. Standardizing medical practice was a perilous procedure. The panel patient was the slave of the panel doctor and the panel doctor was the slave of the panel patient and both were in absolute bondage to the countless rules and regulations of the Ministry of Health. No one who valued the high status of the medical profession in America and was determined to maintain it could contemplate without serious concern the remote possibilities of a similar state of affairs in this country. No conclusive evidence had been forthcoming from any responsible source that public or personal health in England had been improved in consequence of National Health Insurance Legislation. Although the Act in its preamble emphasized the viewpoint that the objective was the prevention of diseases, nowhere in the Act was provision made for methods or means whereby disease as such could be prevented. The outlook in England was discouraging and not far from desperate. Unemployment was increasing at a prodigious rate while Poor Law expenditures were mounting to prohibitive proportions. Just as on the one hand there had not been the anticipated improvement in public health, so on the other there had not been the expected diminution in Poor Relief. A large and increasing proportion of paupers among insured persons were cared for in Poor Law institutions. The writer said he had gone from bedside to bedside of panel patients. He had interviewed scores of panel doctors. He had examined hundreds of reports of sickness visits, and in his judgment the system was not only a grotesque failure, but a frightful imposition upon British wage earners entitled of right to conditions more effective in promoting health and longevity.

Economic Consequence of Illness.—WILLIAM DRAPER LEWIS, Esq. of Philadelphia, delivered this address in which he said that poverty had a great many causes and we had to deal with it, so it seemed to him at least, as doctors dealt with sickness, not by one panacea for all human bodily ills, but by analyzing the

causes of poverty and eliminating one at a time. When he started to study this subject he knew that sickness was the cause of poverty just as poverty was the cause of sickness. He had had that idea and also had known that in Germany, in England, and in other countries they had had something they called Health Insurance, sometimes voluntary, sometimes compulsory. It had therefore seemed to him worth while and interesting to go one step further and even to do something about these matters and, therefore, he had been influential in the appointment of a Health Insurance Commission which had been appointed under the Act of July 25, 1917, by the predecessor of the present Governor. In the first place the Commission had gotten the Pennsylvania School for Social Service in Philadelphia to make a sickness survey of a district in Kensington. That took the entire time of some 50 persons who visited between 700 and 800 families and got their sickness history for the year. They found that the average person had lost from sickness an average of 38 days. Now a sickness of 2 or 3 days was not serious but a sickness of 38 days to a working man with a family was a very serious thing. What really happened was that the wage earner thought that he could not afford to be ill, and that, therefore, the man stayed at work when he ought not to have been at work, and, as a result, when he got sick, his sickness was longer and therefore reached an average of 38 days in this Survey. They found that the employee who became ill obtained very little help from his employer. It was also found that the fraternal insurance societies and the labor unions had been of very little financial benefit to those of their members who had suffered illness.

National Health Insurance from the Physician's Viewpoint.—Dr. J. E. SWEET of Philadelphia read this paper in which he stated that his remarks were based on a study of the bill drafted for the State of New York and sponsored by Senator Davenport, and therefore known as the Davenport Bill. One reason why he felt that he should confine his remarks to that particular bill was that he could see no way in which it could be improved upon except by hitting it hard upon the head. He meant that it was a carefully worked out plan and apparently all the objections to such a scheme, such as were manifestly inherent in the competitive bidding schemes of the Continent, had been carefully considered and avoided. He would make the assertion that such a scheme could not work because it was unjust to the insured and because it was in conflict with the fundamental principles of medical practice. In addition to the financial duties of the Board which it was proposed to establish it was designed that it should employ one or more medical officers, who should be legally qualified physicians, and who should possess such other qualifications as the Board with the approval of the Commission might prescribe. It was further proposed that no medical officer should practise medicine in any capacity. These medical officers were personally to examine patients, obtain statements from the attending physician, and then issue certificates of disability; the physician in charge did not issue these certificates. One could see here a beginning of trouble for the general practitioner, such as disagreement as to the degree of disability, etc. The writer stated that such a plan was unjust to the insured. He arrived at such a conclusion from a consideration of the facts of disease. He called attention to the fact that the person who was careful of his health would be compelled to pay for the sickness of those who got sick because of lack of care. He stated that this proposed act was in conflict with the fundamental principles of the practice of medicine. The act provided that all employees under the meaning of the act should be insured without medical examination. This meant that the malingerers and the chronic invalids would be the first patients of a physician who undertook to work for the Fund. Now a practitioner of medicine or surgery succeeded in proportion to his success and his success was measured by the cases he could cure. No man could afford to undertake to treat a clientèle composed of malingerers and the hopelessly ill. Even the success of the best of physicians might be placed in jeopardy by a small series of fatal cases. In addition to this con-

flict with the principles of practice another serious one arose under the provisions of the act, namely, the necessity of practising under the supervision of a medical officer. No self-respecting physician would treat a patient and then have some third person step in to control and pass upon his work; not because the physician feared to have his work passed upon, but because he knew that the relation between doctor and patient was a personal relation and was so recognized in law. The entry of a third person destroyed this acknowledged relationship. The insured would not only be unjustly forced to pay for the cost of his neighbor's carelessness, but he would be forced by the natural workings of such a measure into the hands of the very young in the profession; or into the hands of the older incompetents; instead of obtaining better service he would inevitably obtain worse service than he did today. The trend of modern medical teaching was toward a method of practice such as we had seen in the army; but if you wished to apply your army methods to your private practice you would last as a practitioner of medicine just about 15 minutes. One of his objections to such schemes as National Health Insurance was that they unavoidably tended to create conditions of practice approaching the army conditions. To correct existing defect we must go farther away from such conditions, not try to approach them.

Mr. ORDWAY TEAD of New York City said that certainly the conclusions Dr. Hoffman had reached about the duty of the medical profession of England towards the operation of the British Act were not in accordance with the attitude of the British profession. He said that Mayor Ramsay of Chester, Pa., Chairman of the Health Insurance Commission of Pennsylvania, and himself had spent a month in England for the purpose of investigating this subject. It was found that a negligible number of individual people had any strong, reasoned opposition to the British Health Insurance Act. They had found no organized group opposed to it. One might say that among certain groups, for instance employers, there was a degree of difference. The Trade Unions, with a membership of 17,000,000 in all, were very enthusiastic for the extension of the benefits which the act offered. Dr. Alfred Cox, Secretary of the British Medical Association, said that one could not drive the British doctors away from the British Insurance Act with a crowbar. Out of the 25,000 doctors in Great Britain 14,000 were on the so-called Panels practising on full or part time. There were doctors for the medical work for school children, for tuberculosis, for venereal diseases, for maternity and prenatal care, provided for by joint contribution of the National Government and the local authorities. Recently an appointment of 30 doctors was to be made. There was sharp competition and no less than 1,300 physicians applied for these 30 places. The doctors of Great Britain were not opposed to Health Insurance so far as Mayor Ramsay and he could find out, although they had been opposed to it 10 years ago.

Dr. HENRY D. JUMP of Philadelphia said that except for a moderate comparison the condition of affairs in England did not concern us here, for, if the Davenport bill as offered in the New York Legislature was the last word which had been given in regard to this matter, we must judge of its effects upon us by the Davenport bill and not by the working of the Act in England. There were one or two points made in the last speaker's address which ought to be answered. Dr. Cox might be the mouthpiece of the medical profession of Great Britain, but he imagined that Dr. Cox was no more the mouthpiece of the physicians of Great Britain than Alexander R. Craig, in Chicago, was voicing the opinions of the physicians in this country. Dr. Craig had his own opinion and we had ours, but he was not telling the profession what they thought, and the speaker imagined the analogy was almost perfect. He believed it was true that many of the British physicians were satisfied because there was more or less of an established income and one had simply to look to the physician's income in our mining towns to see the same sort of attitude. It was not, however, conducive to good medical practice to work under such conditions and the County Medical Society was standing for good practice rather than

increase of income or assurance of income. As Dr. Lewis had pointed out, there were two particular points on which he based his advocacy of such legislation: (1) that sickness was the cause of dependency in a greater percentage than any other single cause. Let it be granted that this might be so, but was the remedy that which had been offered? Was it not rather more adequate returns for service rendered; that is, better wages, rather than more charity? (2) That the workman could not afford to be ill. He could if he was being paid. And would he be better cared for or could he afford to be cared for by the sort of physicians he got under the English Panel system? If we approved of insurance for sickness, why ought we not provide against sickness by establishing an insurance fund for coal, because, if the individual was not properly warmed, he might become sick; and, by the same token, let us provide this poor devil of a working man with clothing. He needs an overcoat and he ought to be fed; let us provide him with meat and potatoes, and, carrying the thing to the ultimate conclusion, let the beneficent State paternally decide what shall be done with the various proportions of the weekly wages which he receives.

WILLIAM DRAPER LEWIS, Esq., said that they as a Commission had not at the present time, so far as he knew, any definite remedy, but that they did see the evil and wanted enlightenment from the workmen, from the manufacturers, and from the doctors. They wanted help; they invited the doctors to try to help them. That was the attitude which he thought every Commission of the kind should take in every part of the State. If the doctors did not come in and help and give testimony such as they had given tonight, they would have only themselves to blame if in the end some legislation was put through in ignorance of the fundamental principles of the healing art.

Dr. J. E. SWEET of Philadelphia, said that he would like to express his admiration for any man, or any group of men, who could in one month's time find out what a real Englishman thought about anything. He said that he had just recently come back from 22 months service behind the British Front with the British Medical Corps. He did not recall that he had found among the medical officers of Great Britain any who were in favor of the English Panel system and he did not think any of the medical officers were panel doctors. He supposed the panel doctors were very busy, at any rate they were not at the Front.

Books Received.

The MEDICAL RECORD is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.

THE ANATOMY OF THE HUMAN SKELETON. By J. ERNEST FRAZER, M.D. 284 pages with 219 illustrations. Published by P. Blakiston's Son & Co., Philadelphia.

CLINICAL OPHTHALMOLOGY FOR THE GENERAL PRACTITIONER. By A. MATTIAND RAMSAY, M.D. 500 pages with illustrations. Published by Henry Frowde and Hodder & Stoughton, London.

A TEXT-BOOK OF PHARMACOLOGY AND MEDICAL TREATMENT FOR NURSES. By J. M. PORTESCUE-BRICKDALE, M.D. 392 pages with illustrations. Published by Henry Frowde and Hodder & Stoughton, London.

COMMON INFECTIONS OF THE KIDNEYS. By FRANK KIDD, M.D. 331 pages with illustrations. Published by Henry Frowde and Hodder & Stoughton, London.

TROPICAL OPHTHALMOLOGY. By ROBERT HENRY ELLIOT, M.D. 525 pages with 117 illustrations. Published by Henry Frowde and Hodder & Stoughton, London.

CLINICAL LECTURES ON ENLARGEMENT OF THE PROSTATE. By Sir PETER J. FREYER, M.D. 174 pages with illustrations. Published by William Wood & Company, New York.

AN INTRODUCTION TO THE STUDY OF HYPNOTISM. By H. E. WINGFIELD, M.D. 195 pages. Published by William Wood & Company, New York.

Miscellaneous

The Physician in the Year 1300.—Zimmerlin relates in the *Schweizerische medizinische Wochenschrift* for October 21, 1920, i, 43, that a work in Latin by De Thessolis, a preaching friar, composed about 1290, was subsequently translated into German by another cleric named Von Ammingen, who, by adding matter of his own, gave it the status of a new book. The subject of the book was the game of chess which had recently been introduced into Europe and was attracting great attention. The manuscript volume, all in Von Ammingen's handwriting, number 264 pages, and the chessmen were used to illustrate moral subjects. The editor or author relates the interesting fact that he went to Montpellier to consult the famous Bernard Gordon about his health. Incidentally are found many details of the culture of the period, including the practice of medicine. We find the essentials which a medical man of the time must possess. The physician was expected to be versed in the following subjects: Grammar, logic, rhetoric, geometry, arithmetic, physics, astronomy and theology—the equivalent of the M. A. degree of the present time. Reasons are given why each of these branches is necessary. If he does not know arithmetic the physician will be unable to count the pulse beat. Astronomy teaches him the optimum time to give a drug. Theology is necessary because some men are ill by reason of their sins, while belief in Christ will often heal disease. The physician, contrary to what we are often told, should carry a surgeon's outfit and be able to treat wounds. A proverb of the day was to the effect that there are more bungling workmen among physicians than in any other class of handworkers. In other words, at that period there was no apparent demarcation between medicine and surgery. Every man wanted to practise medicine.

The medical man must be industrious and see his patients often, must know the signs of both sickness and health, must know the occupation and habits of the patients and must urge the latter to make a clean breast and keep nothing back. He must be versed in the works of the masters and follow their precepts. He should know thoroughly a number of books—a sort of "five-foot shelf," by no means all technical. Several well known works by theologians are mentioned. Rules for bedside conduct abound, all more or less trite. There were erroneous viewpoints among the craft such as attributing greater virtues to exotic drugs. Sharp practice was seen at times, as when a physician promised to cure a woman of an ocular disorder in return for a contingent fee. As the patient was apparently unable to see, the doctor slyly took with him at each visit a souvenir, possibly hedging against failure of the adventure. The woman recovered, but refused to settle, whereupon he brought suit to recover. She testified that he had purloined articles of beaten silver, saucers, etc., and the judge ordered him to return them on penalty of death for non-compliance. She also testified that he had promised to restore her vision to its original normal state and had not done this; nevertheless on returning the goods he was paid his fee.

Dr. Aragon Y. Muñoz, who died last August in Havana, was a member of a family distinguished

in science and literature. He was born in Cuba in 1868 and took his bachelor's and medical degrees in the University of Havana as well as a degree in pharmacy. In New York he was a student in the Lying-In Hospital and began practice in Jacksonville in 1898. After the close of the Spanish war he removed to Havana and began the practice of surgery and obstetrics. In 1902 he was made chief sanitary inspector and was in charge of several obstetrical services. He entered into medical journalism, collaborating with the late Dr. Enrico Nuñez and was active to the time of his death in practising and teaching obstetrics, in sanitation, medical journalism, medical society work, and other public activities. Two sons are well-known Havana physicians.—*Cronica Medico-Quirurgica de la Habana*.

Androgynes and Gynanders.—Professor Laiguel-Lavastine lectured on this subject last spring from the viewpoint of a psychiatrist, his lecture having appeared in *Le Progrès Médical* for Sept. 11, 1920, xlviii., 37. The occasion was a case of Apert's hirsutism—a so-called bearded woman, with further examples of atypical sex ensemble. The frame was masculine, the clitoris hypertrophic, and there was amenorrhea. The age was 21, mentality imbecile; there was inability to learn in school or to work for a livelihood. Another patient studied for comparison was a male, aged 19, weak physically and psychically, choleric and a deaf mute. The woman wore a beard and moustache, while the man had a smooth face. He presented cryptorchidism and a very small penis. The woman showed a masculine disposition and small breasts, narrow hips, male type of pubic hair. The clitoris was phallic in appearance while the labia resembled a scrotum when approximated. However the scalp hair was feminine. The male or androgyne on the other hand had buttocks and thighs which resembled the female type and the female distribution of pubic hair. There was a slight suggestion of hypospadias seen in incomplete coalescence at the middle line of the scrotum. The female or gynander presented redundancies and the androgyne presented defects. The gynander in this case resembles considerably the acquired condition known as supraprenal virilism. Androgynes are much more often seen than gynanders. The former may exhibit great extremes. For instance, an apparently typical woman may have one testicle or both. There are three types of pseudohermaphrodites from the viewpoint of sexual attraction. In one the subjects are almost or quite sexless. There is a testicle but its development may be very slight. In the second or orthosexual type the disposition agrees with the kind of gonad. As this is most commonly male many of the androgynes, although they may resemble girls, are attracted by women. In the third type we have homosexual or inverted pseudohermaphrodites, in which, despite the presence of a testicle, attraction is toward the female. Thus a gynander without any evidence of male gonad may be attracted to women and may even marry. The clitoris may be large enough for relations with women but the marriage will of course be sterile. The author does not mention the kind of gonad called the ovotestis which is found among these subjects and adds to the confusion.

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A CASE OF MULTIPLE MYELOMA WITH UNUSUAL FEATURES.

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MULTIPLE myelomata, because of their diffuse extension and bone cortex erosion in various parts of the skeleton, necessarily give rise to many peculiar features. Among the post-mortem examinations made at St. Elizabeth's Hospital during the past year one such case attracted the attention of the writers—a case simulating brain tumor with pronounced unilateral exophthalmos. The true nature of the case, unfortunately, remained unrecognized until brought to autopsy. A résumé of the clinical history follows:

P. C., age 26 years at time of admission to St. Elizabeth's Hospital July 9, 1882, suffering from auditory hallucinations, periods of intense psychomotor activity, and a general dementia of moderate grade. His excited periods occurred about every three weeks and would last some four or five days, during which he would become belligerent and destructive to an extreme degree. The interim was, relatively speaking, an emotional calm characterized by talkativeness, laughing to self, typical precox reactions, and some retardation. He was able to perform many of the routine duties in the ward. This condition obtained over a period of many years, the stages of unrest becoming less frequent and less stormy and the apathetic stretches more in evidence. Irritability superseded excitement as the dementia progressed beyond the stage of active hallucinosis. His physical condition remained excellent throughout. On February 14, 1906, the patient jumped over the stair banister on the way to meals and sustained a severe contusion of the right ankle and hip. This responded well to treatment and apparently no complications developed. At this time, on the mental side, he was completely disoriented in all fields, showed marked impairment of memory, and reacted to both visual and auditory hallucinations. Dental trouble first developed in July, 1908, at which time two teeth were extracted, and frequent trips to the dentist became necessary thereafter. The mental situation took on an added interest during this period through the appearance of delusions of grandeur and poorly organized ideas of persecution. For the first time the patient became untidy and would spend hours lying idly on the floor. On March 30, 1913, he had an illness of three days' duration, characterized by headache, chilliness, general malaise, and a moderate elevation in temperature. He was still being treated for pyorrhea, and in January, 1916, two more teeth were extracted. At this point the physical machine began to run down very rapidly. On May 2, 1916, the patient had a swollen face, some elevation in temperature, and headache. The condition was provisionally diagnosed as dental caries

and a tooth was extracted. On July 21, 1916, a more severe attack confined him to bed, his face being swollen to the extent that the right eye was completely closed. This attack lasted six days. On February 12, 1917, a third attack of two weeks' duration occurred, in which the entire face and neck were involved. A maximum temperature of 103 degrees was attained. The condition was diagnosed as erysipelas. A similar attack took place on November 17, 1917, if anything more severe than its predecessors. His mental status had remarkably altered during this period of two years. The patient became quiet, orderly, very agreeable, and willing to work in the dining room. Much of his indifference to environment disappeared, although he remained seclusive and inaccessible. His hallucinatory experiences receded into the background and seemed to be replaced by a general feeling of contentment and well-being. On July 15, 1919, he became a permanent bed patient because of enfeeblement and untidiness. September 29, 1919, for the first time the patient complained of his right leg hurting him. Examination showed enlargement of the right hip with no evidence of a tumor growth. A moderate degree of tenderness was present. Three weeks later exophthalmos of the left eyeball was noticed; although there were no signs of general intracranial pressure, a brain tumor was suspected. Impairment of vision was early noted. A well defined immovable tumor the size of a hen's egg over the region of the right trochanter was present by this time. After a more or less prolonged period of asthenia the patient died on December 22, 1919. Laboratory examinations showed a doubtful Wassermann (blood) in June, 1915, a few granular casts and a trace of albumin in the urine, and an absence of parasites in the feces. It is much to be regretted that the urine was not repeatedly examined for Bence-Jones protein, and that the mental condition of the patient made physical examinations very difficult.

Discussion of the Case.—From a clinical point of view this case presents several questions of interest, among which may be discussed: 1. What factors in the patient's history might have a bearing on the etiology of the tumor growth? 2. Is there any relationship existing between the physical and mental sides of the case? 3. Are there any remedial measures which might have availed?

Of interest to those who hold to the theory of the traumatic origin of tumors is the history of an injury in February, 1906. On that date the patient jumped over a banister and sustained a severe contusion of the right ankle and hip. A fracture was not present, and apparently no untoward results occurred, as the patient recovered full use of his leg after two weeks' rest in bed. It is noteworthy that a period of thirteen years intervened between the injury and the first appearance of tumor symptoms at the site of injury. Such a quiescent interval is unusual although not impossible. Unfortunately it permits many other factors to creep in which may cast doubts upon the injury being the true etiologic factor.

Adherents of the irritation theory of the origin of malignant growths may modify this view to the

extent that the injury lowered the vitality of the tissue cells, more especially those of the lymphoid elements in the bone marrow or at least established their metabolic equilibria on a different level, that these altered cells remained below par and continued



FIG. 1.—Showing matting together of the median lumbar lymph glands about the lower portion of the aorta.

to produce cellular tissue below par until such a time as a constant source of irritation in the form of toxemia from repeated attacks of erysipelas came into effect; that this constant source of irritation stimulated the defective cells to overgrowth with the ultimate result of malignant changes.

If we may carry this investigation a step further a rather significant chain of events presents itself to followers of focal infection ideas. This may be tabulated in the following sequence:

Dental Trouble

1. July, 1908—two teeth extracted.
2. 1908-1912—frequent trips to dentist for treatment of pyorrhea and caries.
3. March 30, 1913—cellulitis of jaw, moderate elevation of temperature. Some doubt as to nature of attack. Possibly abscessed tooth. One tooth extracted.
4. January, 1916—two teeth extracted.
5. May 2, 1916—one tooth extracted.
6. February 7, 1917—treated for pyorrhea.

Attacks of Erysipelas.

May 2, 1916—moderately severe attack of erysipelas, patient in bed one week.

February 12, 1917—severe attack, patient in bed for two weeks.

November 17, 1917—entire head and neck involved—maximum temperature 103°.

Of some significance is the attack of March 30, 1913, which seemed to occupy an intermediate position between the symptoms of an abscessed tooth

and a mild form of erysipelas. Some connection between the two conditions appears to be probable. The line of march, then, would be a history of definite trauma to hip and general lowering of cellular resistance and pyorrhea and dental caries extending over a period of five years, which ushered in four sharp and well defined attacks of erysipelas. Two years later malignant involvement of the right femur took place.

The more or less causal relation existing between sarcomata and erysipelas may be recalled at this point. Coley's experiments with injections of erysipelas sera into malignant masses are familiar, however obscure may be their meaning or however futile their therapeutic value. In consideration of the close association of sarcomata and myelomata, it is not wholly an effort of the imagination to conceive of some such relation as we have just mentioned, existing between erysipelas and myelomata or other bone marrow tumors. That on occasion erysipelas should have a salutary effect upon this type of connective tissue tumor, and in other instances that it should be the exciting cause, is somewhat paradoxical. This whimsical twist in the affairs of tumors is commonly observed, however, and Coley himself met with many surprising reversals in this respect.

Perhaps a word here should be said concerning myelomata and the leukemias. Among the pathological conditions affecting the lymphatic tissue the so-called blood diseases known as the leukemias stand at one extreme, while the pseudo-leukemias and myelomata stand at the other. The one ex-



FIG. 2.—View of base of skull with tumor in left anterior fossa.

hibits a maximum change in the blood picture and a minimum hyperplastic formation. The other presents the opposite condition. The transitional stage between these two groups is met with in forms such as the leucosarcomata and chloromyelo-

sarcomata in which blood changes and hyperplasia reach a more even balance. It is this relationship which has led many investigators to classify boldly the leukemias among the tumor growths—a malignant hyperplasia of the lymphatic tissues, fluid or

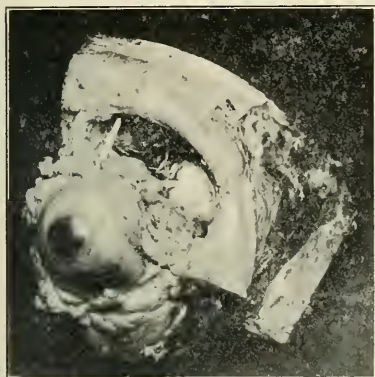


FIG. 3.—Tumor mass growing in orbit pushing the eye from its socket.

otherwise. This particular case, with its lack of metastasis, occupies the border line between the myelomata and the above-mentioned transitional group. The distinction, however, is too fine to be worthy of further comment. If myelomata, as the above discussion would seem to indicate, may be considered as one of the end results of aberrant changes in the lymphatic portion of the circulatory system, Ribbert's hypothesis of the disturbance of equilibrium of tissue may have a bearing on the etiology of this special tumor. Briefly stated, the injury to the hip probably produced a relaxation and an alteration in the density of the local structures which freely allowed subsequent erosion. Such infiltration threw an undue stress upon the lymphogenic elements in that locality, which response ended in overstimulation, overproduction, and finally malignancy.

Our second point of discussion concerns itself with the correlation between the physical and mental sides of the case. During the years 1916 and 1917, at the time when his acute illnesses were in greatest evidence, we are confronted with a remarkable change in the mental status of the patient. From an irritable being, highly excitable, quarrelsome, unwilling to work and most actively hallucinated to an orderly patient, efficient in ward work, agreeable and showing but a slight hallucinosis, was a matter of days—days measured in terms of erysipelas and extracted teeth. Cases similar to this can be adduced by everyone dealing with mental diseases. The writer has in mind a case confined in one of the disturbed wards for several months. Rather suddenly he developed a suppurative condition of his left submaxillary glands. Extensive dissection under a general anesthetic along the cervical fascial planes was necessary to give adequate drainage. Following this episode (during which a relatively high grade of toxemia was attained) the psychomotor unrest which was such a prominent and persistent feature

previously, showed marked amelioration, and for several weeks thereafter he was able to maintain himself at the level of paroled patients. The patient later regressed but not to his former status. A second instance is that of a catatonic dementia precox for several months on the detached service of St. Elizabeth's Hospital—a severe infection of one of his fingers required several incisions. This treatment brought him out of his retarded condition and in two weeks no active psychotic symptoms were apparent. In such cases whether the toxemia produces a stimulating effect upon the central nervous system or, as in the precox case, whether the pain attendant upon the injury was sufficient to focus attention upon reality for a time long enough to bring the patient out of his psychosis is a matter of some comment.

As this disease is of general distribution through the bone marrow and often spreads through the viscera, the usually advised therapeutic measures, such as amputations, excision of local growths, x-ray treatments, etc., are of course valueless.

General Postmortem Findings with Description of Histopathological Features.—The appearance of the body was that of an aged male of medium size bearing a skin covered with discrete purpuric spots and numerous brownish pigmentations of general distribution and of the type indicating adrenal disturbance. The left eye was hard, bulging, under tension, and the pupil was pin-point in type. The right eye presented the usual slightly dilated pupil, and was otherwise not remarkable. The right hip was dislocated, the leg rotating outward and the knee was swollen and presented a



FIG. 4.—Nodular tumor developing about the upper one-third of the femur.

"floating" patella. A large, firm, irregular growth was palpated on the upper third of the femur.

Heart.—The left ventricle wall was slightly hypertrophied, containing a moderate amount of interstitial replacement. The mitral valve showed some stenosis with marginal thickenings of the cusps, and the aortic

areas presented a few elevated yellowish plaques of small size. The arch and descending aorta exhibited a diffuse red lining, the continuity of which was broken by small, rather deep ulcers. The lower six inches of the aorta, immediately above the iliac bifurcation, was moderately contracted, as were also the iliaes, the left

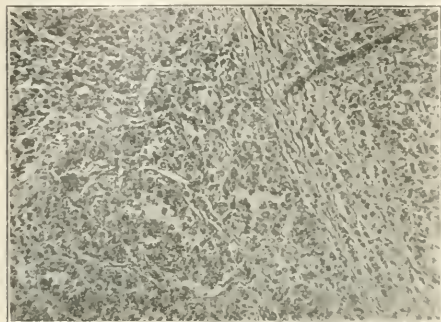


FIG. 5.—Showing arrangement of cell groups and the distribution of the reticulum in the tumor on the neck of the femur.

being distorted and deviated from its course by massive swelling and infiltration of the surrounding median lumbar glands, which contained and were nearly replaced by firm grayish hemorrhagic tumor metastasis. (See Figure 1.) Microscopically the heart sections exhibited a large amount of intermuscular fibrous replacement with a moderate compensatory hypertrophy on the part of the muscle cells, which were swollen, containing large nuclei, and were irregular in contour. There was a moderate amount of segmentation.

Respiratory System.—The lungs were swollen and presented prominent lobulation, the anterior surfaces being mottled by large patches of dark red hemorrhagic spots. Gross sections showed a very marked edema, with much oozing of free fluid and an intense congestion in all portions; early elevated gray granular patches were seen in the bases. All bronchi, with the trachea, bore a congested mucosa, and a dark brown exudate was present in the branches. Microscopical sections of the lung showed diffuse congestion throughout and in many places collections of air sacs were filled with red blood cells and polymorphonuclear leucocytes. In other portions of tissue the patches contained chiefly pus cells, and the alveolar walls showed acute congestion. Some portions of the lung were emphysematous. The bronchioli were closely packed with pus cells and their walls were infiltrated with the same. Near one of the peribronchial cartilaginous plaques were seen two localized accumulations of cells, myelogenic in type and resembling very closely the type of cell described under the tumor sections. These cells were arranged loosely without stroma and were perhaps localized metastases from the bone marrow.

Liver.—Presented a normal capsule through which the lobulation of the organ was easily visible. Sections of the liver substance showed bile staining about the portal canals, and an easily visible diffuse fatty change with an interstitial tissue increase. The gall bladder was small and contained two large-size dark, irregular stones, surrounded by thick orange colored bile. Microscopically the organ showed patches of extreme degeneration in which the liver cells were entirely destroyed and the tissues appeared extremely areolar in structure. This fatty change was particularly evident about the portal canals. There was some general shrinkage of cells throughout the organ and fine, diffuse fatty changes in nearly all hepatic cells. No tumor metastases were present.

Spleen.—Was small-sized and swollen, the capsule was gray and studded with small elevated cartilaginous bodies and the substance was homogeneous, dark red, and was much softened through the central portions. Microscopically there was a moderate diffuse

deposit of blood pigment and all of the sinuses and vessels were choked with blood.

Pancreas.—Large, soft, pale, presenting a substance streaked with prominent capillaries. There was an encapsulated white fatty concretion near the pylorus of the organ, about the size of a hazelnut. Central portions of this body contained calcareous masses surrounded by fatty substance. Microscopically the general appearance of the organ was not remarkable.

Stomach and Intestines.—Were not remarkable and the mesenteric lymph glands were all normal with the exception of those described below under the tumor formation. Mesenteries contained much fat and all organs were embedded in a large amount of this tissue.

Kidneys.—Both kidneys were enlarged, dark red and swollen, with the capsule moderately adherent. Many cortical cysts of various sizes, some containing clear fluid and others dark brown cloudy substance, were present over the surface of the organs. The cortex was granular and fatty in appearance and all vessels were large and sclerotic. Microscopically the kidney exhibited a capsule which was at least four times the usual width, and contained a few hyaline vessels. Extending from the surface to the upper layers of the cortex were seen patches of fibrous tissue which enclosed and partially destroyed groups of tubules and glomeruli. This tissue showed great congestion of the recently formed capillaries and there was fibrohyaline degeneration of many of the enclosed elements. A few large cysts filled with hyaline material were seen deeper in the substance and many glomeruli had undergone hyaline degeneration. Vessels were everywhere sclerotic and hyaline in type and also engorged with red blood elements. Tubules were flattened and many were lined by an extremely flattened type of cells bearing linear curved nuclei.

Bladder and Prostate.—Appear normal.

Adrenal Glands.—Were greatly enlarged and very

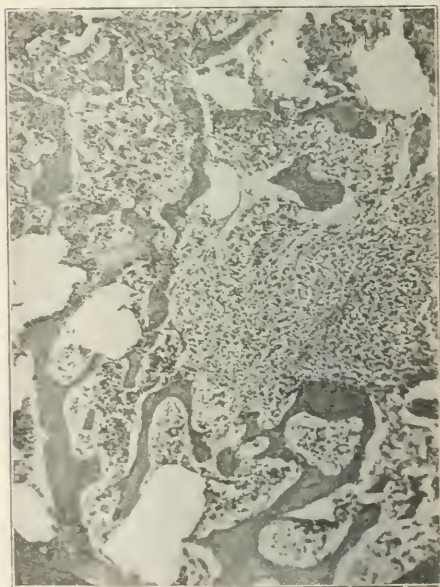


FIG. 6.—Section from vertebrae (low power) showing masses of soft fatty cells extending through the substance.

dark brown in color, with a thin cloudy cortex which was softened and edematous. The medullary portions were notably diminished, light in color, and partially liquefied. Microscopically the cortical zones were much widened and throughout the entire gland there was diffuse cloudy swelling of all cells. There

was an occasional lymphoid infiltration, with also many fatty changes in the middle zone cells. The medullary portion was much reduced in amount and contained many fibrous replacements and small patches of lymphocyte accumulations.

Thyroid Gland.—Normal in size and appearance. Microscopically the relations of the colloid and interstitial tissues were fairly well preserved but the colloid was distributed in smaller follicles than usual and there was some proliferation of chief cells and a diffuse congestion of the capillaries of the gland.

Pituitary.—Presented nothing remarkable.

Head.—Removal of the calvarium disclosed a flat new growth infiltrating the left parietal zone. This tumor was reddish in color and specked with white, containing many bone spicules, which were visible only at the inner surface. The outer table of the bone showed only a localized discoloration. The size of this growth was 4 x 6 cm. and it was quite irregular in contour. It had apparently produced very little pressure on the brain which was not remarkable except for the presence of general edema with cloudy swelling of the cortex. The brain, however, was slightly adherent to the base of the left frontal fossa where a large mass of tumor growth protruded from the surface of the inner table. This mass was flat but extended over the entire fossa and back over the wings of the sphenoid. (See Fig. 2.) The section showed this tumor to have eroded the left sphenoid wings, nearly destroying all the bones of the orbit and has passed through to the exterior, going behind the zygomatic process, and pushed its way into the orbital cavity where it was closely adherent to the posterior aspect of the eye globe (Fig. 3), pushing it forward and destroying both the bony and soft tissues. The eye was surrounded with large fatty accumulations and much connective tissue overgrowth, the sclera, iris, and a portion of the cornea being replaced by these structures. The ethmoid and sphenoid sinuses were infiltrated by this neoplastic tissue, the nature of which was evidently of bone marrow origin.

Tumor of the Femur.—The neck and the upper third of the right femur were surrounded by a large overgrowth of bony, fibrous structure, firmly adherent to the adjacent tissues. This tumor was very firm, nodular, grayish red in color and completely surrounded the shaft (Fig. 4), the mass measuring 8 cm. in longitudinal diameter.

Longitudinal section disclosed the picture of extensive local erosion and destruction of the cortex of the bone, remnants of which were still present as spicules. The marrow, both downward through the shaft of the bone, and upward through the head, was largely replaced by soft, hemorrhagic new growth containing many spicules of bone. The growth was seen extending through the ovoid depression for the ligamentum teres, the margins of which were softened and eroded, and the acetabulum was filled with the growth which extended through the marrow of the ischium and ilium, finally breaking through the ilium into the abdominal cavity where it had limited its gross metastasis to the median lumbar lymph chains. The cortices of the above mentioned bones, as well as those of all the vertebrae were thinned out, fragile, and cut very easily. The central portions of the vertebrae were very soft, hemorrhagic, and oozed much fluid. Apparently the extension of the process through the bone marrow in all directions was not limited.

Microscopical Examination of Tumor Growths: Lumbar Lymph Glands.—The capsule of the gland was deeply infiltrated by streaks of medium sized irregularly spherical cells, having a relatively large amount of pink stained protoplasm and an oval, usually eccentric nucleus which was sometimes deeply stained, showing no architecture, and in other portions presenting coarse chromatin granules. In general the cells were arranged in large groups surrounded by thick bands of interstitial tissue, but in some places the cells were separated by a finely dividing stroma into groups of three or four cells each, producing a suggestion of an adenomatous appearance of the structures. In areas there was a large amount of hemorrhage and orange colored pigment deposit among the cell groups. The entire gland which showed throughout an increase in supporting tissues, and an irregular endarteritis proliferans of its arteries was nearly replaced by two meta-

static growths, there remaining only an occasional remnant of the former lymphoid follicular structures.

Microscopical examination of the thoracic and mesenteric lymph glands showed no gross infiltration of tumor cells, but myelocytes and endothelial leucocytes were quite abundant. The general architecture of these glands remained normal, with perhaps a rather diffuse distribution of the lymphoid structures.

Frozen Section from Large Tumor on the Neck of the Femur.—The sections presented a solid mass of dense myelogenic cell accumulations with small strands of stroma extending between the groups of cells (Fig. 5). Small deposits of necrotic bone were occasionally encountered and in areas the tumor cells had massed and coalesced, and here produced an acidophilic staining reaction, but these places were relatively few in number.

Sections from Various Bone Marrow Sites.—They showed a general increase in myelogenic elements with enormous numbers of cells in stages of division. The marrow was diffusely infiltrated with free blood, and many groups of erythroblasts were seen distributed through the interlacings of the tissue. A great amount of pycnosis was noted about the nuclei of the lymphocytes and myeloblastic bone marrow cells. A few polymorphs were seen scattered through the field.

Section from Body of Vertebrae.—These sections presented a marked reduction in osteoid structure. In places with the exception of hemorrhage patches the bone marrow was normal in appearance. In other areas between the remnants of bone tissue was seen vast collections of myeloblasts, bearing a large amount of protoplasm, stringing together in a connected network, gyrating and dipping into the crevices of bone, portions of which were necrotic, unstained, and in a disintegrating state (Fig. 6). Occasionally large areas of bone marrow were entirely replaced by hemorrhage.

Conclusions.—1. As multiple myelomas are of particular interest from a chemical standpoint, because of the presence in the urine of Bence-Jones protein, it is to be regretted that this case was an accidental autopsy finding and no investigations in this field had been followed.

2. The case is of interest because of the unusual site of erosion in the bones of the orbit with the production of a pronounced unilateral exophthalmos which could have been easily mistaken for one of numerous other conditions.

3. It is also interesting that the only gross growth discovered outside of the bones was a dense infiltration of the medium lumbar lymph glands, probably a direct extension from the softened right ilium.

4. As is usual in these cases the actual origin of the cell is rather obscure, as is also the etiology of the disease. This type of tumor differs from the standard varieties of malignancy in that it seems to affect simultaneously the marrow of numerous bones diffusely and without usually producing a true metastasis.

In some instances there is a resemblance to the leukemias and pseudoleukemias and it is somewhat uncertain as to how the disease should be classified.

Vitamines and Inanition.—Lumière states that he has established the rôle of the vitamins in the body—or at least part of the rôle. This is the activation of the glands of external secretion. We know that withholding vitamins from the food results in gastroenteric disturbances severe enough to entail total inanition. At first sight this does not explain the polyneuritis and lesions of the cerebellum, but experiments have taught him that these accidents occur only on relatively sudden withdrawal of vitamins. He also fed animals insufficiently, but with abundance of vitamins, and obtained the same polyneuritic lesions, showing that these are really due to inanition and not to mere absence of vitamins.—*La Presse Médicale.*

WILLIAM T. G. MORTON, THE DISCOVERER
AND REVEALER OF SURGICAL ANES-
THESIA, AT LAST IN THE HALL
OF FAME—

A VINDICATION.

By S. ADOLPHUS KNOPF, M.D.,
NEW YORK.

THE MEDICAL RECORD has been good enough from time to time to publish the letters and comments referring to my humble efforts to get the name of William T. G. Morton, the most outstanding figure in American medicine, into the Hall of Fame. I am sure the whole medical profession is indebted to this periodical and the medical press of the entire country for the publicity given to the matter. THE MEDICAL RECORD may claim to have in no small degree helped in the election of Morton's name as one of the immortals among the great men of our country.

The outcome of the recent election must be gratifying to every American physician who is familiar with Morton's life, his struggles for recognition and the sad experience he was made to undergo by those who attacked him during life and those who up to this time wished to withhold the credit for his work. To any one who cares to know more about the sufferings and struggles poor Morton had to endure, I beg leave to recommend the book entitled "Trials of a Public Benefactor, as Illustrated in the Discovery of Etherization," by Nathan Payson Rice, published by Putney & Russell, 1859.

Our never to be forgotten Osler, with his keen sense of justice, gave us the result of his profound study of historical medicine concerning Morton's share in the discovery and promulgation of ether anesthesia in the following words: "William T. G. Morton was a new Prometheus who gave a gift to the world as rich as that of fire, the greatest single gift ever made to suffering humanity." And Professor Welch confirms the investigation of his life-long friend and in one of his recent letters to me says: "Surgical anesthesia has been America's greatest contribution to medicine and surgery and it would be a thousand pities not to have this recognized in the Hall of Fame. As only one name can be selected for this purpose, it is clear to me that this name should be Morton." Prof. Welch was one of the electors and his influence was no doubt an important factor in Morton's final triumph, for from the result of the election it is evident that the majority of the electors were of the same opinion as Professor Welch.

It will doubtlessly interest the readers of the MEDICAL RECORD to know the exact outcome of this year's election of America's immortals for the Hall of Fame. Of the 178 names voted on, the following seven were chosen: Samuel Langhorne Clemens (Mark Twain), who received 72 votes; James Buchanan Eads, the engineer, 51; Patrick Henry, statesman, 57; William Thomas Green Morton, discoverer of ether, 72; Augustus Saint-Gaudens, the sculptor, 67, and Roger Williams, the minister, a leader in liberal religion and founder of Providence, R. I., 66. The only woman who received enough votes to place her name

on the roll was Alice Freeman Palmer, the educator, who received 53 votes.

In view of the remarkable and pleasing result of the election to the Hall of Fame, it is regrettable that certain Southern lay papers, and particularly the *Atlanta Constitution*, should have lent their columns to an attack on the electors of the Hall of Fame because they had not honored the name of Dr. Crawford W. Long of Athens, Ga., to whom that paper states belongs the priority of the use of sulphuric ether as an anesthetic. The article was signed by Dr. Joseph Jacobs of Atlanta, who says: "Surely, this electorate of the University of New York, prior to their voting could have made little, if any, effort to weigh the evidence that so conclusively gives the honor of this unsurpassed achievement in medicine and surgery to Dr. Crawford Williamson Long of Jefferson and Athens, Ga."

The electors of the Hall of Fame, 102 in number, are men and women of national renown and certainly of irreproachable integrity. The officers of the Hall of Fame are Robert Underwood Johnson, Director (absent in service as Ambassador to Italy); Mrs. William Vanamee, Secretary and Acting Director. The entire electorate of the Hall of Fame is composed of actual or former university or college presidents, historians and professors of history, scientists, authors and editors, actual or former high public officials, actual or former justices—national or State, and men and women of affairs. The medical profession in this present election was represented by Major-General Leonard Wood, Professor William H. Welch and Drs. Charles H. and William J. Mayo. I hope the good and great general will forgive me for still claiming him as one of us.

It would be futile to recapitulate here, or even summarize, the controversies which were started during the lifetime of Morton by his adversaries and after his death by the heirs of Dr. Charles T. Jackson and Dr. Horace Wells of Hartford, Conn. (the latter also a claimant to priority of the invention of sulphuric ether as an anesthetic and an admirer of Crawford W. Long). Concerning the priority claims of Long and Jackson, I shall copy the following paragraphs from a letter Dr. J. Collins Warren, Moseley Professor of Surgery Emeritus, Harvard University, wrote me only recently in reference to this matter:

It is probable that Long performed three or four minor operations with primary anesthetic and then abandoned his claims. As Dr. Keen says, he is deserving of nothing but censure for not having appreciated the value of the agent. Regarding the claims of Jackson and his heirs, it cannot be too strongly insisted upon that Dr. Charles T. Jackson was very unwilling to have anything to do with the discovery at first. According to a letter by a son of one of those present at the first operation, Dr. J. C. Warren, it was not until he had attended an operation in Dr. Warren's father's office, to which he was invited and saw Morton give the ether most successfully, that Jackson came out the next day with an article in the newspapers claiming a share in the discovery. The heirs of Dr. Jackson now say that he was prevented from making the first public demonstration, that is to say, prevented from doing what Morton did at the Massachusetts General Hospital on October 16, 1846. The reason for Jackson's not doing this is given by the heirs as his being obliged to fill an important engagement to survey some mines in

Maryland, but they state that he had directed Morton what to do and how to do it and assumed all responsibility. According to this Jackson evidently thought the surveying of some mines more important than to give in person the first administration of sulphuric ether to a human being to prevent the pain and suffering which patients and surgeons had endured for centuries. Jackson's claim to have assumed all responsibility without himself administering the ether, would not have cleared Morton from guilt (homicide) had the patient not survived the experiment. Thus to Morton and not to Jackson belongs the honor of demonstrating to the world the greatest conquest of the age.

Regarding the responsibility for the result of the first demonstration of general anesthesia and the method of administering the ether, Dr. George W. Gay, Senior Surgeon of the Boston City Hospital and ex-President of the Massachusetts Medical Society, very pertinently says:

The man who gave the anesthetic upon that memorable occasion at the Massachusetts General Hospital was Dr. William Thomas Green Morton. He had experimented with sulphuric ether, had demonstrated its safety and efficiency and sought an opportunity to show its efficiency in general surgery. He assumed the sole responsibility of the demonstration. The results, whatever they might be, rested upon him. His enterprises, his enthusiasm and his courage brought success. Whatever suggestions or assistance he may have received from others, he was the man that made anesthesia a practical, everyday blessing to mankind.

Francis Darwin is indeed right when he says: "In science credit goes to the man who convinces the world, not to the man to whom the idea first occurs." (*Eugenics Review*, 1914.) Morton convinced the world, the credit is his.

There is perhaps no one in this country who has devoted more time to a painstaking investigation to sift the evidence of priority in this matter than Prof. William H. Welch of Baltimore. In answer to Dr. Jacobs' attack on the electors, and thus on Prof. Welch, who, as already stated, was one of them, I will quote the following paragraph from his anniversary address on "Ether Day," October 16, 1908:

The attendant circumstances were such as to make the operation performed on October 16, 1846, at the surgical amphitheatre of this hospital, by John Collins Warren, upon the patient, Gilbert Abbott, placed in the sleep of ether anesthesia by William Morton, the decisive event from which dates the first convincing public demonstration of surgical anesthesia, the continuous, orderly, historical development of the subject, and the promulgation to the world of the glad tidings of this conquest of pain. Had this demonstration or any subsequent one of like nature failed of success, it is improbable that we should have heard much of claims to the prior discovery of surgical anesthesia.

In defense of the other electors, if such would be deemed necessary, may I say that to judge from the correspondence I had with many of them, they have weighed the evidence of Morton's and all other claims carefully. Not one of these gentlemen committed himself beforehand, but each made me understand that he would investigate all the presented claims thoroughly and judge according to their merits. Dr. Joseph Jacobs is grievously wrong in ascribing to these electors superficiality in their work or partiality in their judgment. As evidence of the thoroughness and conscientiousness of the gentlemen may I be permitted to quote from a letter from Professor R. S. Woodward, the president of the Carnegie Institution of Washington, D. C., in which he writes in reply to the evi-

dences at my disposal I had sent him, including a facsimile of Oliver Wendell Holmes' letter, addressed to a Mr. Snell, which appeared in the *Illustrated Monthly Magazine*, of August, 1904:

I had already seen most of the data you furnish, but it will all be useful for reference in connection with the rather arduous tasks the electors of the Hall of Fame have assumed. It is a great pity that partisanship with respect to the merits of various candidates should be pushed so hard as it is. But data such as you have furnished serve to mitigate the severity of such partisanship. The facsimile of the letter of Oliver Wendell Holmes is very convincing in respect to the case of Morton.

Compared with the investigations of Dr. Welch in this matter, my own are trivial, yet in spite of numerous documents making claims for other names and letters of protests sent to me, some almost insulting because of my advocacy of Morton's name, I have come to the same conclusion as the distinguished dean of Johns Hopkins Medical School. The same opinion was strongly expressed by the great Oliver Wendell Holmes in the letter above referred to when he made an endeavor to settle once for all the then raging controversy. On April 2, 1893, he wrote as follows:

Dr. Bigelow had taken great interest in the alleged discovery. He had been present at the first capital operation performed under its influence, and was from the first the adviser and supporter of Dr. W. T. G. Morton, who had induced the surgeons of the hospital to make a trial of the means by which he proposed to work this new miracle. The discovery went all over the world like a conflagration. The only question was whether Morton got advice from Dr. Charles T. Jackson, the chemist, which entitled that gentleman to a share, greater or less, in the merit of the discovery. Later it was questioned whether he did not owe his first hint to Dr. Horace Wells of Hartford, Conn., which need not be disputed. Both these gentlemen deserve honorable mention in connection with the discovery, but I have never a moment hesitated in awarding the essential credit of the great achievement to Dr. Morton. This priceless gift to humanity went forth from the operating theatre of the Massachusetts General Hospital, and the man to whom the world owes it is Dr. William Thomas Green Morton.

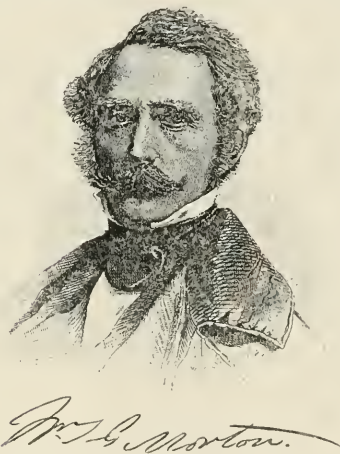
The relative claims of the four contestants for the priority of the use of sulphuric ether as a means of general anesthesia in surgical operations, William T. G. Morton, Crawford W. Long, C. T. Jackson, and Horace Wells, are well summed up by Sir James Paget in the following words: "While Long waited and Wells turned back and Jackson was thinking, and those to whom they had talked were neither acting nor thinking, Morton, the practical man, went to work and worked resolutely. He gave ether successfully in severe surgical operations, he loudly proclaimed his deeds, and he compelled mankind to hear him." (Paget in *Nineteenth Century* for December 1879, "Escape from Pain.")

For the terms "anesthesia" and "anesthetic" we are indebted to Oliver Wendell Holmes who, as just stated, was a strong supporter of the claims of Dr. Morton as the one man to whom "the essential credit of the great achievement should be awarded."

In conclusion I may say that the fact that Morton, together with our most beloved Mark Twain, should have received more votes than any other candidate is a particularly good omen for the medical profession, and it is to be hoped that in future elections the names of our other great

pathfinders in medicine and surgery may not be forgotten. Such names as Ephraim McDowell, J. Marion Sims, Benjamin Rush, Walter Reed, and Lyman Spalding, the originator of the U. S. Pharmacopœia, all deserve a place among the immortals in America's Hall of Fame.

For the benefit of the present generation of physicians, I am very glad to be able to reproduce with this vindication not only the portrait of William Thomas Green Morton but also an excellent description of Morton's personality by a celebrated physician still living. It has recently been my privilege to visit the Nestor of American Surgeons, the venerable Dr. Stephen Smith, a physician who began his medical career before the epoch-making revelation of general anesthesia for capital operations. Those who have the rare good fortune to see Dr. Smith to-day, in his 98th year, will be surprised at the physical and mental vigor of this veteran. When I told him of my efforts to get recognition for Morton and to place his name in the Hall of Fame, he promised me his assistance. I begged him to give me the information in writ-



ing, and on July 30, 1920, he was good enough to send me what follows:

Regarding your inquiry about Dr. William T. G. Morton, I am very glad to forward you a few personal reminiscences. At the time of the controversy in Congress over the question of priority in the discovery of anesthesia I was editor of the *New York Journal of Medicine*. Dr. Morton called several times on me to discuss the situation and I had an opportunity to estimate the value of much of the evidence presented by the competitors. Dr. Morton was a man of pleasing personality, always faultlessly dressed, extremely courteous, and evidently controlled by a highly organized nervous system. It was due to his restless nervous activity that anesthesia was finally brought to a public test. His advocacy and practice of anesthesia in dentistry created a host of enemies, who sought his ruin. He met them with ever-renewed instances of success and finally with the famous operation of Professor Warren on the 16th of October, 1846, at the Massachusetts General Hospital. Even at this operation the enemies took advantage of a slight delay in the appearance of Dr. Morton to impress the large audience of Boston's most prominent physicians and surgeons that he did not dare face a real trial of his vaunted anesthetic. It was only at the conclusion of the operation, when Dr. Warren

spoke these words, heard around the world: "Gentlemen, this is no humbug," that they were silenced.

The portrait here reproduced I have been assured by Mrs. Theodore C. Otis, the only surviving daughter of Dr. Morton, is one of the best likenesses ever taken of her father.

William T. G. Morton was born in 1819, studied dentistry in Baltimore, and hoped by the practice of dentistry to gain the funds to study medicine. In due time he matriculated at Harvard as a medical student. He did not complete his medical education, but received from Harvard the honorary degree of M.D. for his great achievements in revealing and promulgating general surgical anesthesia. Morton died in 1868, a poor man, heart-broken because he failed to receive the recognition which was his due. Our great physician poet, the late Weir Mitchell, has immortalized the tragic life of Morton in the following touching lines, which he read on Oct. 16, 1896, at the Commemoration of the Fiftieth Anniversary of the First Public Demonstration of Surgical Anesthesia:

What angel bore the Christ-like gift inspired!
What love divine with noblest courage fired
One eager soul that paid in bitter tears
For the glad helping of unnumbered fears,
From the strange record of creation tore
The sentence sad, each sorrowing mother bore,
Struck from the roll of pangs one awful sum,
Made pain a dream, and suffering gently dumb!
Whatever triumph still shall hold the mind,
Whatever gift shall yet enrich mankind,
Ah! here, no hour shall strike through all the years,
No hour as sweet, as when hope, doubt and fears,
'Mid deepened stillness, watched one eager brain,
With God-like will, decree the Death of Pain.
How did we thank him? Ah! no joy-bells rang,
No peans greeted, and no poet sang,
No cannon thundered, from the guarded strand,
This mighty victory to a grateful land!
We took the gift, so humbly, simply given,
And coldly selfish—left our debt to Heaven.
How shall we thank him? Hush! a gladder hour
Has struck for him, a wiser, juster power
Shall know full well how fitly to reward
The generous soul that found the world so hard.
Oh! fruitful Mother—you, whose thronging states,
Shall deal not vainly with man's changing fates,
Of freeborn thought, or war's heroic deeds,
Much have your proud hands given, but naught exceeds
This Heaven-sent answer to the cry of prayer,
This priceless gift which all mankind may share.

In reviewing the history of Morton's life and labors, one finds indeed the justification of the inscription upon the monument erected at Mount Auburn Cemetery, Boston:

"Inventor and revealer of anesthetic inhalation, before whom in all time surgery was agony, and by whom pain in surgery was averted and annulled; since whom science has controlled pain."

16 WEST NINETY-FIFTH STREET.

Fragilitas Ossium with Blue Sclerotics.—Dr. Catharine Chisholm reports the case of a girl, aged 8 years, with typical blue sclerotics and traces of seven fractures, one in the right arm and the others in the legs. There was no otosclerosis, no peculiarity in the shape of the head, no family history, but the mother had suffered from dyspepsia during pregnancy. When first seen the girl showed physical and mental signs of thyroid deficiency. Great improvement followed the administration of thyroid, calcium, and cod-liver oil, together with massage and electricity. She is now bright, and can stand and walk with assistance.—*British Journal of Children's Diseases*.

VERTICAL DIPLOPIA LASTING EIGHTEEN YEARS RELIEVED BY OPERATION.

By J. A. KEARNEY, M.D.,

NEW YORK.

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DIPLOPIA (double vision) in the majority of instances is traceable to dyscrasias, of which syphilis and tuberculosis are the most common, and to traumatism. Applicable therapeutic measures actively employed when a dyscrasia is found to be the likely cause usually give gratifying results, especially so when the cases are seen soon after double vision is noticed.

However, in some cases that are seen early and in most long-standing ones in which the specific therapeutic agents have failed to give results, and

Mrs. L. F., age twenty-seven, consulted me on August 17, 1920, and the following is the history of her case: When nine years old she fell from the fifth story of a building, was picked up unconscious and taken to the nearest hospital. She noticed when she recovered consciousness that objects appeared double. In order to



FIG. 1

in nearly all cases of traumatic origin other measures have to be considered for the relief of this most annoying symptom.

In the case reported below there was a partial paralysis of the inferior rectus muscle of the left eye producing a vertical diplopia, and a deformity of upward deviation of the eye as well, succeeding a fall from the fifth story of a building. It required twenty-two prism-diopters to place the objects on line horizontally.

Spectacles containing prisms necessary to correct this amount of diplopia would be unsightly and too heavy for constant wear, therefore impracticable. A frosted glass worn over one eye is most disfiguring. An advancement operation upon the rectus muscle of the left eye was suggested to the patient as a possible means to correct the diplopia and upward turning of the eye. This suggestion was accepted.



FIG. 2.



FIG. 3.

see objects singly she found that she was obliged to hold her head down on the right side (Figure 1).

It is eighteen years since the date of the accident and in all that time she has been holding her head in this same strained position. Her chief complaints were continual dull aching pains on the entire side of her head, in the neck muscles, and upper chest muscles on the

right side, also double vision when she changed the position of her head from that of down and to the right side. She had had nose bleed daily from the right nares for the past year.

The vision of the right eye is 20/20 and cannot be improved by lenses; the vision of the left eye is 20/40 corrected to 20/15 by a minus 2.00 diopter cylindrical lens placed at axis 165°.

When the head is turned down on the right side, the position that enables her to see objects singly, the eyes occupy similar situations in the palpebral fissures (Figure 1), but on placing the head in the normal position and looking straight ahead the left eye deviates upward 15° (Figure 2). The upper pupillary borders of both eyes reach the margin of the upper lids and are on line when the eyes are turned upward as far as possible. When the eyes look downward as far as possible the lower pupillary border of the right eye touches the margin of the right eyelid, but in the left eye the lower pupillary border is $2\frac{1}{2}$ m.m. from it. Lateral rotations are sufficient.

With the head in normal erect position and looking straight ahead a light at twenty feet distance was seen double, the dimmed light (false image) appeared down and to the left of the bright one, indicating a paralysis of the inferior rectus muscle of the left eye. A prism of 22 diopters base upward in front of the right eye was required to place the two lights on line horizontally and in this position they were about two and one-half inches apart.

The pupils were circular, equal, and promptly responsive to light stimuli. Media were clear and there were no untoward changes noted in the fundus of either eye.

The writer's advancement operation was done upon the inferior rectus muscle of the left eye on August 23, 1920, and the stitches were removed ten days later. On September 23 a photograph was taken (Figure 3). She now carries her head in the natural position. The deformity of upward deviation of the right eye is corrected; the eyes now occupy similar positions in the palpebral fissures when the head is erect and looking straight ahead. She is not troubled with double vision at this time with her head held in normal position and in order to produce a diplopia her head will have to be turned down and to the left side as far as it was held down and to the right side before the operation in order to maintain single vision. The left eye may be turned upward and downward to the same extent as the right eye. Diplopia occurs when the eye is moved downward from 5 to 10° from the straight position. She has had no bleeding from the nose since the operation. The unbearable aching pains that existed in the side of her head, neck muscles, and upper chest muscles on the right side before the operation are there no more. She is now wearing spectacles for her visual correction only.

127 WEST FIFTY-EIGHTH STREET.

ROUND CELL SARCOMA OF THE NASAL VESTIBULE.*

By GEORGE D. WOLF, M.D.

NEW YORK.

WHILE the profession, as well as the public, has been fully aroused to regard pelvic, gastric, and breast tumors with suspicion, tumors of the nose and sinuses do not receive their proper attention. Whether this relative lack of attention is due to the actual rarity of malignant neoplasms in these locations or to the paucity of reported cases, is conjectural. However, the outstanding feature about this problem is the infrequency with which specimens removed by the otorhinologist are subjected to microscopic examination. It is indeed regrettable that most nose and throat surgery is done at

*Presented at the New York Academy of Medicine, Section on Rhinology and Laryngology, October 27, 1920.

the office, or in the O. P. D. of hospitals, where facilities are not as adequate as one might wish for under ideal conditions. The patient, too, has come to regard these nose operations as ordinary and everyday procedures, and cannot always con-



FIG. 1.—Showing glandular enlargement.

ceive the necessity of additional expense for the microscopic examination of pathological material. Cooperation with the x-ray man and bacteriologist is also lacking.

Manifestly the practice of doing most of the otolaryngologic surgery in the office and the lack of emphasis on the part of the surgeon as regards microscopic examination of removed tissue do not enhance the progress of this specialty. The frequency with which so-called polypi and enlarged turbinates are snared off without thorough previous

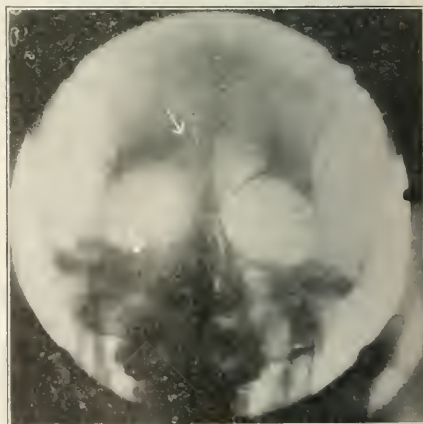


FIG. 2.

examination, is another factor which adds to the disrespect, or disregard (if one may so express it), in which intranasal operations are generally held.

Occasionally a so-called polyp is removed after a hasty and incomplete previous examination, only to

have the operating surgeon discover soon afterward that the benign polyp, or the congested turbinate, has recurred, and is infiltrating adjacent tissue. Higgins' mentions such an experience.

It is for this reason, and not so much because of the rarity of the condition, that the following case is reported:

A. J. G., male, 47 years, U. S., painter. Came to the Harlem Hospital O. P. D. on Aug. 27, complaining that for the past three or four months he had noticed a gradual obstruction of his left nose, becoming complete within the past few days. He also had a disagreeable taste in his mouth, and a malodorous discharge from his nose. For the past week he had a severe left-sided frontal headache. There was no history of epistaxis or loss of weight.

Family history: Father died at 54 from heart failure; mother, 73, alive and well; one brother died at 14 months from hydrocephalus; two sisters and one brother alive and well. No history of malignancy in the family.

Past history: Ordinary diseases of childhood; pneumonia at 14, erysipelas of the leg at 33 years of age. He has had a chronic, persistent, hacking cough, which he dates back to his attack of pneumonia. Had an intranasal operation about 30 years ago, after having been

Blood: Wassermann, negative. Hgb., 75 per cent.; R. B. C., 3,480,000; W. B. C., 13,600; Polys., 77 per cent; Lymphocytes, 23 per cent.

Urine, negative.

Dr. Wm. H. Stewart reports the following roentgenographic findings: "The air sinuses of the entire left side show involvement of some process, which has almost completely obliterated the cavities. The character of the shadows would seem to indicate some solid body more than a fluid. The lower part of the left antrum still contains air. The left side of the nose is completely blocked, and we are unable to map out any outline of the turbinates. I am suspicious that there is also some involvement of the ethmoidals on the right side. They lack the clear detail one would expect with normal cells. Chest, negative."

The suspicion of malignancy was aroused when slight manipulation of the growth by the probe resulted in profuse hemorrhage and the patient had to be sent home and advised to report again. When he presented himself the second time, within a few days, his submaxillary glands were found to be enlarged. (Fig. 1.)

A specimen was removed from nose and submitted to Dr. T. A. Gonzales, who reported as follows: "Several small pieces of tissue, which on cut section show a homogeneous, yellowish white surface. Nothing of interest grossly. Microscopic section shows area of small, slightly irregularly shaped nuclei. The cells have a small amount of plasma and the nuclei are rich in chromatin. In some spots there are numerous mitotic figures showing active growth. The cells are slightly larger than the ordinary lymph cells. The whole tumor is made up of these cells held together by a fine, fibrous stroma, which in some places is hardly discernible. Here and there a new-formed blood vessel is made out. There is no regular arrangement of cells. Diagnosis: Round cell sarcoma." (Fig. 3.)

Shortly after the removal of the pieces, the patient ceased to visit the clinic. When visited at his home, the patient stated that he felt much better and was able to breathe through the obstructed side, and therefore did not care to lose any more time from his work. Only by intimating to him the gravity of the ailment was he induced to return for observation and treatment. He was advised to submit to radium, and was referred to the Memorial Hospital on Dr. Janeway's service, where he received two exposures on October 11 and 12, respectively.

Comment:—The etiological factor in this case is, of course, obscure. Trauma and chronic inflammation are still the only factors which are usually given. In this case there is some slight evidence of injury. Whether the patient at one time suffered from any nasal condition, such as inflammation or other neoplasms, cannot be established.

Whether polypi or fibrous tumors of the nose ever undergo degeneration has not been fully proven as yet.

Clark,² in reviewing 147 cases of nasal polypi, states that it is extremely rare for polypi to undergo malignant degeneration, as he never saw a case.

Watson,³ on the other hand, in a study of the records of 150 cases of sarcoma of the nasal passages, found 24 of the patients to have had polypi before.

The same author, in discussing the age of recurrence among the 150 cases, found in the First decade, 4; Second decade, 18; Third decade, 20; Fourth decade, 20; Fifth decade, 26; Sixth decade, 18; Seventh decade, 12; Eighth decade, 3.

These occur in the male more than in the female.

Order of frequency: Round cell sarcoma, fibrosarcoma, myxosarcoma, spindle cell sarcoma, melanotic sarcoma, adenosarcoma, and lymphosarcoma.

Prognosis: Even with an early diagnosis and treatment, opinions seem to vary on this point. Ballinger⁴ considers the condition as grave. Wat-

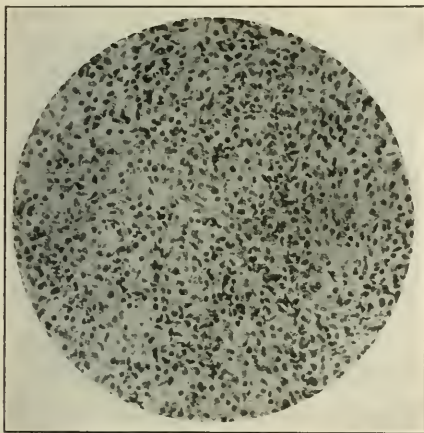


FIG. 3.

hit by a baseball bat. Venereal history denied. He was a heavy drinker until about a year ago, but drinks very moderately since. Does not smoke or chew. Eats and sleeps well.

He cannot recall any particular trauma to his nose, except the accident mentioned thirty years ago, and a fight two years ago, resulting in a swelling of the left cheek and echymosis of the eye on the same side. On Dec. 19, 1919, he fell off a scaffold, causing a fracture of two ribs. He was unconscious after the accident, and cannot state whether his nose was injured or not.

Physical examination: Poorly nourished; skin of pasty appearance, and complexion sallow; eyes present slight exophthalmos, Dalrymple, Graefe, and Stellwag signs are present; double dacryocystitis, but more marked on left side; fundi, negative. Nose-septum markedly deviated to right and adherent to the inferior turbinate of that side. In the left side none of the usual landmarks are to be made out. The whole naris is filled with an irregular mass, pinkish in color, which is soft in consistency. A retropariaryngeal examination showed this mass to fill the posterior naris. There is tenderness over the left frontal sinus and Ewing's sign is present. Pressure elicits but slight tenderness. The submaxillary and cervical glands are not palpable. Pulse 110, regular and of good quality. Weight 127 pounds.

son¹ gives the average duration of life as that of two years. Sonnensheim² thinks the future of radium treatment is very bright.

None of those who have studied this condition seem to be any too optimistic and it is quite safe to say, if not the patient himself, the family, at least, ought to be told about the seriousness of the condition.

Treatment: Either surgery followed by radium, or the latter alone, is to be resorted to. In looking over the literature on the subject, it is rather hard to decide what to urge the patient to do.

At a recent meeting of the Royal Society of Medicine,³ the question as to treatment was raised, and there was equal enthusiasm as to surgery and radium.

Conclusions.—1. Whenever feasible, specimens removed from the nose should be submitted to the pathologist. This will at times prove life saving, and will help greatly in the study of the pathological processes of the nose.

2. In every case of epistaxis with evidence of growth, or when a growth bleeds profusely on slight manipulation, it is absolutely imperative to have a specimen submitted to pathologist.

3. Since chronic inflammation and benign growths of the nose are the only etiologic factors known to cause malignancy, the patient must be made to understand the necessity of thorough removal of existent growths, as well as the eradication of any inflammatory condition.

4. Finally, it would be an interesting study to investigate all the malignant growths of the submaxillary and cervical glands to see what proportion, if any, of those have had their origin in the nasal chambers.

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815 PARK AVENUE.

TYPES OF MAMMALS.

WITH NOTES ON HYBRIDS, DISEASES, ALBINISM, AND OTHER CONDITIONS EQUALLY APPLICABLE TO MAN.

BY R. W. SHUFELDT, M.D., C.M.Z.S. etc.

WASHINGTON, D. C.

In a former article, published in the *MEDICAL RECORD* of September 11 and October 23, 1920, I made an attempt to point out what is meant by a species in zoology in general and in mammalogy in particular. Now in addition to a species we often hear of such things as *types* being spoken of, this or that mammal is "typical"—it is a *type*. In reality a type is hardly to be considered any more a fixed fact in nature than a species is to be so regarded. Not so very long ago, naturalists, and nearly everybody else, believed that all "species" and all "types"—as they were in those days understood—were in-

dependent creations. A racoon, a cougar, or any other mammal, for example, was a lineal descendant of its respective ancestors of the Noachian menagerie which, as the fable goes, were cooped up in the Ark. More than that, it was even considered to be practically the unchanged counterpart of the original racoon or the original cougar of its pristine ancestors that roamed in the fabled forests in the mythical garden of Eden. In other words, species and types for all times had been miraculously created in the beginning of life in the world, and their present-day descendants were in no particular different from them. In the days to which reference is made, naturalists all belonged to the old-fashioned school of "species-makers." When a mammal "new to science," for example, was "discovered," the much-to-be-envied mammalogist set to work at once to publish somewhere, in some eminently respectable "scientific medium" or other, its exact *specific characters*. In a similar manner the world of nature was ransacked to "discover" new genera, new families, and representatives of any of the higher groups.

Following out this idea, when a new species had been discovered and its specific characters duly an-



FIG. 1.—Skull of four-horned sheep, much reduced. The lower left horn hidden by skull. Collected and photographed in New Mexico by the author.

nounced and recorded, every subsequent "specimen" met with that presented characters similar to the *type specimen*, was considered to be of the same species, and so on for the other groups. Such specimens were regarded as "typical specimens." After a while, however, as material accumulated, naturalists came to realize that all species were not completely typical. Some varied. These variations were designated in the books in a number of ways, and were often spoken of and written about as being *subtypical*, while those that departed still more, either one way or the other, from the classical and stereotyped specific definition were considered to be "aberrant forms."

The history of all this part of the growth of zoological machinery, and the blind efforts of the naturalists of those days to adjust their ideas with what really existed in the natural world, is extremely interesting; but the limitations of space forbid its being gone into to any extent here.

Years after all this, the complete establishment of the law of organic evolution revolutionized the en-

tire system, and what the older naturalists understood by a "species," a "type," a "subtypical specimen," an "aberrant species," and especially by "types of structure," was very differently regarded. According to the aforesaid antiquated theory, when



FIG. 2.—An Albino woodchuck. Captured in Virginia. Photo from life by the author.

any animal was looked at in the light of representing a certain recognized *type of structure*, it was with the idea that that particular living form was *fixed in structure*, had been cast in some particular mold, the pattern of which was, always had been, and always would be immutable absolutely. Types of structure are now no longer so regarded by naturalists or by any one else who is familiar with the main factors of the law of descent of plants and animals. Many, indeed, are now the recognized types of structure. There is, for example, such a thing as the general *back-boned* or *vertebrate type of structure*, by which is meant that the general morphology of any vertebrate animal, in its entirety, stands for a structural type. In assuming this, however, it must be definitely understood that such a type is not and never has been fixed, but simply represents a single modification of a common plan of organization, the evolution of which, since its pristine establishment, has resulted in a production of all other vertebrate forms likewise to be regarded as types, as those of fishes, batrachians, birds, and mammals. Keeping this clearly in mind, it becomes evident that any conventional collection of animal forms, constituting a zoological group in the animal kingdom, is, in reality, a *type of structure*, that, according to the period of its existence, is to be regarded as possessing a more special or a more general significance.

New types are produced by the descendants of pre-existing forms having become, to an appreciable degree, structurally modified away from the morphological organization of those ancestors; in which case, in the resulting progeny, any particular individual or specimen is typical of the more recent species, and the new species becomes typical of its genus, and so on.

This can only occur, however, when sufficient time has elapsed for the evolutionary change to have come about. These changes have been going on ever since living forms have appeared upon the earth, and so, throughout all time, there has been a succession of specific, generic, and other group-

types of structure; this is exactly what is taking place in nature in the present age of the world's history.

To illustrate, let us say that millions of years ago there existed upon the earth a generalized, amphibious type—an animal possessing a certain type of structure as above defined. It would be the common ancestor of its future descendants, presuming, as we do, that from such a stock an innumerable progeny descended. As the ages wore on, from this common, primeval stock a twin divergence became apparent; two groups were forming. The differences were so slight at first as to be scarcely appreciable; but in due course, however, an individual of the one group became specifically different from an individual of the other—that is to say, two distinct species had come into existence. As the ages passed by, the divergence thus established became markedly more and more evident, and genera, families, and all the other conventional groups came into existence, resulting at last in the two distinct classes, namely the *Amphibia* and the *Mammalia*. Reasoning from this presumption and the facts—as far as they are known to us in this case—it may be said that the *type of a mammal* is the one which has become most highly specialized and, structurally, the farthest removed from the amphibian type. It may be that man, the species *Homo sapiens*, represents just such a type. Confusion in such matters has been brought into this question by some naturalists claiming that the type of mammal, for example, is seen in the primitive stock from which, in time, all mammals have been derived; and in this case, man would be considered to be the least typical of all mammals known, in as much as he possesses an organization the farthest removed from the original and common ancestor. Judging from man's anatomy to-day, we would never for an instant imagine that he, as a mammal, had been derived from an early amphibious progenitor. It is the exception to place this construction upon the meaning and use of the word type. There have been terms proposed by several writers to obviate this confusion; thus, by the word *teletype* we supplant the word "type" as it was used in its most common sense. Then, selecting the word *prototype*, we have a word which, in its wider meaning, indicates any

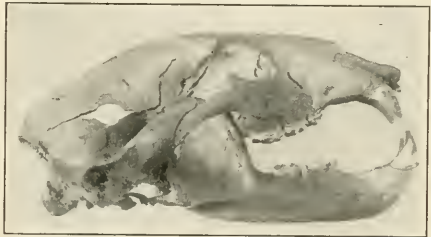


FIG. 3.—Right lateral view of the skull of a black bear. Collected in Virginia. The point of entrance of the Winchester ball that killed him is seen on the side of the cranium. Much reduced. Photographed by the author.

form (or forms if used in the plural) from whence, through evolution, any teletype, in any specified line of descent, has been derived. By the employment of their adjectives, we may then say that, according to Cope, the *Creodonts* are prototypic of the

now existing *Insectivora* and *Carnivora*, and that these two latter groups are teleotypic of the former. And again, we see a highly specialized teleotype in the modern horse that has been derived from its prototypic ancestor, the *Eohippus* of the Eocene



FIG. 4.—Left lateral views of the skulls of adult specimens of the ring-tailed racoon (*Bassariscus*) and its allies. Natural size. From photographs by the author, introduced to show the elegant dentition in these animals.

basin, the latter being teleotypic of the stock from which it, in turn, was derived; and so, in general, any species is prototypic of those from which it is directly descended and teleotypic in its own genus. All species are teleotypic of the genera to which they severally belong, the genera of their respective families, and the families of their several orders. Evidently, the converse of this is likewise true, and equally true when applied to the Class or any of the higher groups.

Furthermore, it will be seen that we have no prototypes or prototypic species in existence; they are all teleotypic of their progenitors, yet, at the same time, will become prototypic of their descendants in the ages to come.

Other authors have used still other terms to express their meaning in regard to what a species is, what a type indicates, and other questions which have been touched upon in the foregoing paragraphs; but it is believed that what has been set forth will render all these matters sufficiently clear without any further explanation.

Leaving any extended consideration of this subject, then, to those who desire to pursue it in their reading of the works of others, it will be more to our purpose here to make a brief, preliminary survey of the habits of mammals in general.

By the study of the habits of mammals is meant a scientific consideration of their behavior in a state of nature, and, incidentally, how this behavior is affected by their being kept in a state of captivity, and by other circumstances. Such observations are extended to include both sexes and the young from time of birth. It leads us to investigate, as far as possible, their habits during the day as well as during the night-time; their feeding-habits and courtships; their battles and their modes of amusing themselves; the various ways in which they care for their young, and the question whether they are in the habit of performing any special migrations. Indeed, although the study of habits is generally considered to be a more restricted field than the study of the entire life history of a mammal, it nevertheless constitutes one of great interest and decided importance; though, from a biological standpoint, by no means as important as the scientific consideration of their geographical distribution, their morphology, and their classification.

When it can be done with advantage, the study of the habits of various mammals should be made comparative, that is, the behavior of one species contrasted with that of another and under similar and all circumstances. This applies more particularly to the allied species and genera, as nothing would be gained by contrasting the habits of a squirrel with those of a caribou; whereas to compare the habits of a muskrat with those of a beaver, or those of a woodchuck with those of a "prairie-dog," would be interesting as well as important.

Some animals have the habit of hibernating during the winter time, especially in northern climates, as some of the bears; while others are as active during that severe season as they are at any other time of the year, for instance the wolves and the *Cervidæ*. The entire question of the habit of hibernation is one of marked interest. Most animals, when they enter into this state, lapse into a torpid condition and seek complete seclusion. There are, however, exceptions to this, as among the bats, where large numbers of the same species often hibernate together. They do this apparently to insure greater warmth, and perhaps, too, they may be prompted by the desire to secure sociability. Moreover, cold is

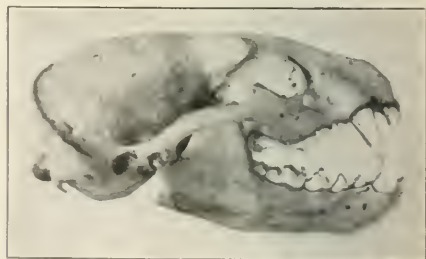


FIG. 5.—Right lateral view of the skull of a badger. Prepared, collected and photographed by the author in New Mexico. Nearly natural size.

not the sole cause of inducing a mammal to hibernate; it may be that it has been deprived of the usual supply of food gathered during the previous season. Most species become very fat during the several weeks just prior to entering upon the long sleep in

their winter quarters. Some are easily aroused at any time during this period of hibernation, others less so; while some pass into a complete state of torpidity. So we must not confuse the mere fact of a mammal's hibernating with its state of torpidity or condition of profound sleep during that seclusion. The time of appearing, when spring comes again, varies with different species of mammals; but, as a rule, they make their appearance early, and are generally very lean and very hungry. Bears are extremely dangerous at these times.

Among the most interesting habits of mammals are those of their various modes of securing their food and their feeding. Some subsist almost entirely upon a strictly vegetable diet, and quietly browse in the fields or in the forests, as many of the deer and the *Bovidæ*. Others, such as the carnivores, destroy and consume other animals upon which they prey; while still others live upon a mixed animal and vegetable diet. It then becomes of importance to know how often and when the various species of mammals feed; and, in the case of the herbivorous forms, what plants and trees they live upon and which ones they reject. Many of the rodents are exclusive gnawers and subsist upon nuts, roots, and the bark of certain trees. Not a few of the *Sciuridæ*, however, are carnivorous, as various squirrels will eat flesh with avidity, and muskrats devour mussels.

The feeding of the strictly carnivorous mammals especially attracts our attention, for it so frequently involves the matter of the chase and capture of other animals. This makes incident and history, as the accounts of such captures vary greatly in the circumstances attending them. It arouses very little or no excitement simply to watch an antelope quietly browse out on the prairie; while it is an entirely different affair to observe a pack of hungry wolves start in and run that antelope down. That is exciting and arouses similar instincts in ourselves. Finally, among the list of almost innumerable ways by means of which mammals secure their food, we have other instances where they dive beneath the water for it, as an otter does after fish. As a matter of fact, the feeding habits of mammals in general would, if given, fill many a volume, and those in particular of the game mammals of this country would make a volume of very considerable proportions.

Coming to the matter of the courtship of mammals—their mating—we enter at once upon another field more than full of interest to any one evincing a desire to be informed upon the life-histories of this important group. Their habits in this particular are as varied as their feeding habits, and far more remarkable. Still, in truth, one merges indistinguishably at certain points into the other; for some mammals after mating feed their dams; both usually feed their progeny, and the latter is the outcome of their courtship and mating. So it is that all goes toward making up the life-history of the species.

But apart from these facts, the study of the mating of mammals *per se* is one of the most entertaining and instructive chapters in their history. It calls upon us to examine into the real, structural, and mental differences existing in the sexes; it requires us to study and contemplate upon the times

of the year when the instinct moves them to seek each other to enter upon this delightful episode in their lives; it invites investigation of the changes, so multifarious in character, which take place in the sexes at these eventful times; it impels us to note the various sexual characters of the males and the females, to study the action in their modes of copulation and reproduction, and, finally, to examine into what their young are like, how they are cared for by their parents, and the various stages of their subsequent development. In all these matters, mammals of different genera—and sometimes species—differ in a multitude of particulars. As a single example, what can be more dissimilar than the mating, and all that it entails, of a wapiti and an opossum? a porpoise and a porcupine? yet the end to be attained is in reality identical. The acts of the drama in the common play follow the same sequence—first to observe, then to seek, next to attract, to be followed by an excitation of emotions, an impulse to drive off and give battle to all rivals, succeeded by the reward in conjugal union, and, finally, the appearance and development of the progeny. It is a charming life-chapter when, from beginning to end, its course runs smooth; but lackaday! as it is with men, so it often is with minks and marmots, a full measure of misery is only too frequently meted out to them when the wounded ones are called upon to quaff their cup of bitterness. Such coincidences are met with many, many times, and offer us abundant opportunity for contemplation. It may be that the life of a female cougar will be taken very soon after she has given birth to a fine litter of cubs. This leaves the male in a sorry plight, and it is rare that we come to know what he does under the circumstances. Again, it is a well-known fact that rival deer, in battling for a favorite spouse, not infrequently lock antlers so completely that their disengagement becomes impossible, and both animals perish by starvation.

We know a good deal about the habits of animals, but it is extraordinary how little real knowledge we have acquired of the habits of the most abundant species in this country. The thirst for species-making seems to have completely filled the minds of the majority of our mammalogists, and little or no attention is paid to their life-histories, including their every-day habits and their morphology.

Turning to the question of hybrids, we find but very little literature, comparatively speaking, in this department of mammalogy. Zoölogists nevertheless have paid not a little attention to it, and it has been more or less studied by them. But there has been no exhaustive work published, giving a full account of all the cases known of the production of hybrids among the ferine mammals of this country. The late Judge Caton, in his well-known volume on "The Antelope and Deer of America," left us much of value on this subject as it occurs among the *Cervidæ*, and reference will be made to it further on. Then there is quite a literature dealing with the hybridization of the bison with domestic cattle; for it has been encouraged in captivity of the former with the view of furthering man's interests in the matter of trade. Many hybrids have been produced among the coyotes and camp dogs about the Indian camps in Dakota and elsewhere. To a limited extent, these have been studied, but very little has

been written about them. They are known as half-breeds, cross-breeds, or mongrels. In the case of mammals, hybrids are the progeny resulting from the crossing of different subspecies, species, and genera. When the zoölogical difference is great, however, the production of hybrids is quite rare. It is more common among birds than among mammals. It is very seldom observed when the parents represent different zoölogical families, though the writer has seen a hybrid result from the crossing of a guinea-hen and a fowl; it presented distinct intermediate characters. Most often hybrids are produced when the cross-breeding takes place between the sexes representing the subspecies of two different species. Such hybrids are more common than it is generally supposed. In mammals, as a whole, such progeny is probably commonest among men and among the domestic *Equidae*. With respect to the latter, we see them in mules, jackasses, and their kind. Foxes and dogs have crossed successfully, and this is an instance where the parents belong to different genera: *Vulpes* and *Canis*. As a rule, however, when the parents are thus far removed, fertility forms the exception.

When hybrids are the result of the crossing of distinct species, such hybrids are usually infertile—that is, *inter se*; while they may propagate by again crossing with the pure breed of either parent.

Generally, the fate of hybrids, so far as mammals are concerned, is to die out; but through artificial and forced cross-breeding, they may be indefinitely produced. Often very handsome creatures are the results of such crossing, as, for example, the various "breeds" of domestic cats and dogs. Such animals must not be confused with true zoölogical subspecies as we find in nature.

Ferine mammals, again, are subject to many diseases and injuries. In very numerous instances, these are identical with the same diseases and injuries to which man is heir. As a matter of fact, all those accidents which are the result of traumatism—or the class known as surgical injuries—are identical. The processes of healing in the case of fracture, of gunshot wounds and similar injuries, are precisely the same in a mouse as they are in a man or any other mammal. With respect to many of the typical diseases, it goes without the saying that their causes, effects, and results are the same throughout the mammalian orders, man included. Still, there are a number of diseases that the mammals below man are subject to, to which he is not, and *vice versa*; but there is always a reason for this, whether we have ever discovered that reason in any particular case or not. It is nevertheless quite clear why a whale should never suffer from smallpox, nor a man contract a fracture of the epipubic bones; for, in the first instance, that huge marine mammal is never submitted to the contagion of smallpox, and in the second, men do not possess the epipubic bones in their skeletons, as these are found only among the marsupials.

When living in a state of nature, most ferine mammals—when they do not die of old age—probably, in the vast majority of instances, succumb to various kinds of traumatic injuries and accidents. Many are often drowned; many kill each other; man destroys immense numbers of them in traps and with powder and ball; some are destroyed through

various accidents, and starvation and other causes claim their quota. They are subject to different diseases of the organs of special sense—the eyes, ears, and nose. Many are victims of parasites of not a few species. Some die from poisons at the hands of man; while, in rare incidents, lightning, sunstroke, earthquake, volcanic eruptions and other natural phenomena have destroyed a comparative few, and prairie fires have, in many cases, wiped out others. Rattlesnake bite has been the cause of death in other cases; and birds of prey destroy thousands upon thousands of the smaller and medium-sized species. They are subject to paralyses resulting from various causes, and those troubles terminate often fatally. Skin diseases are not uncommon among them, and the writer once shot a coyote in New Mexico that had lost nearly all of its fur from some form of mange or other. Malformations of various characters destroy others, as in those cases where the teeth of rabbits and other rodents, from non-approximation of their cutting edges, grow and curve inwards until, piercing the brain, they kill the animal so afflicted. Still others die when giving birth to their young, while among the latter as many monstrosities are born as occur in our own species. I have seen a young antelope (*Antilocapra americana*) with two perfect heads; a cat with no legs, and various grades of the "Siamese-twin" class. When born blind, mammals in nature die of a natural consequence, and congenital deafness very much diminishes their chances for longevity. Diseases of the generative and urinary systems seem to be extremely rare; but this is probably due to the fact that they lead normal lives, which man most emphatically does not, and so suffers the consequences.

But in reality we know comparatively little of the question of vital statistics among wild animals, and thousands of observed cases have never been reported and published. Still, a great number of the diseases and injuries to which they are subject are known to us through our general knowledge of pathology, and our observations upon diseased and injured animals in a state of domestication.

Mammals, including man, are subject to other conditions that must in no way be confused with diseased or pathological ones. Reference is here made to those peculiar and abnormal states known as *albinism* and *melanism*. The first is also sometimes termed leucopathy and leucism, which mean exactly the same thing. An albinistic individual is very generally called an *albino*, and albinos occur not only among mammals but likewise in plants. Comparatively speaking, it is a somewhat rare occurrence; but when found, and it is complete, it is known to depend on an absence of the coloring matter in the skin. This coloring matter consists in minute particles, which usually occur in the lowest layer of the outer skin or epidermis. A typical albino has eyes that are entirely of a bright pink color and a skin which is quite white. This state of things, however, may be only partial, the coloring matter not being entirely absent. Albinos of this class may not have pink eyes, and the shade of the skin may be almost normal in tint. Some others are *pied* or *piebald*, as we frequently notice to be the case in certain horses. Indeed, we may have almost every possible grade and degree of this curious con-

dition. Darwin has shown that albinism may be strongly inherited, and cites the cases of white mice and rats as examples. Some mammals seem to be more subject to it than others; but it must always be distinguished from the normal state of a white pelage as we see it in the polar bear and other animals. Nearly all naturalists appear to consider an albino as a "sport" or "freak" of nature; but I have never considered it so, as I do not believe such things as sports and freaks occur in nature, and I am inclined to regard it in the light of our lack of knowledge of the real cause. Every state of things—and albinism is no exception—is due to some *definite cause* or other, however obscure and hidden that cause may be. We have not discovered as yet the reason why the particles of coloring matter are absent in the skin of some individuals and not in others, even when those individuals may belong to the same litter. Albinism may occur in any species of mammals, and even in the writer's own personal experience it has been noted in several species of deer, in the muskrat, the woodchuck, various species of squirrels, in the beaver, and others too numerous to mention.

In *melanism*, which is the opposite state of things to albinism, the pelage of a mammal has developed or deposited in it an abnormal amount of a black or dark pigmentary matter. The arboreal squirrels seem to be particularly subject to this, and it is no more a pathological condition than is the albino state. In fact, a melanistic mammal is quite as healthy and vigorous as the one normally colored. Agreeing with albinism, it, too, may become inherited; but the disposition to do so does not seem to be as strong. This state, also called *erythrism*, is best seen in the black rat (*Mus rattus*), an animal in which this condition appears to be permanent, but which originated in melanistic individuals of the common roof-rat or white-bellied rat (*Mus torum*), and has since become hereditary. One of the best cases of partial melanism ever seen by me was that of an antelope (*Antilocapra americana*) on the plains in Wyoming near Fort Fetterman in the latter part of the '70's. It was a buck and possessed an entirely black head. Before I had an opportunity to dismount from my horse and fire at it, it was speeding away at its best, leading some eight or nine others. Its course was at right angles to the barrel of my carbine as I brought it to my shoulder; but upon firing I held too far back, and, as chance would have it, killed the doe immediately in the rear of the animal I more than anxiously hoped to secure.

Possibly I may have been mistaken, but it seemed to me at the time that that antelope was an unusually large one. It may, however, have been owing to the fact that it certainly would have been a great prize had I bagged the animal, and all prizes, before taken, are deceptive and appear to be greater than they really are. Still, among mammals, we not infrequently meet with unusually large individuals, and, in some cases, those which are undersized. This is the case in our own species where we have, as is well known, both giants and dwarfs. As a matter of fact, it is the exception to meet with any two adult specimens that measure the same in all particulars. For example, we often hear of unusually big moose being killed, and investigation

proves that the records have been correctly given. In the case of the common red fox, this fact is so notorious that hunters have applied the term "a Jumbo fox" to the markedly over-sized individuals. From personal observation I can say that the sub-melanistic specimens of the muskrat are larger than the ordinary and normally colored ones—a fact that I have ascertained by actual measurements. Especially favorable environments and a great abundance of the very best food all the year round doubtless have much to do with this in the majority of cases; and the converse also holds true, for, where animals exist amidst disadvantageous surroundings, with scant and unsuitable food, they become dwarfed. In other instances, giants and dwarfs appear where no such conditions seem to account for them or to have had any influence. These individuals, it is claimed by some, are "sports" or "freaks of nature," an explanation I place no store by, as has been stated in a former paragraph in this article. Variations in size naturally account for corresponding variations in weight, though the two conditions are not exactly complementary ones, as two animals may measure precisely the same in all particulars, and yet one be heavier than the other, owing to its being stouter, or possessing a weightier skeleton, denser pelage, and so on. We should be very careful how we regard these variations in the matter of publishing descriptions of new subspecies. More attention should be paid to the *extremes* in these particulars, and these be taken and published, and averages estimated as frequently as possible on all the data that can be gathered. But the exercise of such care and presentation of statistics will do away with a great deal of trouble in the matter of synonymy for the naturalists of the future.

What has just been said applies equally to the questions of form and color. No two mammals of the same species or subspecies are exactly alike in these particulars, and sometimes the variations are strikingly marked. This applies to their entire anatomy or morphology. It is best to be observed when the opportunity is offered to make exact comparisons in the case of a very large number of individuals of the same species. They vary remarkably sometimes, and these variations are often very noticeable in the skulls and other parts of the skeletons. Not a few accounts of this kind have been published from time to time and with figures showing the differences. Take the heads of deer for example, how they vary sometimes, and this quite apart from the variations to be observed in their antlers. They possess different faces and different expressions. So it is, too, with their general forms.

Some years ago I published the enlarged views of the skulls of two Yellow-headed Blackbirds (*Xanthocephalus xanthocephalus*), and these were so unlike that one would suppose they had belonged to birds representing different genera. Still, their main specific characters corresponded, and they were both typically icterine!

When mammals become extremely old, great changes sometimes follow in their general morphology; but these are simply the changes that attach to senility in any species. It may be seen in our own species—not only in the appearances of the face, head and body, including the limbs and other

topographical features, but in all the deeper parts, and especially in the skeleton. It is extremely interesting to compare the skull of a very old person with one of middle life of the same sex. Similar changes occur throughout all animals in nature, and it is often unfortunate that some untrained biologist, in describing new subspecies of mammals, regards these individual skeletal differences as possessing subspecific value and weight, when, in numerous instances, they are simply of an individual nature, and vanish, in so far as they are of any use taxonomically, in the light of an examination of a sufficient amount of material. So it goes, too, in the matter of color. We meet with both light and dark-colored specimens, and that quite apart from any taint of any character of either albinism or melanism. It becomes a matter of shade and variation in color areas. Sometimes this is quite noticeable among skunks, weasels, and other representatives of the *Mustelidæ*. Climate, food, life, and environment doubtless have their influence here as they have in the matters of form and weight. Sometimes mammals possessing a pure white pelage become stained—more or less permanently so—with adventitious matter of various kinds; such staining must be carefully noted and a discrimination made between it and the normal pelage.

In some instances certain soils, especially the clayey ones, are liable to produce such effects where white or light-colored mammals habitually live in the regions where the ground is of such a character. Out on the American prairies I have observed specimens of badgers, which permanently exhibited a shade of buffy color due to the staining with the yellowish-red clay wherein they had excavated their burrows; and other cases might be cited. In their studies of mammals, students should always exercise special care to take all these matters into consideration and attach the true significance to them, particularly in regard to the questions of variations in weight, size, form (including all anatomical parts), color, and the other characters which have been touched upon in this article.

3356 EIGHTEENTH STREET.

CANCER DEATH RATE IN NEW YORK CITY DURING 1920.

By L. DUNCAN BULKLEY, A.M., M.D.

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It seems very appropriate that the MEDICAL RECORD should keep its readers acquainted with matters relating to the life and health of the community. For several years past, therefore, I have made a study of cancer mortality in New York City and elsewhere, with a view of awakening the serious attention of the Medical portion of the profession, especially, in the hopes of securing generally better measures to control the morbidity and mortality of cancer than have prevailed during the past twenty years, at least. For, as has been repeatedly shown, the mortality of tuberculosis has been reduced by diligent medical attention some 30 per cent. during this period, whereas that of cancer has risen by almost exactly the same 30 per cent. in the same time.

Radium and the x-ray have been very actively

exploited during the last five years especially, but unfortunately the actual death-rate from malignant tumors has not decreased materially if at all over the country, as shown by the United States Mortality Reports; while in New York City, as we shall see, where these agents are in most active use, and where, perhaps, there is more radium than in any other city, the mortality from cancer has risen more than before, and has actually exceeded that from tuberculosis, during the past six months.

It does certainly seem that it is time to carefully investigate where the error lies, and to endeavor to correct it. What experimental laboratory work, and intense and good surgical activity has failed to accomplish, careful clinical study, with patience and keen medical acumen can and should accomplish, even as they have done in tuberculosis, in spite of the continued activity of the almost omnipresent tubercle bacillus in the bodies of all of us.

During 1920, according to the records of the Health department, there were 72,525 deaths from all causes in New York City, against 74,419 in 1919, or 1894 fewer deaths, a diminution of over 2.5 per cent.

During this same year there were 5,361 deaths recorded from cancer, against 5,026 in 1919, an increase of 335, or over 6.6 per cent.; whereas the general yearly increase in cancer mortality in the whole United States has commonly been between 2 and 3 per cent.

With tuberculosis the story is quite different. In 1919 there were 7,396 deaths from tuberculosis in New York City, and in 1920 only 6,243—a decrease of 1,153, or 15.5 per cent. This seems hardly possible, but all the figures, compared with the original in the Weekly Bulletin of the Health Department have been gone over several times. Last year there was also a great drop from the preceding year in the mortality from tuberculosis, with also a very considerable rise in the number of cancer deaths during that year. There was thus, in 1919, an approach of the two of fully 20 per cent., and it was predicted that if this rate of change continued it would not take many years for cancer to outstrip tuberculosis in mortality.

But we were hardly prepared for the revelations made by the figures of the Board of Health for the last six months of this year, 1920, July 1 to December 31. During this period there were 2,691 deaths recorded from cancer, and only 2,669 from tuberculosis, giving an excess of 22 cancer deaths: That is, cancer mortality has already outstripped that of tuberculosis in this city, during the past six months! Whether this disproportion will continue, or what the future will show cannot be predicted.

The greatest number of deaths from cancer in one week was 125, in the week ending January 31, an average of almost 18 a day. The next largest was in the week ending December 4, when there were 121, or over 17 per day. There were 28 weeks which each gave over 100 deaths from cancer. It would be interesting to know where these deaths occur. Personally, I know of very few in public or private practice. It is to be remembered that while the diagnosis is pretty cer-

tain to be correct when there is a death from cancer, these figures do not, in all probability, represent the true mortality from the disease, for undertakers and others have told me that they have repeatedly known of instances where the word cancer was omitted from the death certificate, for personal or family reasons.

This is not the place to enter upon a discussion of measures other than surgery to combat the steadily increasing mortality of cancer, as this has been abundantly shown elsewhere, but only to call the serious attention of medical men of intelligence to the importance of studying cancer along the lines which already have been repeatedly laid down. And I can assure them that very much greater success will surely follow the careful and prolonged employment of proper medical measures, carefully directed to combat the basic causes of the malady, than can possibly accrue from simply excising or treating the local lesion, which is only the product of long continued systemic disorder or errors, largely from errors in living.

10 EAST SIXTY-FIRST STREET.

A SUGGESTION FOR THE COVERING OF THE YANKAUER STYLE ANESTHESIA MASK.*

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BROOKLYN, NEW YORK

CLINICAL ASSISTANT IN SURGICAL O. P. D. OF BROOKLYN HOSPITAL
AND PEDIATRIC O. P. D. OF JEWISH HOSPITAL

THERE are several modifications of the original Yankauer wire-meshed mask, to all of which this method may be satisfactorily applied. I had never heard of this covering having been formerly used, and was greatly surprised on reviewing the English literature to find that no record appears of the previous use of thin layers of absorbent cotton as a covering for these masks.

I recommend covering the mask with this absorbent cotton as satisfactory and economical in administering ethyl chloride, chloroform, and ether, and I might mention that several colleagues who have given it a thorough trial speak very favorably of it. Many hospitals are now making use of pads of gauze, which are repeatedly re-washed, which from the economic point of view is quite satisfactory. However, this is not the method which meets with favor on the part of those who only occasionally have to administer an anesthetic.

Watson¹ says, "The chloroform or ether mask should have one-eighth to one-quarter-inch thickness of gauze," which necessitates the use of considerable gauze. Flagg² says, "Stockinet bandage, being more closely woven than gauze, has been found to give a more satisfactory evaporating surface." I believe that the texture of surgical absorbent cotton offers an even better evaporating surface. Considering the relative cheapness and the small amount of cotton used and the very good results obtained, I believe this to be the ideal open mask covering. Of course, the cotton used is discarded at the completion of the anesthesia.

To cover the original wire meshed Yankauer mask, I make use of the one-pound rolls of the

Grade A hospital absorbent cotton. I cut out a section about seven inches square and then use but one-half the thickness of this layer. This gives sufficient thickness to permit ready vaporization and absorption. This thickness will likely vary with different men, as does the original gauze or surgical lint covering. I now place over this cotton a single layer of gauze, merely for ease of carrying, to keep the cotton in place.

Another great advantage in this covering is that while administering, the anesthetist is much better able to observe the absorption of the anesthetic and so the need of more.

REFERENCES.

1. Watson, L. F.: The Prevention of Nausea, Vomiting, and Pneumonia Following General Anesthesia. *Old Dominion Journal of Medicine and Surgery*. IX, 1909, page 179.

2. Flagg, P. J.: The Art of Anesthesia. Second Edition. Page 124. J. B. Lippincott Co.

220 BEVERLY ROAD.

Medicolegal Notes.

Employers Liable to Free Hospital for Service Under Workmen's Compensation Act.—In an action by hospital trustees against an employer of labor for hospital service rendered the defendant's employees from time to time, liability was denied on the ground that, under its charter, the hospital is not authorized to charge for the service rendered. The hospital was incorporated by special act in 1887 as a State hospital for the purpose of providing "care and treatment of persons injured in and about mines, workshops and railroads, and all other laboring men" in the middle coal field district of Pennsylvania. For patients in this class no charge is allowable under the act. It was held, however, that the employer was liable under the Workmen's Compensation Act of 1915. At the time the special act of 1887 was passed no obligation on the part of the employer existed to furnish aid of any sort to those injured while in his service. The act of 1915 changed the status of the employer by creating a duty not previously existing and also a condition not in contemplation of the Legislature at the time of passage of the 1887 act. The 1915 act is a general law applicable throughout the State and makes no attempt to exempt from liability a class of employers within a particular district and impose upon the State the burden they would thus escape. It was also held that in view of Section 306 (e) of the act, providing that the employer shall furnish hospital services during the first fourteen days after disability, a coal company which knowingly permits its employees to be moved to a hospital without objection performs its legal duty and renders itself liable to the hospital, no formal application by the injured employees for assistance being necessary as a condition precedent to liability.—*Trustees of State Hospital of Middle Coal Field of Pennsylvania v. Lehigh Valley Coal Co., Pennsylvania Supreme Court, 110 Atl. 255.*

Construction of Statute as to Itinerant Vendors of Drugs.—A Nebraska statute, Rev. St. 1913, section 2726, provides that "any itinerant vendor of any drug, nostrum, ointment, or appliance of any kind intended for the treatment of any disease or injury, or who shall by writing, printing, or any other method, publicly profess to cure or treat disease or injury, or deformity, by any drug, nostrum, manipulation, or other expedient, shall be deemed guilty of a misdemeanor." It is held that this section does not describe two classes of offenses, one for vending and another for publicly professing to cure; and to constitute the offense an accused itinerant vendor must "publicly profess to cure or treat diseases." One reason for this interpretation was that a law attempting to limit the sale of patent and proprietary medicines to pharmacists would be a law tending to create a monopoly not necessary for public health or safety, and therefore unconstitutional and void. (People v. Wilson, 249 Ill. 195, 94 N. E. 141, 35 L. R. A. N. S. 1074.)—*J. K. Watkins Medical Co. v. Hunt (Nebr.), 177 N. W. 462.*

*Read before the New Utrecht Medical Society, December 9, 1920.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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REPORT OF THE SURGEON-GENERAL OF THE NAVY.

IN his report for 1920 Surgeon-General Braisted concludes the story of the war work of the Medical Department of the Navy and directs attention to certain post-bellum difficulties and conditions encountered in the conduct of the affairs of this important service. Not the least of these difficulties involves the matter of personnel; for, as we are told, since demobilization began the Medical Department has been confronted with new problems, while the old ones have been magnified by the rearrangement of many aspects of life which, to superficial view, might seem remotely connected with any branch of naval administration, yet which are keenly felt in recruiting for the Medical, Dental, Hospital, and Nurse Corps. In other words, "the opportunities which present themselves at this moment in civil life to recent graduates of medical, dental, and pharmaceutical colleges and of nurses' training schools are far more enticing than anything the Medical Department has to offer." In order to offset this state of affairs very earnest efforts have been made during the past year to increase the professional attractiveness of the different corps. Members of the Medical Corps, particularly, have been given opportunities for special study, and it is proposed to prosecute this plan with vigor.

In this connection the Surgeon-General points out the fact that there is a radical difference between the general type of duty which develops efficiency in one corps and that which promotes it in another. For officers of the line, whose highest aim is competency to command a ship, a division, and a fleet, the sea is the best training school. It can readily be understood that this is true only to a limited degree with respect to the medical officer who, in order to progress in his work, even to prevent retrogression, must periodically avail himself of the benefits of the laboratory, the clinic, the operating theater, the comparative study of large and diversified groups of cases, and—not the least important—association with fellow practitioners. Long periods of sea service deprive the naval surgeon of all these advantages which are commonplaces in the lives of

those who choose terra firma as their field of action. In view of these facts the Surgeon-General urges a definite system by which, after each tour of sea duty, every medical officer "whose industry entitles him to consideration," shall be allowed a definite period of study leave in order that he may share the professional advantages enjoyed by those ashore. When the plan which the Surgeon-General advocates is elaborated and inaugurated on such a basis as to guarantee an equalization of the opportunities of naval surgeon with those of the army surgeon and the civil practitioner, the difficulties encountered, particularly since the war, in recruiting for the Medical Corps of the Navy will be materially lessened. The wide open door of professional opportunity, plus the youthful love of adventure, will doubtless prove valuable adjutants in the building up of the vigorous post-bellum naval medical service for which the Surgeon-General makes a strong appeal.

CANCER OF THE CERVIX UTERI BEFORE THE AGE OF THIRTY YEARS.

CANCER of the cervix is an affection of every age, its maximum of frequency being from thirty to fifty years, and it is really exceptional in persons under twenty. It is less rare between the ages of twenty and twenty-five and is as frequent between twenty-five and thirty as between sixty and seventy years of life. According to the long-established rule, virginity appears to preserve females from the development of carcinoma of the cervix but there are exceptions, since Leprévost (Thesis, Paris, 1913) has published two instances in virgins. It would seem that negroes enjoy a certain immunity to cancer of the cervix, although there are exceptions to the rule. Cancerous heredity seems to be frequent, but nulliparity does not appear to lessen the chances of early development of cancer of the cervix. On the other hand, repeated pregnancy results in a rather distinct predisposition for cancer of the cervix, but the influence of miscarriages is still a moot question. Previous infections—especially genital—are frequently noted in the antecedents of cancer patients, and it is perhaps possible that syphilis plays a certain part in the development of carcinoma.

The onset of carcinoma of the cervix is invariably insidious, with a long period of latency, so that it is rarely discovered in its early stages. The signal of alarm is variable. Sometimes the menses are more abundant than usual, at others there are intermenstrual hemorrhages or white, yellow or reddish discharge; pain as a symptom is rarely noted. However, roughly speaking, pain is earlier in appearance and more constant in young women than in those past the age of thirty.

The evolution of cancer is unquestionably much more rapid before the age of thirty, and this may be said to be the chief clinical character of carcinoma in young women. In a female sixty years of age it is not uncommon for the malignant process

to last for years. On the contrary, in young women cases have been recorded in which the evolution of the affection was a matter of only some months. Occasionally, in spite of this rapid evolution, the general health remains satisfactory and consequently conceals lesions that are quite advanced. On the other hand, it may be only a few months after the appearance of the first symptoms that the progress of the affection rapidly reaches the place of cachexia. But it is to be recalled that exceptionally, carcinoma of the cervix in young women may assume a slow evolution. This generally rapid evolution of the process in young women under thirty years of age places them in bad conditions from the viewpoint of a radical operation.

If the exceptional cases be put aside, in which the disease has been detected in the very early phase or even the onset, the patients are seen too late by the surgeon, and this for several reasons. Many women are neglectful or ignorant in respect to their genital life and often fear examination. The rapid evolution of the lesions is another reason, and lastly, the extreme frequency of immediate or late return of the process after operation makes the outlook bad. This does not imply that operation should be refused young subjects with carcinoma of the cervix, only that at the time of life under consideration the operative successes are not so perfect, are less frequent, and especially are less durable than in older women.

PSYCHOGENIC PSEUDOTUBERCULOSIS.

SEVERAL years ago a young woman of unusually sound health received the news that a relative had dropped dead. She bore the experience with fortitude and was soon back at her occupation. However she rapidly developed a syndrome of acute phthisis with progressive emaciation, cough, and night sweats, so that her physician on her first visit to him was almost convinced that she was tuberculous. He deferred giving his opinion until the next visit, when he found the patient quite free from symptoms, and the psychogenic nature of the latter became apparent when the patient later presented another syndrome of cardiac stasis, which passed off and left her in her usual health. During the latter experience she had gone to her daily business with ankles so swollen that she could not button her shoes. Both syndromes cleared up spontaneously.

In the November 13 number of the *Bulletin Médical* (xxxiv, 53) de Fleury has a paper on false tuberculosis of psychopathic nature and a comparison of his finds with the above mentioned case should be of interest. This author sketches his type as follows: at the tuberculous age a young man or woman begins to decline in health which, let us say, has never been robust. There is a condition of lassitude, fatigability, and anemia which disquiets the relatives. The patient seems to slip into the state of tuberculosis. But this type is not the one which really interests the author. There are young people whose health is vigorous and whose high spirits make them conspicuous, who

shock their friends by passing without warning into a state of malnutrition. In such cases the author expressly states that no psychic shock or vexation has preceded the symptoms, no physical overstrain, nothing to accuse in connection with the sudden failure of health. Relatives and friends become alarmed and summon medical counsel. Examination proves negative. The condition progresses and in some respects suggests Graves's disease, presenting symptoms common to both it and incipient tuberculosis, such as tachycardia, sweating, etc. Tremor may be marked. The patient is impressionable and becomes badly frightened over his condition. The symptoms are conflicting enough. Fever may be absent. Low blood pressure is usually found. To give the patient the benefit of the doubt he is given sanatorium treatment under which he does not prosper. He cannot be made to gain a pound and his neurotic symptoms seem out of proportion to the disturbances of general health. One might term the patient a tuberculo-neurasthenic with his peculiar mental state, insomnia, tremor, etc. A consultation held between an expert phthisiologist and neurologist will bring out the fact that the condition is purely neurotic. The cough is a nervous cough and the subject can be diverted so that it will disappear. Tachycardia, night sweats, anorexia are all psychogenic. The condition of hypochondria is the very reverse of the optimism of the tuberculous. The author especially states, however, in connection with the mental depression that it may be cyclothymic and be followed by a wave of mental exaltation. During this phase the tuberculous syndrome recedes. Under the circumstances one might wrongly conclude that the patient's optimism was the direct result of recovery. It is evident that these endogenous cases of de Fleury have hardly anything in common with the case cited by the editor in which a very short-lived imitation of beginning tuberculosis occurred in a non-neurotic subject as the result of psychic trauma.

PRE-ROSEOLOUS SYPHILITIC PERIOSTITIS.

PERIOSTITIS anticipating the roseola of syphilis is not a newly observed phenomenon and Chatellier of Toulouse gives an account of old observations as a preface to his personal experience related in the *Annales de dermatologie et de syphiligraphie*, 1920, vi, 10. In 1802 Benjamin Bell stated that the periosteum could be attacked at the moment of the generalization of the disease. Ricord was also familiar with the manifestation but attributed it to injudicious treatment. The first actual case was reported by Vidal de Cassis in 1854. A young man developed periostitis of the clavicle 25 days after the chancre. Here the author gets a trifle mixed in his dates, for he credits Schwediaur with the next case. This author should have antedated Bell, and in any case holds the record for he saw periostitis develop in the humerus five days after the chancre. It is likely that Chatellier does not recognize this observation as genuine or germane to the subject and sets it down for what it is worth.

The first real treatise on the subject was by Mauriac in 1872, in connection with his monograph on periostoses. In this he enumerates 10 cases, in all of which the appearance of periostitis could be reckoned by days following infection. In this series the periostitis antedated the roseola. Alamartine, Popescu, Nadaud (Mauriac), Rollet, and Fournier all added to the material. One readily passes from pre-roseolous periostitic to pre-roseolous meningitis and other very early accidents. This is complicated by the phenomenon of delayed roseola, formerly often seen under the early intensive mercurial treatment; so that whosoever reports a case of pre-roseolous lesions must discount the effects of the treatment. The subject, however, is not of such burning significance today, for the chancre means that the constitution is already impregnated with the disease, save for the brief initial period when autoinoculation is possible.

In Chatellier's case the subject was an infant but 18 months old. The primary lesion had appeared, several weeks before consultation, on the lumbar region. There could be no possible doubt as to the diagnosis, but the mode of inoculation was not even surmised. There had been no abortive treatment nor any specific treatment at all. Only a few days after the presence of the chancre had been noted, the infant showed troubles of locomotion. The left leg seemed to be at fault and the tibia was swollen. A periosteal focus could be palpated. A similar focus was made out on the right humerus. The diagnosis was precocious syphilitic periostitis in advance of the roseola. Intensive treatment was at once begun—hypodermics of sulpharsenol. The lesions healed completely.

HOSPITAL VS. HOME IN OBSTETRICAL PRACTICE.

At a meeting of the Royal Academy of Medicine, Ireland, held on November 12 in Dublin, Dr. Hastings Tweedy, the President, delivered his inaugural address, taking as his subject "Recent Progress in Obstetrics." He passed in review the improved treatment by the Dublin method of accidental hemorrhage and eclampsid. With regard to the treatment of contracted pelvis, he insisted that it had gained by the introduction of pubiotomy and lower segment cesarean section, as practised by Prof. Munro Kerr. He stated that in his opinion classical cesarean section would in future be reserved for emergencies when speed was an important element. It was a dangerous operation in both its immediate and after results, and was at present performed much too frequently, and often cloaked an imperfect obstetrical knowledge. It may be said, however, that some who joined in the discussion were not convinced of the adequacy of the lower segment section and were still in favor of the ordinary cesarean operation. The most interesting part of the address was that which dealt with obstetrical private practice, the practice which has been so severely animadverted against by recent writers. However, Tweedy thinks that a great change for the better has occurred in private practice, three influences having combined

to bring this about: (1) the popularity of the private hospital, or nursing home; (2) the introduction of scopolamine, and (3) the use of pituitary extract. In his experience patients now have a more uneventful convalescence in the home than in the private house, the reason for this being largely that in the latter aseptic conditions are usually impossible of attainment, nursing is frequently inadequate and unsatisfactory, the bed is unsuitable, and the light is indifferent. In the lying-in hospital all these disadvantages are done away with. It is encouraging to learn that in Dublin, at any rate, the practice of obstetrics is exhibiting improvement. While the questions of the lower segment section and the administration of pituitary extract in the first stage are debatable to a certain extent, that of the superiority of a well ordered lying-in hospital over the ordinary dwelling for the management of an obstetrical case does not seem to admit of argument. In England it is said to be the scarcity of such homes and of maternity hospitals which is responsible for many obstetrical fatalities and disabilities. In the report of the British Ministry of Health published recently much stress is laid upon the necessity for establishing institutions and homes in Great Britain for the proper treatment of obstetrical cases.

RADIUM IN EPILEPSY.

KUMMER writes briefly on this subject in the *Revue médicale de la Suisse romande* for October, 1920, xl, 10. Reports which have come in thus far are conflicting. Numerous animal experiments have been performed to determine the action of radium on the brain. Danysz, for example, placed a bit of radium under the scalp in young mice and in a few hours paralysis and ataxia supervened, followed by spasmodic contractions and death. Obersteiner found that radium could induce meningo-encephalic hyperemia and degeneration of the endothelium of the blood vessels, but the brain cells proper were uninfluenced. Further study confirmed the fact that the action of the radium is limited to the blood vessels. Tests on human epileptics showed that radium may either ameliorate or aggravate the paroxysms and the type of the disease. The indications must therefore be restricted and carefully selected. Good results have been seen in convulsions persisting after extirpation of a focus and in a case thought to be due to meningeal irritation. The author relates in great detail a case of traumatic epilepsy with trephining, evacuation of a large clot, ligation of the meningeal artery, suture of the dura, etc. The patient later became badly addicted to alcohol and had many convulsions together with an attack of delirium tremens. When he came under the author's care as a confirmed epileptic he was given radium treatment and bromides, the latter on general principles, although when given alone they had not abated the frequency of the convulsions. Radium in this case appeared able to suppress the convulsions, and whenever they reappeared its good effects were maintained. Its action on the brain outside of this was decidedly narcotizing, a fact which the author had not seen mentioned. The narcolepsy, while profound, lasted but ten minutes.

News of the Week.

Opposition by the Public Health Committee of the Academy of Medicine to the Jones Bill.—The Public Health Committee of the New York Academy of Medicine has sent the following letter to Senator Wesley L. Jones in opposition to the bill limiting the traffic in crude opium and cocoa:

U. S. Senate,
Washington, D. C.

My Dear Senator:

The Public Health Committee of the New York Academy of Medicine has given a great deal of consideration to your bill No. 4553, which prohibits the exportation from and transit through the country of habit-forming drugs and restricts imports to such amounts of crude opium and cocoa leaves as the United States Public Health Service may determine. The Public Health Committee is in full sympathy with the motive of this bill but desires to point out certain difficulties which would arise if this bill were enacted into law.

1. To entrust to official discretion the determination of the amount of crude drugs to be imported into the United States for medicinal purposes is likely to result in there being no reserve for unforeseen emergencies; first, because of the limitation of the supply, and secondly, because of the probable deflection of a certain amount into illicit channels, creating a dearth of the drugs for legitimate medical purposes and resulting in a great deal of suffering.

2. The limitation of imports, as proposed will create a tendency to smuggling with which, in view of the difficulty of trading small amounts which could be sent in letters and other ways, it would be exceedingly difficult for even a large force of Custom House officials to cope. In other words, legitimate users will be handicapped while those whom we try to protect will not be benefited by the legislation.

3. If the present law should be amended to incorporate the provisions of article 13 of the Hague Convention of 1912, that is, to limit the exportation of drugs to such persons in foreign countries as have special authorization or permits from their respective governments for the importation of the drugs in question, sufficient control would have been provided for the protection of the drug habitués in foreign countries and, moreover, this would be more in accordance with the provisions of the aforesaid treaty than the complete prohibition of exports.

4. The limitation of imports to but crude opium and cocoa leaves would mean that no morphine, codeine, cocaine, and other preparations could be obtained in this country except of local manufacture, which would be a trade protective measure of an extreme character and it will inevitably tend to increase the price of these products for legitimate purposes.

These are the principal reasons why the committee is opposed to the passage of the bill as proposed by you. In the opinion of the committee such a law will only be unduly restrictive on those who will legitimately have to use the drugs

and it will not in any way change conditions it is intended to ameliorate. We sincerely hope that you will give thoughtful consideration to the objections raised by the committee.

Very truly yours,

CHARLES L. DANA, M.D.,
Chairman.

"Sleeping Sickness" Spreads.—Reports of the prevalence of so-called sleeping sickness are coming in from very widely separated localities. The disease is on the increase in Sweden and a number of deaths from this cause have been reported in Copenhagen. Sleeping sickness has appeared in Vera Cruz in a form claimed by physicians to be the same as the African disease bearing this name. Thirteen cases of lethargic encephalitis were reported to the Chicago Health Department between January 4 and 18. A few cases are being reported in New York City.

Relief Funds Stolen.—The Vienna offices of the American Quakers' Society, which has been engaged in relief work in Austria-Hungary, were recently entered by burglars and one million crowns stolen.

French Academy of Medicine Urges War on Typhoid.—According to a special cablegram to the *New York Times*, the French Academy of Medicine, at its meeting on January 18, recommended compulsory inoculation against typhoid fever of all adolescents. A commission was appointed to study the question, and, if found desirable, to lay proposals before public authorities. During the discussion it was pointed out by Dr. Chauffard that there had been no cases of typhoid fever among demobilized men who were inoculated while in the service. Statistics were presented showing that while the proportion of typhoid cases among men of the younger age groups had diminished, that of women of the same age groups had remained stationary.

Tribute to Major-General Gorgas.—A meeting in honor of Major-General William C. Gorgas was held in the Pan-American Union Building, Washington, D. C., on the evening of January 16, at which diplomats, officers of the army and navy, members of Congress and other officials were present. The exercises were under the auspices of the Southern Society of Washington of which General Gorgas was a former president. The Ambassador of France, Major General H. K. Bethell, Military Attaché of the British Embassy, representing the British Ambassador: the Ambassador of Peru, the Ministers of Cuba and Ecuador, the Chargé d'Affaires of Panama, the Secretaries of War and Navy, Dr. L. S. Rowe, Director General of the Pan-American Union; Major General Peter Charris, Adjutant General U. S. A., and General Clarence J. Owens, Past President of the Southern Society, were the speakers. Cablegrams of tribute to General Gorgas were read from the residents of Uruguay and Costa Rica and from the Government of Colombia. Congress will be asked to make appropriation for a suitable memorial to General Gorgas to be placed in Washington, and a further tribute will be a portrait of the late Surgeon-General presented to the Government by the Southern Society, to be placed in the library of the Surgeon-General's office.

Suicides in Hungary Cause Alarm.—During the year 1920 there were 5,300 suicides in Hungary, 3,200 women and 2,100 men. In addition there were more than 10,000 unsuccessful attempts at suicide. This is causing a great deal of concern because the pre-war figures show only 50 to 60 suicides yearly. A campaign against self-destruction has been begun in which the Government, society, and church circles are cooperating.

The Medical Directory of the New York State Medical Society for 1920 has just been published. Like the earlier edition, it contains lists of licensed physicians in Connecticut and New Jersey as well as in New York State. The total number of physicians listed is 19,258, of which 14,871 are in New York State, 1,464 in Connecticut, and 2,923 in New Jersey. The total for New York City is 8,450—5,794 in Manhattan and Bronx, 2,283 in Brooklyn, 292 in Queens, and 81 in Richmond. Now that prices are falling, it is to be hoped that the next edition of the Directory will contain a little information of value to the practitioners of the State beyond the bald list of physicians. At one time, before the dues of the State Society were raised, the Directory was a really useful publication.

May Reorganize Red Cross.—Plans are under consideration for the reorganization of the thirteen physical divisions of the American Red Cross in the Continental United States. At a meeting of the central committee soon to be held a proposal will be submitted to divide the country into not more than six or seven main divisions. It is estimated that such a reorganization would result in a saving of \$500,000, without lessening the organization's efficiency or usefulness.

Judge Rules Dental Bridgework as Anatomical.—Commissioner George B. Chandler of Hartford, under the workmen's compensation law, recently rendered a decision that dental bridgework is a part of anatomy. This decision was made upon an employee's claim that his employer should pay dentistry bills or for damages to bridges sustained through physical injuries during the course of employment. Recently another commissioner decided that an artificial leg was not part of a man's anatomy, but Commissioner Chandler claims that bridgework is a more permanent part of the anatomy than an artificial leg.

A Two-Day Search for Lost Radium Needles.—Two radium needles, three-quarters of an inch long and one-sixteenth of an inch in diameter, valued at \$24,000, disappeared at the Medical Arts Building in Philadelphia on January 19, when inadvertently swept from a table in an operating room. The entire office force joined the building's porters in an all day search of the basement before the needles were found.

Law Would Ban High Heeled Shoes in Utah.—A bill has been drafted for presentation to the Utah Legislature making it a crime to possess shoes having heels more than one and a half inches in height. The bill imposes a fine of from \$25 to \$500 upon any person found with a pair of such shoes. For every additional offense the fine is from \$500 to \$1000, and imprisonment of from thirty days to one year.

Grand Jury Investigation of Drug Hospitals

Urged.—Chief Magistrate William McAdoo has submitted a request for a Grand Jury inquiry into the conditions of the municipal institutional buildings on Randalls Island and Rikers Island, where drug addicts are committed. He declares that the buildings are unsanitary and that the women's hospital is a disgrace to the city. He states that it is increasingly apparent that a separate institutional building is needed before drug addicts can be given proper care. Formerly it was possible to commit drug addicts to Bellevue, Riverside, and the Metropolitan hospitals, but owing to inadequate facilities these institutions began discharging drug addicts after ten days' treatment. They have therefore been sent to Rikers Island, which is already overcrowded, though according to Magistrate McAdoo drug addicts were given as good treatment as possible under impossible conditions.

Hospital Changes Name.—In conformity with a resolution passed by the members of the Hospital for Deformities and Joint Diseases, at a meeting held on November 14, 1920, proceedings to change the name of the hospital to "Hospital for Joint Diseases" were undertaken. Under the statute the institution had the authority to use its name from December 1, 1920.

Plans for Jewish Memorial Hospital.—The Jewish Memorial Hospital of New York, which recently purchased the large building of the Inwood Home for Girls, has commissioned architects to proceed with the plans for altering and reconstructing the present building into a complete general hospital. The estimated cost of the proposed alterations is about \$150,000.

Brooklyn Hospital Entertains Staff.—The Board of Managers of the Norwegian Lutheran Deaconesses Home and Hospital entertained the medical staff of the institution at a smoker on the evening of January 10. President Lawritz Larsen spoke for the institution and Dr. Robert E. Coughlin for the Medical Board. Addresses were also made by Dr. Lewis Stephen Pilcher of the Consulting Staff and Dr. H. Beekman Delatour of the Attending Staff.

The Bronx Hospital Organization.—At a recent meeting of the Medical Board of the Bronx Hospital and Dispensary, Dr. Wm. J. Robinson and Dr. Martin Rehling were reelected president and secretary respectively.

Dr. William H. Katzenbach has resumed his practice in New York City, and has taken offices at 139 West Seventy-eighth Street.

The Annual Benefit for the French Hospital. New York, consisting of an operative version of "Zaza" rendered in Italian, was given at the Metropolitan Opera House, on January 22, and netted the hospital \$10,000.

Charitable Gifts and Bequests.—The will of William V. S. Thorpe provides for the following bequests: Presbyterian Hospital, New York, \$50,000; Memorial Hospital, Morristown, N. J., \$25,000; the Women's and Manhattan Maternity Hospitals, each \$10,000; the Society for the Relief of Half Orphans and Destitute Children, \$5,000.

The will of Jonathan M. Parmenter of Wayland, Mass., leaves a bequest of \$200,000 for the building of a hospital in that town.

Medical Missionary Wanted for Far North.—The Board of Home Missions of the Presbyterian Church, 156 Fifth Avenue, New York, is making an appeal for an able Christian doctor to become a medical missionary at its new hospital at Point Barrow, Alaska. This is the only hospital in a thousand mile radius and the work will be similar to that of Dr. Grenfel in Labrador. The doctor's salary would be \$2,000, his house, traveling expense, and necessary equipment. A doctor with children should not apply, though it would be an advantage if the doctor's wife could become teacher of the Government school at Point Barrow, where she would receive a salary of approximately \$135 a month.

Turtle Serum Again to the Front.—According to a special cablegram to the New York *Herald*, the Berlin Medical Society has held eight meetings for the discussion of the Friedmann turtle serum. From the reports it appears that the trend of the discussion was discouraging to those who anticipated revolutionary results in the treatment of tuberculosis by the Friedmann serum. The United States Public Health Service, after quite an extended investigation, discredited the serum at the time of its trial in 1913.

Alcoholic Insanity Increases in Chicago.—According to the quarterly report of Dr. James Whitney Hall there has been an increase in the number of cases of alcoholic insanity in the Cook County Psychopathic Hospital since prohibition went into effect. The records show that in December, 1920, there was an increase of 33 per cent. in alcoholic cases over the past officially "wet" December; 16 per cent. in November; a slight increase in October and a 30 per cent. increase in September. Dr. Hall believes, however, that eventually insanity will be greatly decreased by prohibition.

Typhus Expedition Returns.—A message has been received stating that fifty-five soldiers and ten officers of the American typhus expedition to Poland has left Warsaw for Coblenz on the Rhine, the mission's time having expired. This unit has worked sixteen months with the Polish health authorities in combating typhus along the eastern frontiers. Colonel Harry L. Gilchrist, who was in command of the expedition, has had permission from the War Department to remain in Poland as adviser to the Polish Government.

The American Congress on Internal Medicine will hold its Fifth Annual Session at Baltimore, Md., February 21-26, 1921. The activities of the Congress will be largely clinical, consisting of ward walks, laboratory demonstrations, and group or amphitheater clinics by members of the medical faculties of the Johns Hopkins and Maryland universities. Further information may be secured by addressing the Secretary-General, 1002 North Dearborn Street, Chicago, Ill.

The American Society for the Control of Cancer will hold its annual meeting at its Executive Office, 25 West Forty-fifth Street, New York City, on January 29, 1921, at 4 P. M. The chief business of the meeting will be to elect officers for the coming year to receive the report of the Budget Committee, and to elect directors to fill the vacancies of those whose terms have expired.

Positions for Bacteriologists.—The United

States Civil Service Commission announces open competitive examinations to fill the positions of Bacteriologist, at \$130 to \$180 a month; Associate Bacteriologist, at \$90 to \$130 a month; Assistant Bacteriologist, at \$70 to \$90 a month, and Junior Bacteriologist, at \$70 a month. Where quarters are not furnished these salaries may be increased. For the position of bacteriologist or associate bacteriologist applicants must have graduated from a college or university of recognized standing in a course including biology and bacteriology, except that for the position of bacteriologist the completion of a three-years' course in a recognized medical college, and for the position of associate the completion of a two-years' course in a recognized medical college will be accepted in lieu of such college graduation. Applicants should apply for Form 1312, stating the title of the examination desired, to the United States Civil Service Commission, Washington, D. C., or to any of its branches. Applications will be received until July 1, 1921.

Obituary Notes.—Dr. EVA HELEN KNIGHT of New York, a physician connected with the Board of Education, died, on January 17, at the age of sixty-five years. She was a graduate of the Women's Medical College, in 1891, and was a member of the American Medical Association and the Academy of Medicine.

Dr. WILLIAM J. O'SULLIVAN, a physician and lawyer, widely known as a medicolegal expert, died after a long illness at his home in New York City, on January 20, at the age of sixty-two years. He was graduated from the Yale Medical School in 1889, and also pursued his law studies in the same institution. He was a member of the New York Bar Association and of the New York County and other medical societies.

Obituary.

GODFREY ROGER PISEK, M.D.,

NEW YORK.

Dr. GODFREY R. PISEK, Professor of Pediatrics at the New York Post-Graduate Medical School and Hospital, died suddenly of heart disease on the elevated railway station at Third Avenue and Eighteenth Street, on January 19, at the age of forty-seven years. He was a graduate of New York University, in 1894, and of the New York University Medical College in 1897. He was a member of the American Pediatric Society, the New York Academy of Medicine, the Societies of the County and State of New York, the American Medical Association, and the Post-Graduate Alumni Association, attending physician to the Post-Graduate Hospital, visiting physician to the Park Hospital, and consulting pediatricist to the Portchester, New Utrecht, and Mineola Hospitals and to the Darrach Home for Crippled Children. He was President of the Physicians' Mutual Aid Society and of the Faculty Association of the Post-Graduate Hospital. Dr. Pisek was coauthor with Dr. Henry D. Chapin of a textbook on diseases of children, and was a frequent contributor to the literature of his specialty.

Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, December 31, 1920.

The Patent Medicines Bill.—Reference has been made in previous letters to a proposed bill to do away with at least some of the abuses engendered by the practically unrestricted or rather unregulated sale of patent medicines in this country. More license is probably allowed to the proprietors and vendors of cure alls in Great Britain than anywhere else and this in spite of the fact that the medical profession for some time past have protested against the continuance of the abuse and by means of their official organ, the *British Medical Journal*, have investigated the matter and had made public the composition of most of these medicines and the devious ways of those interested in their sale. However, the patent medicine trade is enormously profitable, and the general public being notoriously gullible with respect to questions of medical treatment, it is difficult to educate the mass of the population and to carry conviction that the unregulated sale of patent medicines is a distinct menace to health. In any event, although the Select Committee on Patent Medicines appointed by the Government has made several recommendations calculated to curb some of the activities of the patent medicine proprietors, much delay has been experienced in attempting to introduce measures to bring into effect these recommendations. No bill will be brought in during the present session. Dr. Addison has stated that it is purposed to introduce next session a bill giving effect to the proposals which had now been agreed upon by the parties concerned. Laws with regard to the labelling and sale of patent medicines are more lax by far in this country than in America. Of course it is impossible to treat an individual in ill health properly, unless the case is accurately diagnosed. It is equally obvious that neither the sufferer nor an unqualified person is competent to achieve this result. Therefore, it really comes to this that no one but a qualified person should be allowed to prescribe. However, as this result is impossible to bring about it only remains for the Government to protect the public as far as possible by sane regulations as to the sale of patent medicines. It must always be borne in mind that there is a wide distinction between patent and proprietary medicines.

Meeting of the Society of Medical Officers of Health.—A meeting of this society was held in London on December 7, 1920, when Prof. Dr. H. R. Kenwood read a paper on the work of the Army, Navy, and R. A. F. group within the Society. In the course of his address he referred to certain diseases, influenza in particular, which needed organized research on a very comprehensive scale in order to study their behavior in the community and views with reference to epidemics generally were discussed. He was satisfied that the lack of susceptible population was not the main cause of the cessation of epidemics. He went on to point out that in the great war pre-

ventive inoculations were practised to an unprecedented degree, and death in many forms was thereby prevented to an unprecedented degree. He then asked the question, was our civil community to benefit more fully from this experience? He next discussed some respects in which co-operation should be developed between the civil public health staffs and the service sanitary staffs, and the advantages and economy that would thereby result. Professor Kenwood laid especial stress upon the necessity for devising fuller measures for the mutual protection of the civil and military population against the spread of venereal disease and pointed out that here was an enormous wastage in the fighting efficiencies which could and must be reduced in the future. It had been learned from the army how to meet many sanitary requirements by means of simple and inexpensive appliances, as fever hospitals, etc. Was the civil community going to profit from this lesson? The extravagant cost of many civil provisions had had the effect of limiting their adoption by smaller communities where they were often greatly needed. Could not a happy mean be established between the two extremes? In the discussion that followed Dr. John Robertson, Medical Officer of Health of Birmingham, drew attention to the fact that it was wise to expect nothing from the men but what they were actually expected to do. He had been appalled at the lack of cleanly habits in the men. To encourage good ventilation they must be provided with blankets and proper means of warming. It ought to be proper to prevent verminousness under all conditions and there should be a regular weekly issue of clean clothing. Dr. Robertson emphasized the importance of proper spacing of individuals in schools, hutments, etc., and said he thought that an 8-foot distance between man and man in tents would have almost prevented the spread of cerebrospinal fever. Young officers must be taught to keep to proper sanitary standards, and the reasons should be explained to them. The available information as to sanitary matters in the war ought to be recorded and collated for future use. Professor R. W. G. S. Bond, Naval Medical College, Greenwich, referred to the fact that the problem of air space, ventilation, and spacing was of the first importance on warships, and was accentuated by the crowding of extra men on board during the war. Diseases of respiration were prevalent, and influenza was very bad on ships during the outbreak. Before the war the medical officer on a ship had to act as medical officer of health even if he lacked proper training. During the war a naval sanitary service was founded. Naval health officers had since been appointed at some of the principal ports, and it was hoped that the service would be further extended.

Snow Blindness.—A paper of somewhat exceptional interest was read by Lieutenant-Commander E. L. Atkinson, R. N., at a meeting of the War Section of the Royal Society of Medicine on December 13, 1920. The subject of the paper was Snow Blindness and was based on the experiences of the author in the Antarctic, 1911-13, the winter campaign in France in 1916 to 1917, and the northern Russian front in 1919. In his opin-

ion two different sets of symptoms result. (1) Selective reflection of violet and ultraviolet rays from the sun at maximum altitude at midday. This is intensified by the conditions prevailing, excessive illumination and by the increase of the number of rays striking the eyes owing to the countless ice-crystals. Fifteen minutes of such a day will cause snow blindness, the ordinary symptoms being photophobia, lacrymation, and chemosis. Contrary to the usual belief that the symptoms come on after an interval of several hours, Atkinson holds that they develop rapidly and especially on entering a tent in which a primus stove is burning. Recovery is the rule. It is the general opinion that the ultraviolet rays bring on snow blindness, and among those who took part in the discussion Mr. A. W. Ormond was the only one who did not fall in with this view. According to his experience the results appear to be secondary to the effect on conjunctive and cornea. He thinks that snow blindness is probably commonest as the result of exposure in a haze. (2) The second class is complicated by diplopia probably due to excessive strain on the internal and external ocular muscles caused by the unusual diffusion of light, resulting in the absence of any stimulus making for the fixation of the two eyes on a single point. The most efficient remedy is hemisine 1 in 1,000, which is painless. Prevention also is by no means difficult. Good glasses, which will give sufficient contrast and cut out the violet end of the spectrum, will achieve this end. Both theory and experience indicate that red and dark amber glasses are the best, which should be provided with side pieces to shut off the lateral light. However, for those who are not going on long journeys in regions of snow and ice, but who intend to spend a few weeks in the Rockies or in Switzerland, ordinary smoked glasses will, as a rule, be found to answer the purpose sufficiently well.

The Horsley Memorial.—That a memorial was to be raised to the late Sir Victor Horsley has been referred to on more than one occasion in these letters. It has been decided that the memorial shall take the form of a lectureship or scholarship to commemorate the services of Sir Victor Horsley to science and to the empire. There is no need to recapitulate the great work that Horsley did in the realms of science. He was a pioneer in brain surgery and one of the few really great names in medical science of the past fifty years.

Conference of Educational Associations in London.—The Conference of Educational Associations has been held recently at University College, London. At the joint meeting of the Associations of Head Mistresses and Assistant Mistresses a notable paper was read by Miss S. Margery Fry on "The Community and the Criminal." Miss Fry said in part that penology, if it ever came to be regarded in this country as a definite science, as it was in America, must stand half way between medicine and education. The criminal must be regarded as somebody to be cured or taught, rather than as somebody to be repressed or turned into a horrible example for the benefit of the remainder of the community. She hoped that the Birmingham magistrates' scheme under which

prisoners who displayed abnormality were medically examined, would become general throughout the country. A mental and psychological specialist should be at once appointed at Brixton Prison, the biggest remand prison in London, so that prisoners under remand could be carefully examined and every great prison in the country should be provided with a specialist who could advise about the mental condition of prisoners. Miss Fry pointed out that it was important to stop young people who were on the brink of crime, and proper examination of young criminals in the making would do great deal in this connection.

New Medical Record for Panel Patients.—The new form of medical record for insured persons has just been issued by the Ministry of Health. The new record consists of a card on one side of which are such personal particulars as the name and address of the patient and his approved society, the other side being left for the doctor's clinical notes. To insure privacy for the medical particulars the card is inclosed in a "window" envelope with a gummed label. In ordinary circumstances the record will be in the custody of the insured person's own doctor. When it passes out of his hands because the patient moves to another district, it will be sent inclosed in the sealed "window" envelope, only such particulars being shown as are necessary for transmitting it through the insurance committee of the new doctor. In this way a permanent record will follow the insured person from one district to another and will place at the disposal of each doctor under whose care he passes, a medical history which will often be of material assistance in diagnosis and treatment. The accumulated experience of illnesses shown on the records will also afford information of great value in the advancement of medical knowledge.

Honors for Medical Editors.—In the list of New Year Honors appeared the names of Dr. S. Squire Sprigge, editor of the *Lancet*, and of Dr. Dawson Williams, editor of the *British Medical Journal*. Both of these able representatives of medical journalism have received the honor of knighthood. This is the first time in Great Britain that the services of medical editors have been thus appreciated by the Government of this country. Literary men and actors galore have received recognition, but medical journalism has been left out in the cold. However, it is a wise new departure and no men from the standpoints of ability and personality in the entire list of New Year's Honors, are more deserving of official approval. It may be added that not only have these representatives of medical journalism been honored on account of their own mental gifts and of the good work they have performed in the service of medical science and their country but medical journalism in their persons has received seemly recognition.

Obituary.—Dr. George Peacock, a well known physician of Dublin, died on Christmas morning after an illness of only a few days. Dr. Peacock was a comparatively young man, 50 years of age, and always appeared to be in good health. However, he fell a victim to pneumonia, a disease which is generally most deadly to those of robust constitution. He was educated in Trinity College,

Dublin, graduating there in medicine in 1902. He was associated throughout his whole professional career with the Adelaide Hospital. He had been a vice-president of the Royal College of Physicians of Ireland. He had also held the office of president of the Section of Medicine of the Royal Academy of Medicine in Ireland and was a prolific contributor to the medical journals. He was much respected in Dublin for his professional ability as well as for his personal qualities.

Dr. JOHN KNOTT, a physician of much learning and a fluent and interesting writer on subjects along the side lines of medicine, died recently in Dublin.

Progress of Medical Science.

Boston Medical and Surgical Journal.

January 13, 1921, clxxiv, 2.

1. Remarks made at the Closing Session of the Inter-Allied Sanitary Commission. Paris. Richard P. Strong.
2. Scoliosis. Herman W. Marshall.
3. The Necessity of Maintaining Proper Standards of Nursing Care. Elisha H. Cahoon.
4. Conditions in Palestine During the War. Izak Alcazar.

2. Scoliosis.—Herman W. Marshall crystallizes his discussion of this subject in the following conclusions: 1. Acquired scoliosis developing in normal appearing, rapidly growing young patients who have no history of past anterior poliomyelitis is due primarily to unilateral congenital differences in development of spinal muscles. The onset of scoliosis is determined commonly by a lagging behind in growth and strength of the more poorly developed members in physiologically balanced, bilaterally symmetrical sets of muscles at their period of most rapid growth in adolescence. 2. Faulty blood conditions acting on unilaterally congenitally defective spinal muscles also are contributing causes frequently in developments of acquired scoliosis. Such congenitally defective muscles weaken more rapidly under the influence of faulty blood supply than homologous muscles on the opposite side of the spine, and a defective scoliotic balance develops as a result. Acquired scoliosis of vascular origin is likely to be of brief duration often because vascular defects are quickly corrected very frequently. 3. Congenital scoliosis is due at times to very marked congenital differences between homologous members of balanced spinal muscles. Differences are of such degree that normal establishment of physiological balance between them becomes impossible immediately after birth as usually takes place by hypertrophic muscular readjustments among less widely differing sets. 4. Congenital scoliosis is due at times to uncompensated congenital structural variations of vertebrae. 5. Marked congenital scoliosis is due presumably at times to combinations of slight congenital unilateral differences in muscles with slight congenital uncompensated variations in vertebrae. 6. Marked acquired scoliosis is due presumably at times to equal combinations of several contributory factors acting together to destroy muscle balance. 7. Compensated vertebral variations are of very minor importance in development of scoliosis. 8. Occupational factors act as contributory causes in development of acquired scoliosis. 9. Other contributory causes for spinal lateral curvatures are found in muscle paralysis following anterior poliomyelitis, contractures after empyema, diseases of hip joints that produce unilateral shortening of the legs, torticollis, and the malnutrition of rachitis. 10. Stabilities of balances between opposed members of sets of spinal muscles exhibit variable ranges with low and high limits that permit normal bilaterally symmetrical posture. When low limits of normal muscle balance are passed spinal deformity makes its appearance, and when upper limits of stability are approached spinal deformity is very difficult to produce, as when congenital developments are equal on the two sides of the spine in balanced muscles of exceptionally large size and strength. 11. This complete conception of scoliosis if applied in practice will modify prescriptions of special treatments to important degrees and may lead to increased efficiency in the management of cases.

New York Medical Journal.

January 15, 1921, cxli, 3.

1. The Promotion of Surgical Efficiency in Hospitals. John B. Roberts.
2. The Slow Intravenous Administration of Large Doses of Sodium Citrate. Harold Neuhoof and Samuel Hirschfeld.
3. Phenoloid in Pneumonia, Septic Infections, and Erysipelas. J. A. Husk.
4. Phenoloid in Puerperal Sepsis and Postoperative Pneumonia. Herman Grad.
5. Phthisis Pulmonalis. Albert C. Geyer.
6. Active Immunization by Means of Nonvirulent and Nontoxic Living Tubercle Bacilli. Charles D. Aaron.
7. A Rational Interpretation of Blood Pressure Findings. Francis Ashley Faught.
8. Experience in Narcotic Drug Control in the State of New York. Sara Graham-Mulhall.
9. Medical Social Service in Dispensaries. The Public Health Committee of the New York Academy of Medicine.

6. Active Immunization by Means of Nonvirulent and Nontoxic Living Tubercle Bacilli.—Charles D. Aaron deals briefly with immunization by means of dead bacteria, which is always imperfect, in many cases complete immunity being attained only by the subsequent administration of living bacteria, because they alone can provoke the development of all the different kinds of antibodies. The use of living disease germs, therefore, remains as the most rational method of treatment. Many attempts have been made to eliminate the dangers naturally associated with this method of treatment. As might have been expected, the greatest efforts have been made to obtain a suitable vaccine possessing preventive and curative action on tuberculosis, some of which are considered briefly. No vaccines of great practical importance were obtained, however, until among the tubercle bacilli of coldblooded animals those of the turtle became of interest. These differ in certain respects from the tubercle bacilli of other coldblooded animals, and occupy a position intermediate between the latter and human tubercle bacilli, on which account they were specially suited for use in the therapy of tuberculosis. Of the utmost importance is their ability to develop vigorously at 98.6° F., wherein they differ from the tubercle bacilli of other coldblooded animals. It is noteworthy also that when cultivated at the ordinary incubator temperature they exhibit the same cultural features as human tubercle bacilli, covering the nutrient medium with a dry granular film, while at 68° F. they form a moist, creamy culture field. The original strain of the tubercle bacillus of the turtle which is employed therapeutically at the present time was isolated in 1901 by Piorkowski from two turtles which had succumbed to tuberculosis. Piorkowski's tubercle bacillus vaccine is harmless, even in large doses, has a wide range of usefulness, and is simple in application in the treatment of tuberculous patients. Just as in vaccination against smallpox, it is assumed that complete immunization against tuberculosis is established by a single injection of Piorkowski's vaccine. The injection is made with a sterile syringe at the outer edge of the gluteus maximus muscle, after sterilization of the site with tincture of iodine.

7. A Rational Interpretation of Blood Pressure Findings.—Francis Ashley Faught emphasizes the following points in this connection: 1. The systolic pressure alone should not be depended upon unless supported by the diastolic pressure, the pulse pressure, and the pulse rate. 2. The diastolic pressure is a far better and a much more accurate indication of circulatory change than the systolic pressure. 3. The cardiac rate together with the diastolic pressure may convey more information than the latter alone. 4. The complete blood pressure record is essential to diagnosis, prognosis, and as a guide to the nature of treatment and a demonstration of the effect. 5. The pulse pressure is of great value in determining the condition of the circulation and in directing the trend of treatment. 6. The pulse pressure has often a profound significance and may of itself clearly point to the diagnosis.

Journal of the American Medical Association.

January 15, 1921, lxxvi, 3.

1. The Mechanism of Shock and Exhaustion. George W. Crile.
2. Leukopenia. Douglas Symmers.
3. Carcinoma of the Pancreas with Ulceration Into the Gastro-Intestinal Tract. Francis H. Adler.

4. Family Outbreaks of Epidemic Poliomyelitis. F. W. Mulsow and William J. Matousek.
5. An Experimental Study of the Latent Syphilitic as a Carrier. Preliminary Communication. Frederick Ebersson and Martin F. Engman.
6. Diagnosis of Gonorrhea in the Female by Staining Methods. Their Practical Value. Charles C. Norris and Henry B. Mickelberg.
7. Thornwaldt's Disease and Chorea. C. F. Yerger.
8. The Treatment of Hereditary Syphilis: Description of Method, with Discussion of Results after Four Years' Use. Philip C. Jeans.
9. Prenatal Infestation with Parasitic Worms. William W. Cort.
10. Acne Vaccine Therapy. Martin F. Engman.
11. Vaccination Against Typhoid and Paratyphoid Fevers. F. F. Russell and H. J. Nichols.
12. Pneumococcus Vaccine. Russell L. Cecil.

2. **Leucanemia.**—Douglas Symmers reports a case of this condition, which he considers probably not an independent disease, but one of a group of rapidly progressive derangements of the blood-forming tissues due to infection. Leucanemia is characterized clinically by an extremely rapid course and by changes in the blood, bone marrow, spleen, liver, and lymph nodes that partake of the nature of both pernicious anemia and myelogenous leucemia, the causative agent acting on the hematogenic centers of the bone marrow in such fashion as to produce marked numerical increase in those primitive cells which represent the precursors of both the erythroblasts and the granular leucocytes. The primitive cells in question are myeloblasts, as shown by their morphology and by the fact that they respond to the oxydase test. Histogenetically, pernicious anemia, myelogenous leucemia, and leucanemia are closely related conditions, and represent different quantitative responses on the part of the bone marrow to regenerative stimuli acting on the myeloblast.

5. **An Experimental Study of the Latent Syphilitic as a Carrier.**—Ebersson and Engman, in this preliminary report, give the results of an investigation to determine the infectivity of (1) lymphatic glands, (2) semen, (3) blood, (4) spinal fluid, and (5) nasal washings obtained from persons known to have syphilis in a latent form. The tonsils and postmortem tests were studied in too few instances to merit a detailed report of the results. They summarize their findings as follows: In this study, *Spirochæta pallida* has been isolated in five instances from latent syphilitics—three times from inguinal glands (in two women and one man) and twice from the semen. The strains produced typical syphilitic lesions in rabbits' testicles and could be recovered and propagated for an indefinite number of generations. The incubation periods of the spirochetes isolated from the glands were, respectively, 50, 54, and 133 days, the last being doubtful owing to an early secondary infection in the experimental animal. The two strains that were isolated from the semen developed after four and seven months, respectively. *Spirochæta pallida* was isolated from patients who gave a history of syphilis dating back eleven and thirteen years in two instances, and one year in three instances. An inguinal gland and the semen proved positive for spirochetes in the two cases first mentioned, and the glands and semen in the last named. In this series of positive results a gland was found to be infectious in the case of a man whose Wassermann reaction had been negative, following treatment, and at the time of taking the specimen for the experiment gave a ++ reaction only in the cholesterol antigen. A second instance of this nature was found in the case of a specimen of semen which proved positive for *Spirochæta pallida*. As far as studies with these different strains have progressed, there is no intimation that *Spirochæta pallida* has lost in virulence for the rabbit. Detailed experiments on infectivity and other phases of experimental syphilis with these and other strains will be reported subsequently. It appears from this investigation, and that of others, that the blood and other body fluids, except semen, are not infectious in latent syphilis, or, if so, but rarely. Incubation of blood from latent syphilitics did not favor any infectious property that might have existed. Thirty-six specimens, duplicates of those in the series, were incubated at 37° C. for from three days to four months before being injected into rabbits' testicles. The results were negative. One-third of the total number of spinal fluids from latent syphilitics evidenced lymphocytosis, and one gave a positive Wassermann reaction. Tonsils could

not be studied, owing to severe secondary infections that were set up in the experimental animals. In one case, a dark-field examination showed what appeared to be *Spirochæta pallida* in an emulsion of a tonsil taken from a child with a family history of syphilis, who gave a positive Wassermann reaction, although free from symptoms or visible lesions. The rabbits failed to survive injection of material. The groups of patients studied were composed of those that were untreated as well as those that had received no treatment within the last two years. Between the time of taking specimens for inoculations of rabbits and the first symptoms of a suggestive history of syphilis in these patients from one to forty years had elapsed. Out of a total of 500 cases of syphilis which were seen at the clinic, seventy-five, or exactly 15 per cent., were definitely latent. These investigations demonstrate the fact that those persons that give a history of an old syphilitic infection may harbor active virulent *Spirochæta pallida* for years, and this in the face of irregular negative Wassermann reactions or slight reactions only in the cholesterol antigen.

6. **Diagnosis of Gonorrhea in the Female by Staining Methods.**—Norris and Mickelberg give an analysis of 794 examinations from cases presenting clinical evidences of gonorrhea, drawing the following conclusions from their study: 1. When dealing with inflammatory lesions of the lower genital tract, it is advantageous to determine the type of infection present. 2. During the acute stage of the gonococcal infection the diagnosis is generally made without difficulty, as the clinical signs are more or less significant; if doubt exists, film preparations can be depended on. 3. Because of the certainty with which a positive diagnosis by staining methods can be made in the acute stage, and the many difficulties encountered in the chronic stage, it is especially important that the variety of infection present be ascertained during the acute stage. Unfortunately, many cases are not seen during the early stages, and a positive diagnosis is therefore arrived at only with difficulty. 4. During the chronic stage the clinical signs are less characteristic than during the acute stage. 5. The examination of film preparations is less satisfactory. 6. The presence of gonococci can be demonstrated by film preparations from every case if a sufficient number of correctly performed examinations are made. 7. A single negative smear examination is without significance. In such a case the chances of demonstrating gonococci are about three or five to one, according to the skill of the examiner. 8. Even under the most favorable circumstances, positive film examinations can be obtained in only a relatively small proportion of cases. 9. Unless safeguarded by the Gram stain or one of its modifications, smear examinations are valueless. 10. Even with Gram's stain, errors in diagnosis may occur. Differences in the thickness of the preparations, slight overstaining or understaining, etc., may lead to extremely misleading results. 11. Owing to the many difficulties surrounding this form of diagnosis, they believe that unless the test is performed by one experienced in the work its results are of no value, and are often actually misleading. 12. Clinical evidence is of far greater value than staining methods, even when the latter are performed by an expert. 13. From a practical standpoint, all cases should be regarded as of gonococcal origin until proved otherwise. 14. Without desiring to underrate the value of staining methods in diagnosis, it is nevertheless believed that their usefulness has been considerably overestimated.

The Lancet.

December 25, 1920, excix, 26.

1. The Addresses on the Poor-Law Infirmary. I. C. M. Wilson (opening the discussion); II. Poor-Law Infirmarys as Municipal Hospitals. Charles Buttler; III. The Future of the Poor-Law Infirmary from the Point of View of the General Hospital. E. W. Morris.
2. An Address on the March of Surgery: Lessons from America and Elsewhere. Sir William I. De C. Wheeler.
3. The Treatment of Large Defects in Peripheral Nerve Injuries. John S. B. Stopford.
4. A Theory of Cancer. T. C. Clare.
5. A Note on Blood Pressure During Intravenous Injection of Quinine. A. N. Brahmachari.
6. A Case of Complete Absence of the Cerebellum. Dorothy P. Priestley.
7. Addendum to the Value and Interpretation of Some Physiological Measurements. C. E. Heald and B. Thomson.

3. The Treatment of Large Defects in Peripheral Nerve Injuries.—John S. B. Stopford, in the course of his investigations for the Medical Research Council, had the opportunity of estimating the advantages and disadvantages of many of the operations which have been advocated at various times to cope with this problem of a "gap." He summarizes these observations as follows: 1. No clinical evidence of regeneration has been found after the flap operation (three patients), incomplete nerve crossing (seven patients), or bridging (thirty patients). 2. Definite and satisfactory regeneration has occurred after transplantation of the ulnar in front of the internal condyle of the humerus in all the twenty-nine patients examined. It seems probable that both the motor and sensory recovery will be more complete after this maneuver than in the series of simple end-to-end suture without displacement. 3. Normal recovery, as after end-to-end suture, has been seen in five out of six cases in which the two-stage operation was practised. 4. Defects may be treated with a reasonable prospect of success by the two-stage operation, or anterior displacement in the case of the ulnar, and consequently such futile procedures as the flap operation, lateral implantation, or bridging need not be considered.

5. A Note on Blood Pressure During Intravenous Injection of Quinine.—U. N. Brahmachari records seven observations made in order to determine the changes in blood pressure during intravenous injection of quinine. The injections were given in the apyrexial period, except in one case. He found that intravenous injection of quinine in concentrated solution (10 gr. in 20 c.c.) is generally followed by a fall in blood pressure and may be followed by a disappearance of the pulse for a few seconds. Intravenous injection of quinine in dilute solution (10 gr. in 200 c.c.) may be followed by a fall in blood pressure, but this fall is neither so sudden nor so great as in the case of concentrated solutions. In many cases there is no fall of blood pressure. The more slowly the injection is given the less is the chance of fall of blood pressure taking place. The diminished blood pressure may persist for twelve hours or more after the injection. Intravenous injection of quinine should always be given in very dilute form (1 in 300), and at the rate of 10 c.c. every minute. It should never be lightly undertaken. In concentrated solution intravenous injection of quinine may be followed by transient muscular twitchings and quickness of breathing. The injection should be given after making frequent and careful blood pressure observations during the operation. As in malarial fever, especially of the pernicious type, blood pressure is sometimes very low, intravenous injection of quinine should be given very slowly in a dilute form, guarded by administration of pituitrin or adrenalin and application of tight bandages over the extremities. If these precautions are taken the dangers of intravenous injection of quinine will be reduced to a minimum.

British Medical Journal.

December 25, 1920, II, 3130.

1. An Address on Stasis and the Prevention of Cancer. A. C. Jordan.
2. On Auto-haemagglutination: A Contribution to the Physiology and Pathology of the Blood. C. J. Bond.
3. Inflammation of the Nasal Accessory Sinuses from the General Physician and Surgeon's Point of View. Herbert Tilley.
4. The Army Medical Service and the Training of Newly Qualified Men. Colonel Joseph Griffiths.
5. The Teeth in the Recruit. Major J. P. Helliwell.
6. The Regimental Medical Officer. Colonel R. J. Blackham and Captain T. H. Blake.

1. An Address on Stasis and the Prevention of Cancer.—A. C. Jordan points to the dangers of neglected stasis and its far-reaching consequences, and draws attention to the various ways in which cancer is brought about by stasis. In conclusion he outlines the means that should be taken to prevent the occurrence of cancer: 1. Avoid stasis in general, with its attendant toxemia; in other words, keep all the tissues healthy. 2. Avoid sources of local irritation in the alimentary tract: (a) In the lips and mouth and tongue—avoid rough pipe stems, jagged teeth; abolish pyorrhea. (b) In the pharynx and larynx—eliminate chronic catarrh. (c) In the esophagus—swallow no large boluses of food; eat slowly; masticate thoroughly. (d) In the esophagus and stomach—avoid excess of strong irritant spices (for

example, mustard, pepper), and avoid extremes of heat and cold, especially drinks. (e) In the stomach and duodenum—prevent duodenal distention, pyloric spasm, and duodenal and pyloric congestion by abolishing the ileal stasis which causes them. (f) In the small intestine—prevent bacterial decomposition of the contents of the jejunum and ileum due to ileal stasis. (g) In the large intestine—prevent stagnation and decomposition of solid feces in any part; combat catarrh by local and general means. The writer holds that it is never too early in life to commence these measures. In infancy, even on the first day of life, see to proper feeding. If artificial feeding is necessary the milk should be given at regular intervals in measured amounts at the correct temperature; avoid overfilling the infant's stomach. Constipation in the infant is best combated by small doses of liquid paraffin. In childhood, provision should be made for warm clothing, good regular meals, with vitamins in the diet, an active day with a midday rest, and a long, restful night. During school and college years the same conditions should be continued, with a regulated open-air life, avoiding extremes of exhausting effort, and insisting on an early hour for retiring and a minimum of eight hours in bed. In patients who have not had the advantage of suitable conditions from infancy, the exact method to adopt must depend on the precise anatomical and pathological conditions which exist. If mechanical faults are present—for example, obstruction due to bands, or to cicatrices—these must be dealt with by surgical means. If the large intestine is already grievously damaged so that it is no longer capable of repair, nothing short of its removal will avail. In less extreme cases much good may be done by careful attention to the details of hygienic living. In addition, mechanical means should be taken for supporting unduly dependent portions of the bowel, and liquid paraffin given to ensure two or three soft evacuations daily, vaccines to overcome the toxemia due to bacterial action in the large and small intestines, while medicines are useful to aid digestion, combat catarrh, and lessen spasm at the sphincters. Much can be done to prevent cancer of the pelvic organs by means which prevent or relieve chronic intestinal stasis.

3. Inflammatory Lesions of the Nasal Accessory Sinuses.—Herbert Tilley considers this subject from the point of view of the general physician and surgeon. In dealing with a patient suffering from chronic inflammation of a nasal accessory sinus the practitioner is, as a rule, only too ready to fall into the error of accepting without question or thought the sufferer's own diagnosis of "chronic nasal catarrh," which both tacitly agree to be a more or less incurable inconvenience. This "diagnosis," in the writer's opinion, is responsible for the overlooking of by far the larger proportion of cases of chronic suppuration in the nasal accessory sinuses. As a result it only too frequently happens that the patient drifts on with his so-called "catarrh," the frequently associated headache becomes an additional burden, and the general health suffers in a multitude of ways; on the other hand, to his laundry and to the purveyor of "catarrh cures" he is a perpetual source of income. When the presence of an empyema has been established no time should be wasted with nasal washes, visits to the seaside, or the use of vaccines. There is only one cure for a suppurating cavity in bone, namely, to open it freely, remove the diseased pyogenic membrane, and establish free, permanent, and spontaneous drainage until the mucous membrane has returned to its normal condition. In all cases where an inflamed accessory nasal sinus is under suspicion, especially from the point of view of systemic symptoms, its contents should be submitted to a skilled bacteriologist, who would inform one of the nature and virulence of the secretion.

Western Medical Times.

December, 1920, XI, 6.

1. Smallpox and Vaccination: Lantern Slide Lecture. F. E. Stewart.
2. An Early Case of Carcinoma of the Vagina. William Neill, Jr.
3. Study of Man After Death. Arthur McDonald.
4. The Value of the "No Good"—Burns. Douglas H. Stewart.
5. Cervicitis, Ovarian Cyst. Robert T. Morris.
6. Death Penalty Encourages Lynching. Beverly Robinson.
5. Cervicitis, Ovarian Cyst.—Robert T. Morris, in this clinical discussion, emphasizes a point in technique

which makes for a good, strong abdominal wall at the site of the diastasis. By the sense of touch the rectus muscle is recognized on one side of the incision far away from the median line. Crowding it toward the midline with one hand allows one to incise its sheath and to expose the muscle tissue the entire length of the abdominal incision. The process is repeated on the other side. The separate planes are then all in sight, so that they may be nicely sutured in their respective positions. This he considers a pretty step in technique and one easily accomplished if one will only reach in and find the rectus muscle on each side and then crowd it up to the midline in such way that he may divide the sheath for nice anatomic repair.

La Presse Médicale.

November 10, 1920, xxviii, 82.

Intravenous Injections of Silicate of Soda.—Scheffler, Sartory, and Pellissier first discuss the occurrence of silica in the body. In a man of average bulk there should be over 6 grams more than the iron content. The ox contains less silica than the bull, hence there is believed to be some connection between silica content and virility, specially as the content in the cow approximates that of the ox. Aside from this aspect there is diminished silica in tuberculosis and arteriosclerosis. There is a so-called "silicious anemia," a term equivalent to a general deficit in the mineral. Absence means a reduced elimination of CO₂, and in consequence an abnormal production of toxin. Silica introduced within the body of a silica-deficient subject acts as an invigorator, and thus far has been given per os, the authors having been the first to substitute the intravenous method. Given in certain doses a retention is shown by examination of the urine. Doses of several grams per os over long periods have caused no toxic symptoms. The retention is only temporary, unless presumably there was an original shortage in the total body content. The authors in this paper are concerned chiefly with the practicability of intravenous exhibition. The dose tentatively reached was 0.01 to 0.015 milligram daily, at which limit there were no accidents, the amount being a sufficient dose. The only class of affections mentioned comprise general and cerebral arteriosclerosis, angina pectoris, and syphilis of the arteries, in which conditions the injections gave prompt relief.

La Presse Médicale.

November 17, 1920, xxviii, 84.

The Reducing Power of the Tissues.—Roger shows that albuminous substances in the tissues have reducing properties. He has experimented with brain substance, liver, kidney, muscle, etc. Pulp is made and diluted with water and tubes containing the emulsion are tested under different conditions with methylene blue and other test substances. With the loss of some of its oxygen the color of the reagent disappears. It is known that all living cells, animal and vegetable, are reducing agents. This could hardly be otherwise, for they require oxygen for their metabolism and appropriate it wherever found. But to assert this property and to demonstrate it and discover its laws are different subjects. The author's studies show that liver has the greatest reducing power of any of the tissues tested. Having demonstrated the reducing properties the author sought factors which may accelerate or retard reduction. Hydrocyanic acid was found to paralyze the function although this was not completely suppressed. Roger believes that these researches may pave the way for fresh discoveries. He begins his article with a quotation from Genesis concerning the breathing of air into the senseless clay at the creation of Adam, and remarks that the prescience of the ancients seems infallible.

La Presse Médicale.

November 27, 1920, xxviii, 87.

Incumbents of the Chair of Obstetrics at the University of Paris.—In Brindeau's opening lecture before the class in obstetrics he incidentally enumerates his

predecessors in the chair. At the close of the midwife period Puzos was demonstrator of obstetrics to the class of women and hence *ex officio* becomes a sort of predecessor to the accoucheurs. In 1794, after the close of the Revolution, the chair of theory of obstetrics was created, with Leroy as titular professor. Leroy's assistant, Baudeloque, later became famous. At the time this chair existed on paper only, and there was no clinical instruction until 1829, when a clinical chair was created. Deneux, the incumbent, held on until 1830, but there was not much doing and Paul Dubois was the first real pioneer in this field, ranking among the greatest French masters, greater even than his successor, Depaul, who held the chair until 1881. It was during the latter's administration that a special maternity hospital was erected. Depaul was succeeded by Pajot, and he in turn by Tarnier. The Maternity became known as the Tarnier clinic. An overflow clinic was eventually established at the Beaujon Hospital, and this was placed in charge of Ribemont-Dessaignes, who held it until 1919, when he was succeeded by the author. Tarnier is, of course, the great historical figure in French obstetrics, and at least seven of his pupils have continued his labors at the original Maternity clinic, including Budin, Pinard, Champetier de Ribes, Auvard, Bar and Bonnaire, in addition to Ribemont-Dessaignes already mentioned.

II Policlinico.

November, 1920, xxviii, 45.

A Form of Tick Fever.—Puntoni describes a form of epidemic acarissis due to the *Pediculoides ventricosus*, which from its being accompanied in part by fever and distributed through the handling of grain has been popularly known as "grain fever" and "grain itch." This affection seems to have been first described in 1850 in France on the occasion of an epidemic which was succeeded by others in 1866 and 1872. The acarissis in the case was first studied satisfactorily by Ducey in 1908, in connection with an epidemic in Italy. The author has studied an epidemic of the same character during the past fall. He finds it of the general type of a scabies of purely local and external character. The term of "tick fever" would, of course, be misleading, for in that type of infection the tick merely transmits a parasite of which it acts as host. The presence in grain of the acarissis in question is due to the fact that it is itself a parasite of certain insects which infest the grain. There seems to be requisite an incomplete desiccation of the latter with germination. The ova of certain insects which have been deposited in the grain are favored in regard to hatching. None of the insects in question are specified. The acarissis may be regarded as an occasional parasite of man which differs from the scabies acarissis in being unable to thrive well in the human integument. Prophylaxis is difficult, but treatment is simple—in fact, the rash soon subsides of itself. Transmission from man to man is not proven. A second article on the same subject by Pantaleoni comprises an account of a personal experience. The affection diffused very rapidly in a community and some of the child victims were interned in hospitals for measles or scarlatina. Fever in some of these children reached 40° C. The hands and forearms were the first to be attacked. Another name of the parasite is *Acarus tritici*.

Poisonous Beans.—Rosenfeld refers to the bean known as the *Phaseolus lunatus* which contains an active substance known as phaseolunatin. Through the action of enzymes the latter can split off hydrocyanic acid in association with acetone and glucose. In handling, the beans should be soaked for two days in water which should be frequently changed; then boiled for 3 hours and the water thrown away. The last fresh boiling water should contain a little vinegar. [The *Phaseolus lunatus* is none other than our well-known lima bean and under the same genus we find the common pole bean. Gray states that both species were imported into the United States for cultivation as a food supply. Nothing is said of any toxic properties.]—*Wiener klinische Wochenschrift*.

Book Reviews.

SHORT TALKS ON PERSONAL AND COMMUNITY HEALTH.

By LOUIS LEHRFELD, A.M. M.D., Agent for the Prevention of Disease, Department of Public Health, Philadelphia, with an Introduction by WILMER KRUSEN, M.D., LL.D., Director (1916-1919) Department of Public Health and Charities, Philadelphia. Philadelphia: F. A. Davis Company, 1920.

The number of individual subjects discussed is over 100, grouped under seven sections which deal respectively with prevention of preventable disease, health activities of spring and summer, hygiene of holidays, food and water, infants and children, first aid and miscellaneous. In the last named the most varied topics are briefly discussed as occupation and disease, cancer, sleep, noise, barber shops, coal gas, vacant lots, foot strain, common drinking cups, swimming pools and so on through many other present day topics. The brevity and alternation of subjects obviate the possibility of dryness and theorizing, so that whoever begins the book will be likely to maintain his interest until he completes it. He can also begin at any page and read in either direction without losing anything.

ELECTRIC IONIZATION. A PRACTICAL INTRODUCTION TO ITS USE IN MEDICINE AND SURGERY. By A. R. FRIEL, M.A., M.D. (Dub.), F.R.C.S.I., Aural Specialist, Ministry of Pensions, London District, Late Physician for the Throat, Nose and Ear, General Hospital, Johannesburg. New York: William Wood and Company, 1920.

The author in this booklet of 78 pages gives credit to Professor Leduc as the originator of ionic therapy. The four chapters are devoted to the electric current in its relation to ionization, the equipment, the effects of different ions and the details of treatment. There are 25 illustrations. The chapter on treatment occupies nearly half the book. Aside from numerous references to Leduc the volume is a personal one although under certain diseases—as gynecological—other authorities are quoted as if the author had been without personal experience. Thus in gynecology he quotes Sloan and Cleaves and in pyorrhea Sturridge. He also makes citations from the textbook of Lewis Jones. The author is a recognized otologist and bacteriologist, neither of which branches leads logically to ionic surgery so that the production of a one-man book on electric ionization strikes us as an unusual but none the less creditable performance.

HANDBOOK OF DISEASES OF THE NOSE, THROAT, AND EAR. For Students and Practitioners. By W. S. SYME, M.D., F.R.F.P. and S.G., F.R.S.E., Surgeon to the Ear, Nose and Throat Hospital, Glasgow. New York: William Wood and Company, 1920.

This volume of pocket size contains 329 pages with 26 illustrations. There are nine sections, as follows: the nose, nasal accessory sinuses, nasopharynx, pharynx, larynx, syphilis in the preceding localities, direct examination, the ear, and x-ray examination. For some unknown reason there is no reference to malignant disease, despite the great advances of recent years in our knowledge of these subjects. We hope the author will rectify this omission in his second edition. In all other respects we have nothing but praise for the book.

THE MEDICAL CLINICS OF NORTH AMERICA. Published Bi-Monthly by W. B. Saunders Company, Philadelphia and London. VOLUME III. NUMBER 6. May 1920. Chicago Number. VOLUME IV. NUMBER 1. July 1920. New York Number. VOLUME IV. NUMBER 2. September 1920, Boston Number.

The Chicago number contains twenty-three presentations from the clinics of eighteen physicians in that city. Dr. Dyson does valuable service in emphasizing the desirability of determining the actual count of cells in the urine in cases of pyelitis. Williamson again demonstrates the fact that pernicious anemia can never be considered cured for recurrences have been reported after very long periods of time. Strouse discusses five cases of angioneurotic edema and urticaria and points out the danger from the presence of abdominal symptoms which may simulate acute surgical conditions.

In the New York number nineteen medical teachers present interesting and instructive cases. Foster's discussion of nephritis is compact and yet quite complete. He has touched most of the features of that disease which bother not only the student but also many practitioners. Mosenthal discusses the estimation of renal function and Cecil the prevention and serum treatment of lobar pneumonia, both in very interesting talks. Kahn has an article upon the clinical significance of acidosis in which he presents the chemistry of the subject and points out the several types of the condition. He is opposed to the administration of alkalis in the acidosis of diabetes but his argument against them does not seem to us to be very firmly founded.

In the Boston number nineteen clinics are again represented. Paul D. White and W. D. Reid point out the difficulties in making the diagnosis of mitral stenosis and the means by which they may best be overcome. H. A. Nissen presents an analytic study of 117 cases of cirrhosis of the liver showing jaundice and ascites. J. I. Grover contributes a careful study of enuresis.

The above-mentioned articles seem to stand out as deserving especial notice but they are representative of the sort of studies that one may expect to find in this publication. All of the contributions are of interest and many contain valuable matter which can be appreciated only after a careful reading. This journal is now in its fourth volume and is fulfilling amply the promises which were made in its behalf at its inception.

REFRACTION AND MOTILITY OF THE EYE WITH CHAPTERS ON COLOR BLINDNESS AND THE FIELD OF VISION. By ELLIS M. ALGER, M.D., F.A.C.S., Professor of Ophthalmology, New York Post-Graduate School. Second Revised Edition. Philadelphia: F. A. Davis Company, 1920.

This volume is a *bona fide* second edition which appears ten years after the first, several new printings in the interim counting only as the first edition. The number of pages is slightly increased and this is true of the illustrations. The chapters are the same, save the addition of an eighteenth on ocular malingering, which comprises 12 pages and is of much interest. In his preface to the second edition the author deplores the fact that Refraction is believed by many general practitioners to be almost an exact science. The absurdity of such an idea is best shown by the disparity in opinion often seen among experts.

MANUEL D'URETHROSCOPIE. Par ROBERT HENRY et ANDRÉ DEMONCHY. Préface du DR. MARION. Paris: Masson et Cie., 1920.

This work comprises 116 pages with 56 text figures and 30 colored plates. It suggests a continuation of the atlas of cystoscopy published in 1914 by Marion, Heitz-Boyer and Germain, but the authors quote extensively from the writings of Luys on gonorrhea and of Goldschmidt on irritations of Luys on gonorrhea and of Goldschmidt on irritations of Luys on gonorrhea, while the apparatus of Buerger and McCarthy of New York are fully dealt with. Demonchy, one of the authors gives much space to his own apparatus and technique and concludes that with the latter and the instrument of McCarthy all requirements of cystourethroscopy can be fulfilled. Although the book is pre-eminently diagnostic in scope there is a short section on treatment as carried out by means of the urethroscope.

DIE THERAPIE DER HAUT- UND VENERISCHEN KRANKHEITEN mit besonderer Berücksichtigung der Behandlungstechnik für Aerzte und Studierende. Von Prof. Dr. J. SCHAFFER. Fourth Edition. Berlin and Vienna: Urban & Schwarzenberg, 1919.

The first edition of this work appeared in 1915 and the rapid succession of new editions has been utilized to incorporate current progress. The work comprises two parts devoted respectively to cutaneous and venereal diseases. The number of pages is nearly 500, of which 112 are devoted to the general principles of treatment of skin diseases and about 200 to the treatment of individual dermatoses. Some 60 pages are given to the management of gonorrhea and 80 to the treatment of syphilis. There are 87 illustrations. The volume is eminently practical and rich in prescriptions and technical details. To such a degree are these in evidence that the work is almost a formulary of treatment.

Society Reports.

THE MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, Held October 25, 1920.

THE PRESIDENT, CHARLES K. CHETWOOD, IN THE CHAIR.

Symposium on Blood Transfusion.

General Introduction of the Subject.—Dr. R. OTTENBERG made this presentation in which he said that blood transfusion had been introduced shortly after the discovery of the circulation of the blood by Harvey. It was taken up with enthusiasm at that time, but as sudden deaths occurred again and again it was abandoned. From that time until the present blood transfusion had been practised from time to time and after a short enthusiasm fell into disfavor because of the many accidents that followed its use. We had now discovered the reasons for these accidents and were able to avoid them in practically every case. Dr. Ottenberg said the object of his talk was to popularize blood transfusion, which was regarded by many physicians as a desperate measure. It should not be so regarded. The first contact of the average practitioner with blood transfusion was when it was suggested by a consultant and the practitioner then called in a so-called transfusion specialist. Under such circumstances the patient was often in extremis. In other words, the general practitioner did not recognize the utility of early transfusion before the patient became desperately sick. The first question the doctor asked when brought into contact with transfusion was "Is it dangerous?" It used to be, as was shown by the many accidents that formerly occurred. It had now been made relatively safe by the tests carried out in the selection of the donor. The definite source of danger was incompatibility between the blood of the patient and that of the donor. The work of Landsteiner in 1901 and of others showed that all human beings belonged to one of four groups, that the blood of all individuals belonging to the same group was compatible, while the blood of two individuals belonging to different groups was incompatible. The incompatibility consisted in agglutination or hemolysis, or both, of the cells of one individual by the serum of the other. Of these the danger of hemolysis was greater than that of agglutination. The making of the tests required considerable care, skill, and knowledge. The Wassermann test should also be made in every case. The agglutination and hemolysis tests had been so simplified that the expert could tell in ten minutes to which group a specimen of blood belonged. Laboratories also kept a list of donors with whom they could get in touch on short notice. A specimen of blood was obtained from the patient by puncturing the finger and withdrawing five drops of blood into fifteen drops of three per cent. sodium citrate solution. This was then sent to the laboratory and the proper donor could be chosen within one-half hour. A second question which arose was whether accidents could happen even when tests were made. Dr. Ottenberg said he knew personally of three such accidents. One was due to a misunderstanding about the donor's group; two were unexplained; one of these occurred in a post partum sepsis and the other was an embolism in a case of phlebitis. Lindemann reported three accidents, two of which were due to mistakes in tests. A third question was what to do in a case which was so urgent that there was no time in which to perform the tests. Under such circumstances one was justified in going ahead and doing the transfusion, as the risk was small. Crile, in 100 cases, reported two deaths due to hemolysis, and Bernheim collected 800 cases in which hemolysis occurred 16 times with four deaths. Karsner calculated that there was no danger in over 60 per cent. of the cases. In 1909 Dr. Ottenberg had explained the safety factors and Moss had shown that there were antihemolytic substances in the blood which offered protection against hemolysis. Though hemolysis might not be fatal it interfered with the good results of transfusion. There was danger of the patient's getting a chill following transfusion in prob-

ably about 20 per cent. of the cases, and this was accompanied by a rise in temperature. This was a danger in greatly exhausted or exsanguinated patients. Another danger was that of blocking the kidneys. One case of suppression of urine following blood transfusion had come under his observation and a case was reported in the literature in which the patient died. The speaker called attention to the views expressed by Dr. Libman and himself in reference to the citrate method, stating that there seemed to be no contraindication to the use of the citrate method in hemorrhagic cases, the only condition in which some objections might be raised to its use was in hemophilia, and they believed that caution should be used in employing the citrate method in cases of renal disease. A fourth question was who would be the donor. Should the donor be a member of the family or a paid donor? In all cases in which it was possible one should take a member of the patient's family, but care should be taken not to select a nervous donor because his blood pressure might fall at the critical moment and transfusion become impossible. A donor should be selected who had a vein into which one could introduce a large needle. It was not necessary to make any scar and the donor could return to work the following day. There was no danger to the donor. As to how often a person could act as donor, he knew of several men who had acted as donors ten times, and others fifteen or twenty times. A person should not act as donor oftener than once in three months and perhaps six months. The hemoglobin should be estimated and the Wassermann test made each time before the transfusion was done, as there was a possibility that the donor might have contracted syphilis since the last transfusion. As to the amount of blood which could be taken, it was from one pint to one quart. Five hundred cubic centimeters would not harm a donor. Of that he could be assured. They had learned that it was not necessary to have extremely large amounts of blood, as frequently a lesser amount would have very beneficial results. Another question asked was whether the procedure was going to be painful. One should cocaineize the skin, but should never use adrenalin, as that would contract the veins. It was rarely necessary to cut down on the vein, though perhaps that was done oftener than it should be. With the introduction of the citrate method almost any doctor should be able to do a blood transfusion. It was more difficult to perform transfusion in infants from one to three years of age. The question of how much blood should be transfused depended upon how much the patient needed and how much the donor could spare. In acute hemorrhage the patient needed a great deal, but generally it was not necessary to give him as much as he had lost. In the chronic anemias one had to be guided more accurately. It was desirable to raise the hemoglobin as much as possible. Dr. Ottenberg gave a mathematical formula by which one could calculate the rise in hemoglobin that could be expected and showed that it was not so great as often supposed. In a typical instance cited in which the hemoglobin of the patient was 50 per cent. and that of the donor 100 per cent., the rise in hemoglobin had been only 8 per cent. However, as the result of a 1000 c.c. transfusion in the course of the subsequent days the percentage of hemoglobin was likely to go somewhat higher. The Mayos had experimented with the preparation of the patient for transfusion by having both patient and donor fast. In chronic anemias it seemed wise to have the patient somewhat dried out before transfusion; this was accomplished by giving the Karrel diet or strictly limiting the intake of fluids for a few days. Dr. Ottenberg described the advantage of the citrate method, namely, its simplicity. The Lindemann and Unger methods possessed the advantage that their use was less likely to be followed by chills. As to whether the patient needed after-care, someone must stay with him in case of chill. He should be kept warm and stimulants and hot water bags should be in readiness.

Indications for Blood Transfusion.—Dr. R. E. STERSON discussed this phase of the subject. He stated that a few years ago the enumeration of those conditions in which blood transfusion was indicated would have been an exceedingly easy task. But

in less than a decade this measure had developed from a complicated surgical operation, employed only in extremis, and then rarely, to an every-day procedure, the efficacy of which had been proven in many and varying conditions. In traumatic and post-operative hemorrhage blood transfusion had proven invaluable. In hemorrhage due to pathological conditions, as gastric ulcer, varicosities accompanying cirrhosis of the liver, typhoid ulceration, etc., transfusion was strongly indicated. There was no danger of increasing blood pressure in such conditions if proper judgment were used. Fatalities in obstetrical cases and in hemorrhage of the new born were frequently prevented by blood transfusion. It was also indicated in diseases of the blood, bone marrow, and lymphoid tissue, among which might be mentioned pernicious anemia, aplastic anemia, Von Jaksch's anemia, leucemia, chlorosis, secondary anemia, hemophilia, and purpura. Leucemia was unaffected by blood transfusion except as a very limited temporary measure of prolonging life. In hemophilia it was a temporary specific. Some cases remained normal for several years following transfusion, while others required treatment every few months. Transfusion had proven of value in a limited way in tuberculosis, syphilis, leprosy, influenza, and typhoid fever. There were, of course, only certain instances of these conditions in which transfusion was indicated. Lindemann's work in tuberculosis had never been published, but his results in some cases were truly remarkable. Transfusion was indicated in any severe purpura, but the writer's experience with those of unknown etiology, whether in childhood or old age, had not been encouraging. The most brilliant success of blood transfusion had been in combating sepsis. In no other condition had their results been so uniformly successful. Citrated blood did not act so favorably in the severe anemias as the undiluted whole blood with which they had worked. They had treated successfully cases in which sepsis was secondary to some initial focus such as otitis media, usually complicated with mastoiditis and jugular thrombosis. He could cite seven such cases with positive blood cultures of *Streptococcus hemolyticus* with seven recoveries. In cases showing the *Streptococcus viridans* and the *Streptococcus albus* in the blood cultures their results had been equally good, and also in cases which came clinically in this category in which the cultures were not taken or were sterile. Lastly the writer mentioned a group of miscellaneous conditions in which blood transfusion might be valuable, among which were malnutrition of infancy and childhood, gas poisoning, delayed coagulation time of the blood in jaundice, tropical sprue, and certain cases of infection with animal parasites in which the anemia might be extreme, as *Bothriocephalus latus* infection. Two severe cases of acne and psoriasis had been observed to clear up during transfusion.

Dr. ROBERT EMERY BRENNAN spoke of the technique of blood transfusion. He said that Carrell's technique was so difficult to acquire that its universal employment was quite impossible. The profession, however, could not very well neglect such a life-saving operation and looked for ways which would be easier of execution and prove successful at the same time. The inventions of Crile, Brewer, and Elsberg assisted materially in the simplification of the technique. Still the operation remained in the hands of a few surgeons, those who acquired the necessary dexterity by much study. By taking it out of the hands of a few expert technicians and putting it into the hands of anyone in the profession who was well grounded in the fundamentals of surgery, Dr. Lindemann had done a service for the profession for which they owed him a debt of gratitude. There were a great many ingeniously devised apparatuses on the market, well constructed, and working with precision, but why overburden our present superfluous armamentarium with a special apparatus when, as he had mentioned before, anyone with an idea of surgical technique could obtain the same results any time or any place with no special apparatus, but with the use of two 20 c.c. syringes of the Record type and two needles or special cannulae, if one preferred. Simplicity, as we knew, was the keynote of success in anything that was undertaken, and for that reason the complicated and difficult methods of blood transfusion were not universally employed by the profession. It occurred, there-

fore, to the writer to employ the following procedure, which he had been doing for years without a failure. He used two 20 c.c. Record syringes and two needles or cannulae of the same gauge (No. 13 or 14 in adults; in children one would have to resort to a smaller gauge, about No. 18 or 19). Blunting the sharp end of a long hypodermic needle would do in an emergency, the writer having had to use this procedure on many occasions. In addition, one required one-half of one per cent. novocaine, a scalpel, a pair of thumb forceps without teeth, a small rubber tourniquet, sterile mineral oil, and cold saline solution. The above-mentioned articles were sterilized by boiling, after which the syringes and cannulae were lubricated with the sterile oil. The donor and recipient were placed side by side in the prone position on tables and the arms to be used in the operation made to rest extended on some sort of platform between them, and the customary routine sterilization was carried out. An injection of the novocaine solution was made over the most visible vein, and with the point of a scalpel a small incision, not more than one-quarter of an inch in length, was made down to the vein of either donor or recipient; it was immaterial which arm one took first; then with the forceps the exposed vein was delivered and encircled with zero plain catgut distally and proximally. That manipulation being finished, the same procedure was carried out on the other subject. The tourniquet was now applied to the donor's arm to compress the veins slightly, not to interfere with the arterial circulation, however, and using the catgut ligatures as tractors the vein was elevated and an opening large enough to admit the needle or cannula made in it with the scalpel; the ligatures were then tied. While the assistant held his fingers over the end of the cannula to prevent the escape of blood, the operator inserted the remaining needle or cannula in the vein of the donor so the point was toward the hand. By working rapidly these details took very little time. The syringe was then applied to the donor's cannula needle, while the donor opened and closed his fist at the operator's command, this latter maneuver facilitating the filling of the syringe, which when filled was detached. The assistant immediately placed his finger over the cannula to prevent loss of blood and at the same time released his finger from the opening in the cannula of the recipient, while the operator attached the syringe and emptied it into the recipient. This maneuver of aspiration and injection, was kept up continuously until the piston of the syringe began to work hard; this syringe was then discarded and the second syringe used in the same way without interruption. In the meantime the previously used syringe was being washed in cold saline and lubricated with oil ready for future use, if necessary. With a good donor, the speaker said he had given as much as 500 c.c. with one syringe. While it was not really necessary, he had used for years small pieces of rubber tubing about 1½ inches in length, between syringe and cannula, the advantages thereby attained being that the assistant could easily compress either tubing at the proper moment without bringing his finger in contact with the blood stream or disturbing the position of the cannula. Legitimate criticism would arise as to the necessity of making an incision in the vein; the writer was cognizant of the fact that the cannula could often be introduced into the vein without previous incision, but with the latter method one often failed to enter the vein properly, and hematoma occurred, clotting took place, and after losing much valuable time, incision was at last resorted to. The advantages of the incision were that there were no attempts at repeated punctures to enter the veins, causing annoyance and embarrassment to the operator and much pain and uneasiness to the subjects. The disadvantage claimed was that one destroyed the vein for future use, but the speaker had often used the same vein by entering the recipient's vein a little higher and the donor's vein at a little lower level than that of previous incisions. Furthermore, there were numerous other veins in this region that could be utilized. There was no pain or distress attached to the operation, unless one worked too rapidly, then the recipient complained of inability to breathe or began to cough; there was a feeling of warmth and a few had complained of backache. When sufficient blood had been given the recipient, the can-

nulae were removed from the veins and a small strip of sterile adhesive plaster was sufficient to coapt the ends of the incision, or one plain catgut suture would answer the same purpose. The operation of blood transfusion was a life-saving procedure and one which in an emergency every surgeon should be prepared to perform with the same facility and ease as he was prepared to do a tracheotomy. This method eliminated costly and unnecessary apparatus and would never fail in competent hands. In closing, the speaker said he wished again to emphasize the advantages of minimizing the use of special instruments and apparatus and thereby at the same time getting the maximum results.

Dr. RICHARD LEWISOHN discussed the technique of blood transfusion. He stated that there was hardly a subject in modern medicine whose development was as purely American in every detail as that of blood transfusion. He traced the important steps in the improvement in the technique of transfusion that had been made in this country, which showed that in the short period of about fifteen years the technique of blood transfusion had been simplified to such a degree that it was now one of the simplest and easiest methods in the armamentarium of the physician. Dr. LewisoHN gave a brief review of the different so-called indirect methods of blood transfusion now in use. The direct methods (artery to vein anastomosis or vein to vein anastomosis, either by direct suture or by the use of some ingenious apparatus as, for instance, the Elsberg cannula) were of historic interest only. They were practically out of use at the present time owing to the difficulties of the technique and the time required for their performance. The indirect methods might be classified in a general way in four groups: (1) The Lindemann syringe cannula method; (2) the stop-cock and valve methods of Unger, Miller, and others; (3) the use of paraffined glass tubes, as originally advocated by Kimpton and Brown, and later slightly improved by Percy and Vincent, and (4) the sodium citrate method. These four groups of indirect methods of blood transfusion were comparatively simple and could be used with safety. There could be no doubt that the sodium citrate method was by far the most popular of these methods. This was explained by the fact that the technique of the sodium citrate method was much more simple than any of the other methods which he had just described. The chills which had been mentioned as more frequent with the citrate method, though unpleasant for the patient, were harmless and did not interfere with the clinical effects of the transfusion. According to the speaker's personal observation in about 500 cases of different diseases, the citrate method was just as effectual as any other method in any pathological condition. It was only fair, however, to state that some clinicians preferred the uncitrated blood when they were dealing with diseases of the blood, such as pernicious anemia, hemophilia, etc. The great efficiency of the sodium citrate method of blood transfusion in the treatment of hemorrhage and shock was best shown by the fact that this method was adopted as the method of choice by the A. E. F. in the recent war.

Dr. HAROLD HAYS said that in attempting to discuss the subject of blood transfusion he felt like an amateur, and his only reason for doing so was because he probably represented the large majority of men present tonight. He had had the opportunity of seeing the various methods used, the Lindemann, the LewisoHN or citrate method, the Unger method, etc. When Lindemann was doing his work most of us had an idea that blood transfusion was an especially difficult and technical procedure. Now he could see that it was something quite different. The technique of the procedure itself was very simple, but it was absolutely necessary to select the proper donor. Blood transfusion had proven itself most valuable in stopping hemorrhage and in sepsis from sinus thrombosis and in thrombophlebitis. Though all methods might be available in cases of hemorrhage, the citrate method was probably the simplest and easiest. This was undoubtedly true, for this method had been selected and employed in thousands of cases abroad in the A. E. F. in preference to other methods. Citrated blood ready for transfusion had been kept at the base hospitals for periods varying from four to six weeks before it was taken to the front

and used, and it was shown that it could be perfectly preserved and successfully used at the end of this time. It had been shown that it was a great advantage to have this citrated blood available and to be sure that it was from the proper donor. It was stated that there were cases of sinus thrombosis with positive blood cultures in which transfusion was all that was necessary to eliminate the bacteria from the blood. He, however, would hesitate to have a patient transfused without first operating upon the sinus and removing the focus of infection, for even with the bacteria eliminated there was a possibility that a clot of blood might form, which later on would break down and cause trouble. However, there were cases of sinus thrombosis in which the patient did not do well even though the bacteria were eliminated from the blood. If there was severe sepsis an operation should be done for sinus thrombosis and a ligation made of the jugular vein; then if a blood transfusion was done the results would be so marked within twenty-four hours that there could be no doubt that transfusion was the ideal method for restoring vitality. There were various ways of treating the constitutional condition following infection which had lowered the vitality, but blood transfusion was a quick and effective method and he did not see why it should not be applied in constitutional conditions with lowered vitality. As the result of advances in our surgical and pathological knowledge blood transfusion had come to where no one need hesitate to use it whether in hemorrhage or sepsis or to counteract lowered vitality, where it was certain to give quicker and more satisfactory results than were obtained by other recuperative methods.

Dr. CHARLES GORDON HEYD asserted that transfusion was no longer a question of technique of operator, or of form of apparatus. It had become such an essentially simple procedure that any physician who gave salvarsan or who was capable of giving intravenous saline infusion was also capable of performing a transfusion. The widespread acceptance of transfusion was due to the fact that in its present form it was an operation devoid of danger, of the utmost simplicity, and requiring no elaborate preparation or paraphernalia. Looking at transfusion in its broadest aspect we had essentially an homologous transplantation of living tissue. The transfusion of blood subserved three main purposes—First, a mechanical function when it replaced (volume for volume) oxygen-carrying fluid in acute hemorrhage; secondly, the chemical function where it stimulated blood forming organs and provided some chemical stimulation for the proper or better functioning of the body, as in the pernicious and secondary anemias; and thirdly, a biotic function where it gave to the recipient some living stimulation, hence the value of transfusion in toxic and infective conditions—for example, in prolonged, suppurative processes. It seemed that there was a definite time for doing a transfusion. It was unfortunately true that transfusion was often reserved until too late or was done for conditions where there was no possible hope of any benefit. He had observed the activation of a gastric hemorrhage following a transfusion and become careful about transfusing immediately upon the cessation of the bleeding. It might be accepted, however, as a general proposition, that any internal hemorrhage should receive immediate attention upon its first appearance and its cause and possibilities accurately determined, for with a transfusion of moderate amount the blood pressure was not materially raised and the increasing agglutinating power given to the recipient more than offset the possibility of activating the bleeding. He had observed that the blood of different donors acted differently in agglutinating properties, and a hemorrhage that had not been completely arrested by one donor might be promptly arrested upon changing donors. So far as accidents were concerned, with proper group testing he had found them to be practically non-existent. He had on one occasion given the blood of the wrong group to the recipient and had been quite surprised to have no untoward results. There was a group of cases that gave some apprehension in which with normal laboratory tests there had been a slight degree of hemolysis; for example, in the case of a patient with pernicious anemia a donor was obtained whose blood by test was absolutely compatible with the patient's. A transfusion

was attempted by the syringe method and upon introducing 8 c.c. of the donor's blood into the circulation of the recipient, the patient complained of headache, vertigo, and nausea, and pronounced projectile vomiting occurred with the development of pain in the back and along the spine. The transfusion was stopped and the operation postponed for a future day. Three weeks later another donor was obtained, the hemolysis and agglutination tests were made, and the bloods found to be perfectly compatible. In this case after giving 90 c.c. of blood by the citrate method, a pronounced picture of hemolysis occurred and again transfusion was stopped. About a month later the operation was repeated, and this time about 450 c.c. of citrated blood was transfused. The patient was returned to the ward in excellent condition. That afternoon she had a rather pronounced chill, temperature 104° F., respirations 30, pulse almost imperceptible, skin cold and clammy, and passed bloody urine. She remained in desperate condition for about two days and then slowly improved. The patient had a previous subicteroid tint which was heightened during the two days succeeding the transfusion. Apparently there was some peculiar chemical property in her blood, due probably to the toxic process that might have been the underlying factor in her pernicious anemia, which was responsible for the hemolysis. So far as blood transfusion was concerned he had yet to see a case of acute sepsis that had in any way been materially benefited by transfusion. On the contrary, he believed that some cases had been made worse. In chronic sepsis—chronic osteomyelitis, chronic bone disease, chronic renal suppuration—he had observed the most marked benefit by serial transfusions. In a chronic *Streptococcus viridans* septicemia, by using an immune donor's blood, he had felt that better results were obtained than with blood from an ordinary donor. He had observed in cholemia or the intense jaundice of obstructive conditions of the common duct that a single transfusion before operation was of much more value than when given after operation, and it had always been a point with him to reduce the patient's coagulation time to seven minutes or less by repeated transfusions. He had not hesitated to give transfusion without preliminary laboratory tests, as he felt that the inaugural symptoms of hemolysis were so distinct that the blood transfusions could be terminated sufficiently early to prevent a mortality from hemolysis. The conclusions that he had come to were: "(1) Transfuse early. (2) Transfuse in moderate amounts, not massive doses. (3) When in doubt transfuse."

Dr. E. LIBMAN said that it might be of interest to know that Dr. Ottenberg had played an important role in the history of blood transfusion. When an interne at the Lenox Hill Hospital he had performed two transfusions with a cannula which he had devised. Had he published his work at that time he would have been considered one of the pioneers in this field. Dr. Libman agreed with Dr. Lewisohn that the credit for developing and perfecting practical methods for blood transfusion belonged to America. He thought, however, that a little credit was due to South America because of the work Dr. Agote had begun in connection with the question of citrate transfusion. With reference to selecting donors, Dr. Libman said that when simply picking a donor according to his group without actually testing his blood with the blood of the patient, reactions might occur. This held particularly true in cases of carcinoma, anemias or fevers. Furthermore, there were other points besides hemolysis that came into consideration. It was important to examine the donor from head to foot, for it was possible that the Wassermann might be negative and the patient have a chancre. There should be a contract between the donor and the family of the recipient. As to the value of transfusion in acute hemorrhage there was no doubt. In secondary anemia transfusion was of value even though the patient would eventually recover without it. Such patients would recover much more rapidly with transfusion. Hospitals objected to the expense of blood transfusion in cases of pernicious anemia and secondary anemia—unless the secondary anemia were very profound. They did not realize that when transfusions were done in such cases the time spent in the hospital was much decreased, and the hospital actually saved money. As for the anemias which were characterized

by having an index over 1 (the so-called hyperchromic type of anemia), there were other conditions besides the so-called pernicious anemia. Dr. Libman said that he did not have sufficient experience to give an opinion concerning the ultimate results of transfusions performed for pernicious anemia due to syphilis. In cases of the severe form of anemia in pregnancy, transfusion was of considerable value. In such cases, although nucleated erythrocytes and macrocytes were found, and the index was over 0.1, complete recovery could occur. In cases of multiple bone tumor, the index might be nearly 1 or above 1. The clinical picture might resemble that of a true pernicious anemia. In such cases transfusion had no results. In so-called essential or primary anemia the results were very variable. Minot and Lee had made a study of this subject, which was probably more thorough than any other study. From their observations it appeared that in the type of pernicious anemia which had a tendency to have remissions, the results were better than in the type in which remissions did not occur. Dr. Libman said that he had had an extensive experience with transfusion in cases of primary anemia and some of the results had been quite remarkable, very long remissions at times being obtained. Not all the symptoms were removed, but only those due to anemia, such as fever, gastric symptoms, asthenia, sleeplessness, and cardiac weakness. The cases in which transfusion was indicated were those having a hemoglobin of 60 per cent. or less. If two transfusions did not give results it was not advisable to continue them. It had been found that sometimes transfusion gave a better result after a splenectomy had been performed. Dr. Libman had himself made some observations. His usual method was to use transfusions first, and when they no longer gave a definite result, to have a splenectomy performed, if there were no contraindications to the procedure. After splenectomy had been performed, transfusions were again used as long as they gave a definite result. Dr. Libman had found that the gastric symptoms in cases of primary anemia were often relieved when the hemoglobin was raised by means of transfusions, even though the hydrochloric acid never returned. In cases of leucemia transfusion had acted as a means of palliation for gastric symptoms due to an accompanying severe anemia. In Hodgkin's disease, and cases of neoplasm in which a severe anemia was present and it was intended to use radium or intensive x-ray treatment, it had been found wise to improve the condition of the patient by a preliminary transfusion. In infections, transfusion simply helped to strengthen the patient and gave him a better chance to find the infection. As regards the use of transfusion for the cure of mastoid disease and sinus thrombosis, it was much more important to deal surgically with the local disease and to use transfusions only if the patient became debilitated or if an anemia had developed. If a lateral sinus thrombosis was properly surgically dealt with, the bacteria as a rule disappeared from the blood very promptly and there was no occasion to use transfusions for a bactericidal purpose which the blood and the organs of the patient were already subserving.

Dr. EDWARD W. PETERSON said that blood as a therapeutic agent was used (1) as a tissue transplant in simple hemorrhage; (2) for its hemostatic powers in the control of various types of pathological hemorrhage; (3) as a stimulant to the blood making system in anemia, both primary and secondary; and (4) in selected instances of toxemia and sepsis it might exert feeble antitoxic and bactericidal properties. Given as a tissue transplant in acute post-hemorrhagic anemia it acted as a specific and would immediately resuscitate a dying patient. In pathological hemorrhage it was the most valuable agent at our command and would often save lives after the failure of all other measures. Likewise in treating both primary and secondary anemia, blood had proved to be our best hematopoietic stimulant. He agreed with Doctors Libman and Heyd that blood transfusion accomplished but little in overcoming acute sepsis. He felt that transfusion was indicated in selected instances, after the sepsis had exhausted itself, to restore the vitality of the patient. It often did good in the low-grade forms of chronic sepsis. His belief was that the benefit derived from blood in these cases was due, not so much to the antitoxic or bacteri-

cidal powers, as to its action in overcoming the associated anemia. Dr. Peterson stated that he had performed a large number of blood transfusions, using both unmodified and citrated blood. At one time he felt that the results from the two methods were about equal. At present, however, he wished to state his preference for unmodified blood in the treatment of anemia not due to hemorrhage, and in the management of the various types of pathological bleeding.

THE PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, Held December 8, 1920.

THE PRESIDENT, DR. HERMAN B. ALLYN, IN THE CHAIR.
Symposium on Control of Tuberculosis in Pennsylvania.

Summary of the Work of the Philadelphia Health Council and Tuberculosis Committee.—Dr. JOHN BLAIR SPENCER contributed this paper in which it was stated that a group of public spirited doctors and laymen had met in Philadelphia in 1892 and organized the Pa. Society for the Prevention of Tuberculosis, the first organization of its kind. Out of this Society had grown the present Philadelphia Health Council and Tuberculosis Committee and a great nation wide organization, the National Tuberculosis Association, with 1500 branches throughout the country. The fight against tuberculosis had met with increasing public spirit. In 1904 the total sum of money spent throughout the country in the fight against tuberculosis was \$100. The returns on the national seal sale in 1919 amounted to more than four and a half millions of dollars. The impressive period of childhood was the logical time to establish good health habits, so that greater emphasis was put on public health work among children. This work was done both in school and in organized child groups outside of school. The work in schools included: helping the teachers to popularize the teaching of health habits, talks to emphasize the value of keeping the health rules, motion pictures, plays and pageants, posters, exhibits, weighing and measuring the school children and nutrition work with the open air and the open window classes. Talks emphasizing the simple principles of health were given by staff members either at the morning assemblies or to separate class rooms. Because of the large number of children so much under weight, it was deemed necessary to establish a home where they could be built up and get intensive health education. A building at Brown's Farms had been given for this use. During August and September 141 children received from 1 to 3 weeks at the farm. Wholesome food with plenty of milk, play in the big yard, and plenty of rest made possible a gain of from 5 to 10 pounds each. A permanent home for undernourished and anemic children had grown from this. Lectures and talks upon health principles were given by the staff either separately or in a series of clubs, fraternal orders, industrial plants, welfare organizations and in church. Motion pictures depicting health principles were often shown in industrial plants at the noon hour.

The Educational Campaign Against Tuberculosis in Pennsylvania.—Mr. ARTHUR M. DEWEES said that we knew that 30 years ago the fundamental facts regarding the cause and development of tuberculosis had just come to light. The Pennsylvania Society, therefore, undertook to cultivate absolutely unbroken ground when it took up the task of bringing the known facts to the knowledge of the general public. During the early years of its history the Society had worked in a quiet, but persistent way. Papers on various phases of the tuberculosis problem had been prepared, read, and published. From time to time literature had been issued for popular distribution. Opportunities had been sought for presenting the subject at medical meetings and other occasions. Efforts had been made to arouse health authorities to a sense of their responsibilities in the matter of tuberculosis. At least 15 years ago the activities of the Society had begun to bear fruit in the formation of local tuberculosis organizations in different sections of the State. In most instances these local organizations had had for their object mainly the relief aspect of the tuberculosis

problem. About the same time sanatoria had been established at several points. Many of these organizations were strong, countywide tuberculosis societies, with full-time, paid secretaries, doing their work on a budget basis and in a businesslike way. In many places the local organization was still a committee of a woman's club. It might be said in passing that too much credit could not be given to the women's organizations of the State for the generous interest and the hard work they had put into the fight against tuberculosis. The Pennsylvania Society confined its efforts very largely to a program of education and propaganda. They had endeavored to keep in line with the program for the country outlined by the National Association while at the same time taking into account conditions and needs in their own State.

Dr. JAMES M. ANDERS said that the chief work of this Society was the education of the public in the nature and means of prevention of tuberculosis. As regarded prevention the general fact was recognized that whatever agencies tended to improve the health of the community, tended to lessen the prevalence of tuberculosis by increasing individual resistance to the disease. Hence the modern health crusade carried on throughout the State of Pennsylvania had met with truly remarkable success. There had been two agencies which had never been utilized to the extent to which they rightly deserved, namely, the newspapers and literature more or less suitable for preservation. We knew as physicians that reports in the daily newspapers of scientific facts were often garbled and misleading, but if the subject matter was carefully prepared in advance and the editor was asked to insert it without change, it could often be accomplished. It had been found that the country population suffered but little less from tuberculosis than those living in the densely populated cities and also that they were just as much in need of instruction along the lines of personal hygiene with special reference to tuberculosis as were the densely populated cities and towns. We as physicians well knew that in the great majority of cases of tuberculosis we could trace a new case directly to a former case in the infective stage either in the same household or in the same neighborhood, and, if this were true, then surely when cases of tuberculosis reached the infective stage they should be isolated. He believed that, until this was accomplished in a greater degree than had been done in the past in Pennsylvania and elsewhere, efforts to control the prevalence of tuberculosis would certainly be slow and unsatisfactory. General hospitals should be induced, wherever feasible, to set aside a special ward or room for the reception and treatment of cases of advanced tuberculosis. The Pennsylvania Tuberculosis Society believed that the time had arrived when each county, or group of counties, according to the population should provide an institution for the reception and care of advanced cases of tuberculosis. At the 1920 meeting of the Medical Society of the State of Pennsylvania resolutions endorsing such a bill were passed. It was hoped that every county medical society of the State of Pennsylvania would pass similar resolutions, in which case the resolutions should be forwarded to Dr. Edward Martin, Commissioner of Health, Harrisburg.

What the United States Government Is Doing for the Tuberculous Ex-Soldier.—Dr. DANIEL M. HOYT, U. S. Public Health Service, in Charge of Tuberculosis in Pennsylvania and Delaware, read this paper in which he said that the medical care of the discharged soldier who had been disabled was under the Public Health Service. The country had been divided into 18 Districts. Each was under the direct supervision of a District Supervisor. The 3d District, which included Pennsylvania and Delaware, was the one of immediate interest to us. In every County of these two States there had been appointed one or more physicians, known as Designates. So far as possible, these appointments had been made from the men who had had service in the late war with Germany. There were 135 of these. Besides these designated officers there were about 121 for special examination of the chest. These physicians received a fee of \$5 for examination and a nominal office fee for treatment. The U. S. Public Health Service had not made provision in its Public Health hospitals for all claimants requiring hospital care. In

this district the Government had made contracts with practically all of the civil tuberculosis hospitals. The State Tuberculosis Sanatoria were, generally speaking, excellent for the ex-soldiers. It was unfortunate that we were unable to send our cases direct to these sanatoria instead of having their applications held up 6 to 7 weeks to go through the dispensaries. All the other civil institutions accepted the cases direct. The ex-soldier suffering from suspected tuberculosis was handled as follows: The man was discharged from the service and if he had, or thought he had, a disability he went to the nearest Designate with a copy of his discharge and an examination was made. The Designate made a diagnosis if possible, stated whether or not the man's condition was due to the service, about what he considered the degree of disability, whether or not training was feasible, whether he should be treated as an out-patient or admitted to the hospital. His report was sent to the central office; if satisfactory, transportation was furnished the man and he was sent to the hospital. If the diagnosis was indefinite, the man was referred to the tuberculosis specialist in his vicinity. The diagnosis of pulmonary tuberculosis in the ex-soldier must be backed up by all possible evidence because such a diagnosis made the man dependent upon the Government for life. The diagnosis was difficult because almost every ex-soldier who had seen foreign service claimed that he had been gassed. The number of cases suffering from pulmonary disease due to irritating gases was extremely small, and, furthermore, it was uncommon for tuberculosis to follow gas inhalation.

Dr. RALPH M. TYSON said that treatment in the homes of claimants was not allowed. They had to be either well enough to report to the dispensary or to the Designate physician's office or accept hospital care. Cases that were sent to the various hospitals for study or for treatment were furnished with routine cards of admission. The hospital was asked to send report cards showing the exact date of admission and discharge. They were also asked to furnish copies of the clinical record. Arrangements had been made for ward treatment only. The Public Health Service had contracts with 60 hospitals throughout the state for general medical and surgical cases. In case of emergency the Designate physician could send the man immediately to a hospital. There were approximately 450 tuberculous cases in hospitals in this district. It had been found that, after arrangements have been made and a man furnished with transportation and card of admission to a sanatorium or hospital, in about 15 per cent of cases he failed to report or to notify the district office or the hospital. Long trips to the southwest, to Arizona or New Mexico, were not looked upon with favor as they were usually ill-advised. The fact that the men were fighting for their lives was never lost sight of by the Public Health Service. The men wanted and deserved the very best and as far as possible the Public Health Service was supplying it.

Dr. CHARLES S. AITKEN said that in his work in the Chest Examining Room at the central office men were dealt with whose pulmonary lesions were influenced by the diseases and wounds incident to war. It had to be borne in mind that these men were seeking compensation and their symptomatology might be augmented by them at times. He had found influenza and pneumonia predisposing causes of tuberculosis, and, although nearly all the men gave a definite history of having been gassed, very few of these cases proved to be tuberculous. He believed that a history of these chest cases was just as important as in any other condition. Every good physician should be able to differentiate between the history given by a gas case and the history given by a tuberculous case. In regard to basal conditions it had been found that these were usually pneumonic, post-influenzal, or luetic and the tuberculous lesions were usually found in the apices.

Measures for the Control of Tuberculosis in Cattle.—Dr. CLARENCE J. MARSHALL said that on Jan. 1, 1919, there had been supposed to be 979,000 dairy cattle in Pennsylvania, of which 10 per cent were tuberculous. Pennsylvania had begun an active campaign to control tuberculosis of cattle in 1896. The work had been continued since that time as rapidly as funds, authority

and assistance would permit. From 1896 to 1919, 272,895 head of cattle had been tested with tuberculin under State supervision, of which number 32,392 failed to pass the test. Tuberculin testing had met with considerable opposition at first. The objections were that it was thought it would produce the disease in uninfected animals, that it would make them more susceptible to infection, that it would cause abortion or favor its spread in a herd, that animals free from the disease would react and that it would not select all the infected animals in a herd. All of these objections had proven incorrect. Although tuberculin was not infallible, it was of the greatest importance in detecting tuberculosis. It was considered accurate in about 95 per cent. The State had never attempted to force herd owners to submit to the test. Certain local boards of health had been rather insistent at times that the State should help them to force a test on all animals producing milk for the community, but this the State had never been able or willing to do. The best progress had been made in cooperation with the owner. Practically all testing had been done at the request of the owner after he had been informed of the disagreeable conditions that might arise. Animals that reacted to the test were slaughtered under State or Federal supervision, the owner being entitled to all receipts from the hide, carcass, and offal. In addition to this there was an indemnity provided by law from the Federal and the State Government. The total number of animals tested in the past 25 years was little more than one-fourth the number of dairy cows in the State. Each animal should be examined and tested at least once a year if the disease was to be controlled. However, it was physically and financially impracticable at present to undertake this task on so large a scale. The Bang system of controlling tuberculosis, so successful in Denmark, had not proven popular in America. Much tuberculosis had been spread by public creameries, skimming stations, etc. Swine and calves that were fed on the refuse from such stations were usually heavily infected with tuberculosis. The State had tried in various ways to prevent such infection and energetic effort had been made to have such products pasteurized. There had been considerable improvement in the past few years in the way of more sanitary housing conditions for live stock. The value of sunlight, ventilation and drainage was much more appreciated than in former times. It was pretty well understood that tuberculosis in animals was communicable from animal to animal and that, if it was allowed to run unchecked in a herd, it would eventually render a large percentage of the animals unprofitable and worthless. According to the best authorities of the present day it was claimed that 10 per cent. of the tuberculosis in the human family could be traced to bovine origin. If this were true, the matter should be of vast importance to physicians and sanitarians.

Some Aspects of the Tuberculous Problem in Europe.

Dr. PAUL A. LEWIS said that since the armistice the population of Vienna had been in a half starved condition and was well on the way to extermination. This would have resulted if it had not been for outside efforts, especially those of the American Relief Administration and the English Society of Friends. What one saw today was deprivation of food and partial starvation. The effort to remedy conditions was exerted chiefly in the direction of the children and a fairly successful effort was being made to feed all the children in Austria who were not otherwise provided for. He said that he could assure his hearers that conditions were really as described. Well over 99 per cent. of what actually landed there in terms of food as measured in money was actually given to the people—it was not only given to the people to be eaten, but it was eaten in a reasonably palatable form. This relief work was saving hundreds of thousands of people from eventual tuberculosis. A set of records of the children was kept detailing the weight, the height, and a statement of the general condition. If Vienna survived, these records would become a part of the vital statistics of the community for the next generation and we should have some definite data as to the consequence on tuberculosis and perhaps other diseases. In Liverpool and Edinburgh examples of the

finest sort of antituberculosis work, which in some respects could serve as models for work here, were found.

Dr. WALTER S. CORNELL said that in 250,000 school children our weakest spot was in the determination of the state of nutrition and possible tuberculous conditions. While there were 72 inspectors, not more than 5 minutes could be given to each examination. They found that they had very good records of eye strain and nose and throat troubles, but not of anywhere near the number of poor nutrition cases that they knew existed. About 300 children, about 60 of whom were tuberculous, had been gathered into special classes. The cost for food was \$12,000 annually. If tuberculosis was viewed in the proper light, a more determined effort would be made to eradicate the carriers of the disease. If we could get rid of the spitting tuberculous patients and tuberculous houses and get rooms cleaned where people die of tuberculosis so that they could not infect their successors we would have accomplished something worth while. He did not think that we would get much farther than we are now unless we made up our mind to buckle down and do these things.

Dr. WILLIAM DUFFIELD ROBINSON said he regretted that those who had made up this program had not introduced the work of the Department of Health of the State of Pennsylvania. We ought to remember that the State had 3 sanatoria where they were treating 2,200 patients a month and there were about 87 clinics where at least 8,200 to 8,500 a month were being treated. If we were going to have this matter properly presented, the work of this State should have been given some prominence.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

MEDICAL COUNCIL OF CANADA.

October, 1919.

HYGIENE AND STATE MEDICINE.

1. State the measures which you would adopt to prevent the spread of typhoid fever. How should the dejecta from a typhoid patient be disinfected and what is the best disinfectant to be used?

2. Outline a system of disposal of wastes suitable for a large village and a city.

3. Describe the means by which heat in its various forms may be used for disinfection. Name three chemical agents commonly used in disinfection and state their limitations.

4. What are the preventive measures necessary to be taken against the spread of tuberculosis?

5. How may the water of a superficial well become dangerous to health? What means would you advise to be taken in order to render the water safe?

6. Discuss fully the value of purification of water by the hypochlorite of lime method and by filtration.

PATHOLOGY AND BACTERIOLOGY.

1. Discuss fully the mechanism at work in the production of edema. Describe the pathological changes present in this condition. What are the results?

2. Define "cough" and "dyspnea." State what you know as to their causes, clinical forms, and evolution.

3. Define carcinoma, sarcoma, infective granuloma.

4. Summarize the principal gross lesions found in the intestines in the following diseases: (a) typhoid fever; (b) tuberculosis; (c) amebic dysentery; (d) bacillary dysentery.

5. What are the morbid changes, macroscopical and histological, met with in the bronchi, lungs, and pleural cavities during the course of "la grippe"?

6. Give in detail the morphological, cultural, and pathogenic properties of (a) meningococcus; (b) *Diplococcus pneumoniae*; (c) gonococcus.

OBSTETRICS AND GYNECOLOGY.

1. Describe the management of labor in a case of twin pregnancy.

2. What are the difficulties which may develop in the

course of labor in which there is a simple breech presentation?

3. A woman in the thirty-seventh week of her fourth pregnancy complains of headache and constipation. Describe your examination of the case and the treatment you would advise.

4. How would you recognize a shoulder presentation in a woman in labor? Under what circumstances in such a case would internal version be contraindicated?

5. Note briefly the difference between the normal and abnormal vaginal secretions and enumerate the various pathological vaginal discharges, giving their diagnostic significance.

6. What are the causes of pruritus vulvæ?

ANSWERS.

HYGIENE AND STATE MEDICINE.

1. *To prevent the spread of typhoid fever:* Flies should be kept out of the house as far as possible, by means of screens or otherwise; all discharges from the sick person must be disinfected; all utensils, dishes, etc., used by the patient must be thoroughly cleaned, and boiled every day; soiled linen must be soaked in a disinfectant solution before being washed; after each attendance on a patient, physicians, nurses, and others should wash their hands in a disinfectant; thorough sterilization of all bedding, etc., must be performed after the disease is over. Further, each household should boil all water that is to be used for drinking or for washing dishes, etc.; milk should be boiled also; and no ice should be put in water or other drink or food. The dejecta should be disinfected by means of chlorinated lime. About a pint of solution of chlorinated lime should be placed in the vessel in which the dejecta are to be received; the contents of the vessel should be well stirred, and should be allowed to stand for from one to two hours before being emptied.

2. *DISPOSAL OF WASTES. In a village:* Kitchen drainage should be collected in a pail and then thrown into the yard, away from the house, and in a different spot on each occasion, so that the fluid may sink into the soil and not lie on the surface. *Garbage* should be buried or burned. *Privy contents* may be buried, or sometimes (with care) used as fertilizers. *In a city:* The kitchen drainage and human excretions will be carried off by the sewage arrangements; the garbage should be collected and burned.

3. *Heat may be used as a disinfectant in the following ways:* By boiling; by steam; by dry heat; by burning. *Three chemical disinfectants:* (1) *Formaldehyde* does not damage fabrics or metals, but it only disinfects the surface as a rule; it does not penetrate, does not kill spores of anthrax, and is not an insecticide. (2) *Sulphur dioxide* bleaches colored fabrics, attacks metals, and rots or weakens fabrics. It is not a very good germicide but will kill insects. (3) *Mercury bichloride* kills germs and spores, but is very poisonous; it forms insoluble and non-poisonous compounds with albuminous matter, and it corrodes metals.

4. "The preventive measures which may be taken to reduce tuberculosis may be summarized as follows: (1) The compulsory notification of phthisis. (2) The removal of those conditions of domicile and of occupation which are known to promote the incidence of the disease, including the regulation of certain dusty trades. (3) The diffusion of knowledge (by medical men, leaflets, etc.) regarding the nature and modes of spread of the disease, and the precautions which should be taken in order to prevent its extension. (4) The testing of sputum and other suspected discharges, and of milk, meat, etc., supposed to be tuberculous—reports to be furnished free of charge. (5) Local authorities to undertake, without charge, the disinfection of houses recently occupied by phthisical persons. (6) The establishment of sanatoria and isolation accommodation for the cure of phthisical patients, and the isolation of those who are a distinct source of danger to fellow lodgers or workers. (7) The enforcement of measures against spitting in public conveyances and in places of public resort. (8) The efficient sanitary supervision of dairy farms, dairies, and milkshops. The periodical veterinary inspection and testing (by tuberculin) of milch cows, and the slaughter of tuberculous animals.

The prohibition of the sale of milk of cows affected with tuberculosis. (9) The proper inspection of meat in public abattoirs, and the adoption of due precautions for the control of imported meat and milk."—(Parkes' *Practical Hygiene*.)

5. *Superficial wells* may become polluted from organic matter from the soil, and from sewage. The water may be rendered safe by being boiled. Various chemical methods have also been devised for the purification of water, such as chlorine, chlorinated limes, ozone, potassium permanganate, iron, alum, and copper sulphate.

6. *Purification of water by the hypochlorite of lime method*: "The purification of water by means of a little bleaching powder is cheap, reliable, efficient, harmless, and easy of application, all of which make it an attractive method. When added in proper quantities it leaves no undesirable chemical substance in the water. It must, however, be remembered that bleaching powder in no sense clarifies a water. In fact, turbidity interferes with its action to a certain extent. It cannot, therefore, render a turbid supply entirely satisfactory. Furthermore, while chlorinated lime in such small quantities will kill bacteria it will not purify organic matter nor cure discoloration, nor take away the unpleasant smells which raw waters often contain."

Filtration: "Mechanical filtration affords a comparatively cheap method of supplying a clean-looking water from a very turbid source. . . . Mechanical filters, when properly manipulated, will take out from 95 to 99 per cent. of the bacteria contained in the raw water. The bacterial filtration, however, is not as constant and uniformly high as that obtained by slow sand filtration."—(From Rosenau's *Preventive Medicine and Hygiene*.)

PATHOLOGY AND BACTERIOLOGY.

1. **EDEMA.** According to Thayer, "six factors enter into the production of edema, usually more than one acting at a time, viz., positive pressure in the vessels (in proportion as it rises), permeability of the vessel wall, osmosis from excess of salts outside the vessel as seen in the action of a saline laxative, selective action of the endothelium, variations in the blood plasma and obstructed onflow in the lymph channels."

Pathologic anatomy: "Edema may take various forms according to its situation. In some cases it is localized, affecting a limited part of the body, as a single organ or member. In other cases it is widespread in the subcutaneous tissues and skin, when the term *anasarca* is applied. It may occur in the serous cavities in the form of serous transudates (hydrothorax, ascites, hydropericardium, etc.). The liquid itself varies in character according to the cause. In the pure transudates due to increased filtration the liquid is watery, low in specific gravity (below 1016), and comparatively poor in blood corpuscles and albuminous constituents. In cases in which disease of the vessel walls has played a large part in the causation, especially in the inflammatory edemas, the liquid is more dense and contains more corpuscles and albuminous bodies. The transudate first occupies the lymph spaces or interstices of the tissues, causing a more or less uniform swelling and boggy texture. The tissue pits on pressure, and on section more or less abundant liquid exudes. The solid organs (kidneys, liver) are lighter in color, less dense, and more moist on section than normal; but the appearances of edema are here less characteristic than in the subcutaneous or submucous tissues, or in the softer organs like the lungs and brain. Microscopically the tissue elements are seen to be pushed apart by the transudate, and in some cases the cells themselves may be diseased."

Results of edema: "The function of edematous parts is necessarily impaired. Sometimes serious consequences ensue, as in the case of edema of the epiglottis, the lungs, or the brain. Secondary changes may occur in parts the seat of continued edema. Among these are various degenerations of the cells and a productive change in the connective tissues. The latter is well illustrated in the sclerotic change in the subcutaneous tissues of long-standing dropsy, elephantiasis, etc."—(Stengel's *Pathology*.)

2. *Cough* is a sudden and violent expulsion of air following a deep inspiration; the expiration is obstructed by the closure of the glottis.

"Cough may be brought about by reflex irritation, hysteria, or direct irritation as the result of the inhalation of irritant vapors or dust, or the presence of foreign bodies; but is usually due to inflammatory conditions of the pharynx, larynx, trachea, bronchi, or lungs. In the early stages of inflammation of any portion of the respiratory tract, and when excited reflexly, it occurs without expectoration and is termed *dry cough*. With the occurrence of exudation and outpouring of serum, blood, etc., the cough is attended by expectoration and is called *moist cough*. Laryngeal conditions, whooping cough, hysteria, and recurrent laryngeal nerve irritation are attended by a cough having a metallic ringing intonation. This is laryngeal or croupy cough."

"*Dyspnea* is the term used to denote difficult or impaired breathing. It may be inspiratory, expiratory, or both; and there may be an increase in frequency, or depth, or both, of the respirations. It is attended by varying degrees of distress and when its severity requires the patient to sit up constantly it is called *orthopnea*. Dyspnea may be due to obstruction of the air passages, pressure upon the respiratory system from without by tumors, and distention of abdomen, diseases of the lungs and pleura, heart disease, asthma, anemia, or paralysis of muscles of respiration as the result of hemorrhage, tumors, or degeneration of the respiratory center in the medulla or toxic agents in the blood. It may be *inspiratory* when it results from obstruction as in foreign bodies in the larynx or trachea, or it may be *expiratory* as in emphysema, or bronchial asthma. A combination is the more frequent condition. In all forms of dyspnea it is important to determine whether the shortness of breath bears any relation to exertion. Dyspnea independent of exertion is a serious condition and is symptomatic of severe cardiac and pulmonary disease. Dyspnea dependent upon exertion is less serious and is observed in health, simple debility, anemia, obesity and somewhat moderate cardiac debility."

The rate of respiration varies greatly in dyspnea. Dyspnea with slow or normal breathing is observed in diabetic coma, and again the breathing may be slow and stertorous as in coma of central origin. Rapid respiration occurs in inflammatory pulmonary disease, pleurisy, painful affections of the chest muscles, heart disease, fever, hysteria, toxic conditions affecting the respiratory centers, anemia, and morbid conditions at the base of the brain. Irregularity in the respiratory rate in dyspnea may also be observed. *Cheyne-Stokes breathing* is the term applied to this condition when the respirations gradually increase in rapidity and depth until a climax is reached, after which there is a period of apnea or absence of breathing. The paroxysm is then repeated. It is a serious indication and may be observed in meningitis, apoplexy, cerebral tumor, fatty degeneration of the heart, uremia, and similar conditions. Dyspnea may be constant or paroxysmal. Constant dyspnea is always due to a persistence of its cause. Paroxysmal dyspnea is seen in asthma and cardiac affections. It may follow exertion in various central or reflex conditions. It is most marked at night."—(Hughes' *Practice of Medicine*.)

3. *Carcinoma* is an epithelial tumor of a malignant type, in which the epithelial cells grow in an independent and atypical manner in a connective tissue stroma.

Sarcoma is a connective tissue tumor of a malignant type; the cells are variable, and the stroma less noticeable than in adult connective tissue.

Infective granuloma is a term applied to a group of diseases including tuberculosis, lupus, leprosy, syphilis, glanders, actinomycosis and rhinoscleroma. The lesions show some slight resemblance to a tumor.

4. *The intestines in typhoid fever*: "Principally inflammation of the lymphoid tissue of the lower portion of the ileum, with more or less catarrh throughout the bowels. Peyer's patches—first week.—Are swollen through infiltration of leucocytes, the surfaces raised and fawn-colored—the infiltration involves the submucous coat. The lesions are most numerous at the lower end of the ileum. Second week.—The surface becomes abraded; sloughs form which are often bile-stained. Third week.—Sloughs come away, leaving ulcerating surfaces. Typical typhoid ulcers are thus formed. A

few solitary glands undergo the same process. At the end of the week the ulcers begin to granulate, but healing is usually slow. Mesenteric glands may undergo the same changes, but more often become swollen, red, and tender only, or break down into cheesy masses. The ulcer of typhoid fever—(1) Lies in the longitudinal axis; (2) edges—thin, undermined; (3) situation—last yard of the ileum; the ulcers are most numerous near the ileo-colic valve. The distribution may be more widespread. Its base may be formed of—(1) Submucous coat; (2) muscular tissue, or (3) peritoneum only. The ulcers show a tendency to perforate, but do not cause constriction after they heal." (Wheeler and Jack's *Practice of Medicine*.)

"*Tuberculous ulceration* affects principally the ileum, cecum, and colon. The ulcers contrast with those of enteric fever in that they are irregular in outline, with their long diameter in the circumference, not the axis, of the bowel, and their edges are infiltrated and undermined. They involve the submucous and muscular coats, and may perforate. Cicatrization may cause a single or multiple stricture of the bowel. In the ileocecal region tuberculosis may cause a chronic hyperplasia, sometimes involving the appendix." (Wheeler and Jack's *Practice of Medicine*.)

"In *amebic dysentery* the lesions are chiefly seated in the large intestine. They present—(a) small gelatinous swellings of the mucosa, with partial ulceration; (b) necrosis and sloughing of the underlying tissues. The ulcers of amebic dysentery thus have undermined edges. The amebæ are found in the ulcerating mucosa, but more abundantly in the tissues beyond the ulcerated area (submucous or muscular coats), where they set up edema and necrosis. Later, along with the ulcers, cicatrices, leading sometimes to partial stricture, may be found." (Wheeler and Jack's *Handbook of Medicine*.)

"In *acute bacillary dysentery* the principal changes in the intestinal mucous membrane are: (1) Intense hyperemia, the mucosa being swollen, corrugated, and here and there hemorrhagic. (2) Necrosis, and fibrinous exudate, with formation of a pseudo-membrane. (3) Ulceration, at first on the summit of the folds, but extending both deeply and laterally.

"In *chronic bacillary dysentery* the mucosa is thickened and granular, and the whole gut is thickened. There are chronic ulcers with thickened edges, and areas of scar tissue. Consequently there are partial strictures of the bowel, which is dilated above. A typical dysenteric ulcer therefore has the following characters: (1) Site; on the ridges of the large intestine. (2) Edges; irregular and thickened. (3) Base; may be formed of any of the coats. (4) Tendency to contraction on healing. The so-called 'diphtheritic dysentery' is a form in which necrosis is very extensive and the development of pseudo membrane pronounced. In advanced cases the whole mucosa may form 'a black, rotten, friable, charred mass.'" (Wheeler and Jack's *Handbook of Medicine*.)

5. *Pathology of Influenza*: "Inflammation of the trachea and bronchi may be present. In the lungs the typical change is bronchopneumonia, in isolated patches separated by air-holding tissue. The confluence of neighboring areas may resemble croupous pneumonia on superficial examination. On inspection, in the center of the involved lobules grayish-yellow pin-head to pea-sized elevated foci may be seen, surrounded by engorged pulmonary tissue. On pressure, a greenish yellow thick pus may exude from the infiltrated tissue or the cut ends of the bronchi. On microscopic examination, the bronchial epithelium may be found lying free in the lumen, separated from the submucosa. The smaller bronchi may be entirely filled with leucocytes with complete absence of epithelium. The peribronchial connective tissue may likewise be infiltrated with cells. Enormous numbers may crowd the neighboring alveoli for varying distances from the affected bronchi and completely efface the normal pulmonary structure. The cellular character of the exudate is usually very striking, but varying amounts of desquamated epithelium, serum, and fibrin are present. The fibrin, however, is much less abundant than in croupous pneumonia. Great numbers of influenza bacilli are found in and among the pus cells of the bronchi and alveoli in the areas of most marked broncho-pneumonia. They become less numer-

ous as the periphery of the lobular process is approached. In the microscopic sections of influenza pneumonia it is not infrequently noted that the alveolar septa are absent in small areas of most marked cellular infiltration, apparently forming the beginning of small abscesses. In a smaller number the cells in these places may be necrotic, suggesting the impossibility of full restoration to normal. . . . In subacute or more chronic cases an increase of connective tissue may be observed."

6. The meningococcus is a small, non-motile, non-capsulated, non-flagellate coccus; it does not form spores, does not liquefy gelatin, is aerobic, and pathogenic; it appears in diplococcus groups, and may be found within or outside the cells; it stains readily with the ordinary anilin dyes, but is Gram negative. It grows readily upon meat infusions, and especially so on media to which ascitic fluid or blood serum has been added. It grows best at about 35° C. In man, the lesions are most noticeable at the base of the brain; the spinal cord is always affected.

The *Diplococcus pneumoniae* generally occurs in pairs of round or oval cocci, it has a capsule, but no flagella; it is aerobic, and optionally anaerobic; it grows on neutral or slightly alkaline media with blood serum; the best temperature for its growth is about 37° C. It is found (in four strains) in lobar pneumonia; also in bronchopneumonia, and diphtheria.

The gonococcus is a micrococcus occurring in the form of diplococci, of "coffee-bean" shape. They occur outside and inside the epithelial cells in the discharge. It is a facultative anaerobe and grows best at about blood temperature; it has no spores, and is non-motile. It grows best on nutrient agar with blood serum. It is not transmissible to animals. In man, it affects the genital mucous membrane, conjunctiva, and rectal mucous membrane; the gonococcus is also found in endocarditis and septicemia.

OBSTETRICS AND GYNECOLOGY.

1. *Management of Labor in Twin Births*.—The management of labor in twin births differs in no wise essentially from that of ordinary labor, save that, owing to the marked overdistention of the uterus, the pains are likely to occur at long intervals and be inefficient. The cord of the first child should be ligated on the placental as well as the fetal side, owing to the possible existence of a vascular communication between the two placentas. Since the passages are dilated by the birth of the first child, the second birth, except when the first child is undersized, usually is rapid, or, if necessary, may safely be made so.

The delivery of the second child, however, should be left to nature except for cause. Changes in the position of the second child frequently occur during, or just after, the delivery of the first; hence the necessity of making an examination immediately on the birth of the first twin, to detect any abnormality in the position of the second. The fetal heart should be watched, and immediate delivery effected if it becomes abnormal. As the overdistention of the uterus exposes the woman to postpartum hemorrhage, extra care will be needed to secure firm uterine retraction by means of manipulation and by the use, in addition, of ergot and pituitrin.

Interlocking Twins.—This anomaly, which is exceedingly rare, presents two principal varieties:

(a) Both presentations cephalic, both heads offering, one impacted between the head and trunk of the other fetus;

(b) One presentation cephalic, one pelvic, the after-coming head of the breech birth being impacted between the head and trunk of the other fetus.

Management.—If it is not possible to disengage by a combined internal and external manipulation, with the aid of anesthesia and the knee-chest or the Trendelenburg position, the first child may be perforated or decapitated.—(Polak's *Manual of Obstetrics*.)

2. *Difficulties which may develop in the course of labor in a simple breech presentation*.—Pressure on the cord, with asphyxiation of child; premature inspiration on the part of the child; premature or incomplete separation of the placenta; extension of one or both arms; mal-position of one hand behind the head of the child; fractures, dislocations, separation of epiphyses,

trauma to soft parts, and hematoma; rupture of maternal soft parts.

3. *Further examination* should include analysis of the urine, investigating the total quantity voided in each 24 hours, the amount of solids excreted, particularly the amount of urea, the ammonia coefficient, the presence of albumin and casts; the blood pressure, systolic and diastolic; ophthalmoscopic examination, for hemorrhagic retinitis; edema, disturbed nervous system, and disturbed vision are often to be noticed. *Treatment* includes reducing the protein metabolism, eliminating red meats, and in severe cases restricting the patient to a milk diet; plenty of water must be administered; diuretics, diaphoretics, and laxatives are required; hot air baths, or a hot, wet pack may be desirable; colon irrigations are useful; the blood pressure should be reduced by means of chloral or of veratrum viride; if, in spite of treatment, an eclamptic seizure occurs, it may then be necessary to empty the uterus at once.

4. *A shoulder presentation may be recognized during labor*, by feeling some or all of the following features:—The acromion process, the spine of the scapula, the ribs, the head of the humerus, and the clavicle.

Internal version in such a case is contraindicated when the uterus is found to be in a state of tetanic contraction.

5. *The normal vaginal discharge* is a rather thin, opalescent fluid, devoid of viscosity, and sometimes when abundant, forming a white flocculent and curdy matter; it gives a strongly acid reaction, and contains the vagina bacillus and a fungus (which are invariably absent from pathological secretions). There may also be seen a clear viscid discharge, composed principally of mucus; this is the normal cervical discharge, and is usually not seen except on examining with the speculum. *Pathological secretions are:*—

(a) A muco-purulent or purulent discharge, yellowish or greenish according to the proportion of pus. This is seen characteristically in acute gonorrhea, and commonly results also from chronic endometritis. It is the variety most frequently spoken of as "the whites," when containing but little pus. It stains and stiffens the linen.

(b) Watery discharges may result from simple hyperemia of the genital passages, and are sometimes so abundant as to lead to the suspicion that the fluid is furnished by a hydrosalpinx which periodically empties itself through the uterine orifice of the Fallopian tube. They are also found in cases of cancer, but then the discharge more often assumes the characters of the next variety.

(c) Fetid discharges occur as the result of ulceration, and the principal conditions which produce them are retained pessaries, sloughing fibromyomata and polypi, decomposing products of conception, and, most frequently of all, cancer.

(d) Bloody discharges, other than menstrual, may be due to cancer, endometritis, fibromyomata, polypi, denomatous disease of the cervix, and lacerations. The discharge is often pinkish in cancer, but in any of the above conditions it may vary from a very slight rose tint to the red of almost pure blood.

(e) In the case of a tubal pregnancy which has become interrupted by rupture of the tube, or by the formation of a tubal mole, a characteristic discharge is often present. It is scanty and of a brownish colour, and may continue for many weeks. It is due to disintegration of the decidua which forms in the uterus in cases of extra-uterine pregnancy. A similar discharge may result from the slow disintegration of a polypus or clot within the cavity of the uterus.—(From Sutton and Giles' treatise on the Diseases of Women.)

6. *The causes of pruritus vulvæ*, are:—Irritating discharges; diseases of the vulva; pediculus pubis, round worm and other parasites; reflex irritation from the bladder or genital tract; uterine displacements, rectocele, cystocele, and pelvic congestion; high living, indolent habits, lack of cleanliness; some cases, in which none of the above causes appear to be operative, are said to be of nervous origin.

(To be continued.)

Therapeutic Hints.

Malaria.—L. D. Fricks of the United States Public Health Service, gives the following standard treatment for malaria, which was formulated by the National Malaria Commission, following extensive investigations in Bolivar and Sunflower counties, Mississippi: For the acute attack, 10 grains of quinine sulphate by mouth three times a day for a period of at least three or four days, to be followed by 10 grains every night before retiring for a period of eight weeks. For infected persons not having acute symptoms at the time, only the eight weeks' treatment is required. The proportionate doses for children are: Under 1 year, one-half grain; 1 year, 1 grain; 2 years, 2 grains, 3 and 4 years, 3 grains; 5, 6, and 7 years, 4 grains; 8, 9, and 10 years, 6 grains; 11, 12, 13, and 14 years, 8 grains; 15 years or older, 10 grains.—*Journal of the Am. Med. Association.*

Powdered Charcoal in Chronic Dysentery.—Dr. Fayolle, while medical officer with the troops in the Balkans, treated over 250 cases of chronic dysentery which had proved intractable to the ordinary methods. He found that charcoal powder gave excellent results and allowed patients to absorb rather more solid food than milk without increasing diarrhea, even during the first few days of the treatment. Small doses are not to be given. He started with at least 15 to 30 grams of charcoal powder per day, divided into several doses. The daily dose may be diminished as improvement takes place. The best method of administration is in suspension in tea, coffee, or water. Fayolle suggests that the treatment might be applied in acute cases of dysentery, in all infective diseases with their lesions in the small intestines, and in all ulcerations of the digestive tract.—*Medical Press.*

Gelsemium in Influenza.—William D. D. Small states that at the beginning of the second wave of influenza he and one of his associates carried out investigations with the object of determining the relative value of certain likely remedies. Groups of patients were put upon different drugs, and their progress was noted and compared. Among the drugs tested in this way was gelsemium. The cases treated with this remedy improved in a manner far exceeding those who were given any other drug. All their patients were thereafter put, as a routine, upon moderate doses of gelsemium, in the following prescription:

R

Tr. Gelsemii.....mg xij.

Tr. Belladonnæ.....mg v.

Potass. Citratis.....gr. x.

Syr. Aurantii.....5j

Aq. Chloroformi.....ad 5j

Sig.—One ounce every four hours, for the first twenty-four hours; thereafter half an ounce four-hourly until the temperature is normal.

The remedy should be discontinued after the temperature has reached the normal. In a very small number of cases, the use of the remedy was attended by slight ocular disturbances, and if too long continued it may give rise to mild head symptoms. No other disadvantages were noted in the large series in which it was used.—*Edinburgh Medical Journal.*

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Original Articles.

THE WORK OF THE AMERICAN SOCIETY FOR THE CONTROL OF CANCER.*

BY CHARLES A. POWERS, M.D.,

DENVER, COLO.

PRESIDENT OF THE SOCIETY.

MY first and very pleasant duty is to thank the officers of this Association for the kind invitation to address you. It is a compliment to the National Society which I represent, and in choosing a title I have felt that the simple one appearing on your program may warrant the iteration of homely truths already well known to you, as well as the setting forth of thoughts which I cherish for the further waging of a vigorous campaign against one of the most dreaded and dreadful scourges which afflict mankind. It is, indeed, with the hope of enlisting the active aid of every member of this important body of surgeons that I venture to lay stress on certain avenues of attack which at this time seem to promise progressive diminution of cancer mortality and suffering.

History of the Society.—Inception of the formation of the Society found place in the American Gynecological Association, delegates from which met in May, 1913, with delegates from the American Surgical Association and other representative national bodies, to found a national organization, "to disseminate knowledge concerning the symptoms, diagnosis, treatment, and prevention of cancer, to investigate the conditions under which cancer is found, and to compile statistics in regard thereto."

In establishing an organization with this purpose, the founders gave practical expression to their hope and belief that a nation-wide campaign of public education regarding cancer would save thousands of lives now needlessly sacrificed every year because of ignorance of the warning signs of this insidious disease and delay in seeking competent medical advice and treatment even after the symptoms are recognized.

In the latter part of 1913 and in 1914 a certain amount of preliminary work was done, especially in Massachusetts.† Literature (to which later reference will be made) was carefully prepared for both the profession and the laity. Then came the Great War, with its attendant responsibilities, anxieties, and duties, and the work of the Society

*Read by invitation at the Annual Meeting of the Southern Surgical Association, Hot Springs, Va., December 14, 1920.

†Thanks to the sustained interest of Dr. Edward Reynolds.

naturally languished. During the past year, however, state and local organization has been effected, and, to paraphrase a war phrase, "the decks have been cleared and the Society is ready to go into action."

Immediate Aims of the Society.—Greenough (*New York Medical Journal*, Oct. 16, 1920), in an illuminating address read before the Medical Society of the County of New York, says that in the cancer problem four lines of attack present themselves for consideration:

1. The education of the public to the early symptoms of the disease.

2. The instruction of the medical profession as to the actual facts of this serious situation, to bring about earlier diagnosis.

3. The promotion of investigations on the part of surgeons in regard to more effective means of operative treatment.

4. The promotion of investigations in the laboratory in regard to the causes of cancer, and of methods of treatment other than by operation.

I take it that at this time the Cancer Society may well occupy itself with the first two of these contentions; to effect the widest possible diffusion of knowledge among the laity regarding the early symptoms of cancer, and at the same time to aid in bringing the members of our profession to a clearer and higher conception of their own duties and responsibilities. The two endeavors go hand in hand. We know that at this time an average period of ten months elapses between the discovery by the given man or woman of the first symptoms of cancer and the seeking of medical advice. It is our aim to reduce this period as nearly as possible to one day. Further, we are to endeavor to aid the given practitioner in acquiring the ability to make a thorough, suitable examination and to give adequate advice.

There is not one of us who fails to understand the natural desire for concealment on the part of a given patient. Only too often is cancer considered a disgrace. It is in no way a disgrace; it is only one of the most terrible of misfortunes. There seems to be no suitable substitute word for the word "cancer." I feel that one of our important duties consists in familiarizing the people with this word, in teaching them that the condition is not a blood disease, that it is not contagious, that it cannot be communicated by one person to another. It is certain that constant effort toward familiarization with the word itself will slowly and steadily tend to rob the word of a part, at any rate, of its terrors. It is already found that in communities where a considerable number of suit-

able talks* have been carefully made, people tend more and more toward open discussion of the condition. The whole subject should be brought out into the light.

Organization.—The American Society for the Control of Cancer maintains a central office at No. 25 West Forty-fifth Street, in the City of New York, this office being under the care of a lay executive secretary,† he being a trained public health worker. During the past year a thorough regional and State organization has been effected, and it may not be amiss to give a table of this. In certain areas regional directors have been appointed, each director looking after a given group of States, appointing State chairmen, subcommittees, and the like, and effecting a general organization of the work. Thus, the New England States, with the exception of Connecticut, are under the care of Dr. Robert B. Greenough of Boston. Dr. J. C. Bloodgood of Baltimore looks after Maryland, Virginia, and Delaware; Dr. Fred T. Murphy of Detroit takes charge of Michigan, Ohio, Wisconsin and Illinois; Dr. C. Jeff Miller of New Orleans looks after Louisiana, Mississippi and Alabama; Dr. Donald C. Balfour, temporarily a resident of Denver, takes Colorado, Arizona, New Mexico, Utah, Wyoming and Western Kansas; Dr. F. J. Taussig of St. Louis, Missouri, Oklahoma, Arkansas, and eastern Kansas; Dr. Verne C. Hunt of Rochester, Minn., has Minnesota, Iowa, North and South Dakota, and Montana; Dr. H. M. Sherman of San Francisco takes California and Nevada, while Dr. E. F. Tucker of Portland, Ore., has charge of Oregon, Washington, and Idaho.

State chairmen are as follows: Massachusetts, Dr. Edward Reynolds of Boston; Connecticut, Dr. Joseph M. Flint of New Haven; West Virginia, Dr. F. L. Hupp of Wheeling; North Carolina, Dr. J. W. Long of Greensboro; South Carolina, Dr. R. S. Cathcart of Charleston; Georgia, Dr. G. R. White of Savannah; Florida, Dr. Ralph N. Greene of Jacksonville; Kentucky, Dr. I. Lindenberger of Louisville; Tennessee, Dr. W. D. Haggard of Nashville; Indiana, Dr. Miles F. Porter of Fort Wayne; District of Columbia, Dr. James F. Mitchell of Washington; Nebraska, Dr. Palmer Findley of Omaha; Texas, Dr. A. C. Scott of Temple; New Mexico, Dr. James A. Rolls of Santa Fé; Washington, Dr. C. W. Sharples of Seattle; Idaho, Dr. L. P. McCalla of Boise; Wisconsin, Dr. John L. Yates of Milwaukee; Illinois, Dr. Carl B. Davis of Chicago; Ohio, Dr. J. Ranshoff of Cincinnati; Michigan, Dr. Reuben Peterson of Ann Arbor; Arkansas, Dr. Dewell Gann of Little Rock; Colorado, Dr. F. W. Kenney of Denver; Utah, Dr. R. Richards of Salt Lake City. Hawaii is in charge of Dr. James R. Judd of Honolulu. That the Society is fortunate in having the active aid and support of these men‡ goes without saying. Their names furnish ample guaranty that the work is being done carefully, conservatively, thoroughly and efficiently.

*In Colorado, where a goodly number of these talks have been given, an increasing desire to hear them is manifest.

†Mr. Frank J. Osborne.

‡On the Executive Committee, which meets monthly in New York, under the chairmanship of Dr. Howard C. Taylor, are men of the type of Cleveland, Lienthal, F. C. Wood, Ewing, F. K. Hoffman.

The Relation of the Cancer Society to the Medical Profession.—Under the competent chairmanship of Dr. Greenough of Boston a committee of the Society has prepared a handbook for the profession, and it is our endeavor to have this distributed as widely as possible. This distribution can be effected through the agency of State Medical Societies, State Boards of Health, etc. Having had but little share in the preparation of the various forms of the literature which our Society puts forth, I can, perhaps, gracefully speak of the conservative excellence of these publications. Certainly, I do not believe that any of our experienced surgeons can fail to derive pleasure and profit from reading this little professional brochure, as well as from the lay pamphlets.

Sessions of our State and county medical societies, special national societies, the various sections of the American Medical Association, etc., may well be devoted with increasing frequency to this most important subject. At all of these meetings the importance of suitable lay education may with propriety be emphasized, and we must aid in arranging cancer meetings for the dental societies. The dentist is not infrequently the first to observe the appearance of mouth cancer; he is naturally anxious to know the early symptoms.

The Instruction of Nurses.—This is important. The Cancer Society has prepared a special pamphlet for nurses; this should receive the widest possible distribution. Special talks on the early recognition of cancer should be made before the various associations of graduate nurses, as well as before the nurses who are taking their hospital training.

The Education of the Laity.—Certainly, no activity in the domain of cancer can be more important than this, and I am convinced that the most valuable way of instructing the people in the simple facts connected with cancer lies in the giving of well considered talks to groups* of varying size. In these talks assurance of plain leading facts can be given. The audience may be told that cancer is not hereditary, that it is not contagious, that it is not a blood disease, that it is at first local. The statement can truthfully be made that in very many regions it is curable when taken early. Simple, plain, non-technical description may

*In Denver, during the last year, many cancer talks have been made before such bodies as: The Woman's Club, Department Store Employees, the Knights of Columbus, the Elks, the Colorado Educational Association, the Association of State Librarians, the State Congress of Social Workers, Women's Aid Societies of various churches (Protestant, Roman Catholic and Jewish), the Y. M. C. A. and the Y. W. C. A., the Association of Collegiate Alumnae, the Protestant Ministers' Alliance, the Junior League, the Employees of the Telephone Company and of the Tramway Company, the Garment Workers' Union, the Parent Teachers' Associations, etc. In addition, articles have been read before the Colorado State Medical Society and the Denver County Medical Society.

Colorado Springs, Col., is a town of 25,000 people. It is both interesting and gratifying to note that during the month of October, 1920, Dr. Charles F. Gardiner, the chairman of our Cancer Committee there, made, with the assistance of members of his committee, no less than thirty cancer talks to lay groups of varying size, largely groups of women. Such a task is accomplished in a personal way; one can but wish that in every town similar work might be done.

be given of the early symptoms in such regions as the breast, the uterus, the skin in its various portions, the lip, etc. These are very simple matters to us, but it is astonishing how ignorant the lay people are of the plain facts which they should know. Speakers universally report an earnest desire on the part of their hearers to learn these facts; approaching a group of people in a spirit of broad human sympathy, it is pathetic to note the eagerness with which they listen.

The Society has very carefully prepared pamphlets for distribution at these lay meetings, and it also has illustrative lantern slides which materially aid in pointing the moral and adorning the tale. It is our experience that these talks should be brief. A well equipped speaker can say a great deal in fifteen* minutes. A few leading points can be made with clarity, and the little pamphlets which the auditors take home with them will serve to recall these facts and emphasize them. We all know that women are much more interested listeners than are men when it comes to the consideration of this particular subject.

Visiting and public health nurses can distribute our pamphlets, and by simple instruction spread the gospel. We endeavor to have a succession of suitably written articles in such lay periodicals as the *Outlook*, *Independent*, *Woman's Home Journal*, *Saturday Evening Post*, etc.

Publicity.—This is the keynote to our campaign; it is the crux of our problem. One need say but little regarding the instruction of the members of our profession; our Society simply desires to aid in every possible way by the distribution of helpful handbooks, by urging† suitable meetings which are wholly or in part devoted to this subject, meetings of national, State, or local medical societies. At these medical meetings emphasis may properly be laid on the great importance of constant instruction§ given the laity.

As we approach the instruction of the laity we find many avenues¶ open to us. Carefully given talks to groups of men, or women, or of both, as has been outlined. Distribution of the Society's pamphlets at these meetings. Notice given of these meetings in every possible way, including the daily press.

*A 12 or 15 minute talk can often be interpolated in the course of the regular program of the annual meeting of such societies as: The Federation of Women's Clubs, State Federation of School Teachers, Social Welfare Organizations, State Association of Librarians, etc.

†The question is often asked whether such a campaign as is outlined here does not tend to create undue fear; "phobia" so to speak, in the minds of the people who hear the lectures and read the articles. I am certain that no harm is done in this way. It is better that a few people should be unduly disturbed than that a single case of beginning cancer should be neglected. Our intelligent medical profession can easily set people aright.

‡The aid of all existing agencies is earnestly asked. Medical societies, State and local Boards of Health, the Red Cross, and similar organizations can constantly help. It is gratifying to note that the American College of Surgeons is laying stress on cancer education in its meetings held in various parts of the country.

§Dr. T. W. Huntington of San Francisco is giving splendid aid in the matter of articles sent medical journals, the lay press, etc.

¶Cancer "days" and "weeks" have been successfully held by Dr. Wainwright of Scranton, Pa., and by others.

In this matter of notices, reading articles and the like in the daily press, I hope that you will bear with me when I say that I believe that we, as a profession, have, in large part, leaned backward in our effort to avoid publicity. Our aim is to get our message (let us call this a "Message of Hope," if you will) before the people, and this must be done in a very authoritative way. At times the name of the American Society for the Control of Cancer, or of a given State or county medical society or other organization, may suffice. More often does the public desire to know the name or names of one or more well known physicians or surgeons who make themselves responsible for what is said. We all know, we all respect, the splendid ethics of our profession, and I think that we support these ethics when we, in a suitable way, lay aside our personal prejudices and desires.* I grant you that it is easier to be a philosopher at the age of retirement from practice than it was at twenty-odd years or thirty-odd or even at the steady age of forty-odd. Further, one's point of view may be changed very materially after he has retired from active practice. And yet, in this so very important matter, I know that you will feel with me that our duty to humanity is paramount.

The universally distributed motion picture houses of to-day are capable of furnishing wonderfully effective publicity. In preparing for a recent cancer campaign in Denver we were fortunate in being able to have the following notice set forth during periods of from two to seven days in eight of the principal downtown motion picture theaters:

Cancer.—The American Society for the Control of Cancer says:

1. That 85,000 people die yearly in the United States from this dread disease.

2. That the majority of these deaths could be avoided if the condition were taken early.

3. That in early recognition lies the hope of cure.

Cancer campaign in Denver next week! Watch the newspapers for notices!

It was conservatively estimated that the foregoing notice was seen by at least 100,000 people. The effectiveness of such publicity is apparent.

The Cancer Society has at this time in preparation two instructive motion picture plays, one for the profession and one for the laity. It is expected that these will be produced in the immediate future.

In further connection with this matter of publicity I would like to say to you that one of the most distinguished members of this Association, a surgeon who has long been a pioneer in the war against cancer, Dr. Joseph C. Bloodgood, has for some years inclosed with letters, etc., to former patients and their physicians, a carefully worded circular letter of cancer information. This is certainly one of the best possible ways of carrying on our campaign; one can but think of the wonderful good which would be done if every physician and surgeon should adopt this plan. In a recent letter Dr. Bloodgood says: "I think I have the evidence to show that I have done more good by teaching the public and the medical and nursing profession than I have done by any other means."

*I know that I shall be understood in this. I mean that we should not withhold clear, direct statements which are made solely for the public good.

ing professions than even by the operative treatment of cancer." Would that each one of us were able to say this!

Mention has been made of carefully prepared articles published in the more important lay papers and magazines.

I have already trespassed on your patience and will refer but briefly to such matters as the quick advertisements in newspapers, magazines, etc., which our Society, through its officers and committees, is endeavoring to have abolished; to the important matter of the employment of radium and the x-rays in the treatment of cancer, which our Society looks upon with deep, conservative interest; to the splendid research work which is going on in such responsible institutions as the Crocker Institute for Cancer Research of Columbia University, the Harvard Commission for Cancer Investigation (Huntington Foundation), the General Memorial Hospital of New York, the Skin and Cancer Hospital of St. Louis, the New York State Laboratory of Malignant Disease at Buffalo, and the other splendid foundations both here and abroad. In the fullness of time a specific for the prevention or cure of this terrible disease will be found. Even then, however, education will have its place, and in the meantime education holds a first place. And it is in this thought that I confidently ask each of you, in his given community, to become an active educational agent.

THE UNIVERSITY CLUB.

CHRONIC APPENDICITIS, SO-CALLED.

By F. GREGORY CONNELL, M.D., F.A.C.S.,

OSHKOSH, WIS.

WITH the object of attempting to correlate the symptomatology and the pathology, it has been customary for a number of years to subdivide cases of appendectomy into the following: (a) Those in which there is a pathologic appendix, unquestionable and demonstrable to the naked eye; (b) those in which the pathology in the appendix is questionable or not demonstrable to the naked eye.

A study of the previous and after history, with the remote result in these two classes of cases, has led to quite constant and rather instructive findings:

(a) With demonstrable unquestionable pathology:

1. The history usually gives definite previous acute attacks.
2. Symptoms between attacks are absent or slight.
3. Results are satisfactory—that is, symptoms return in only a small percentage of cases.

(b) With questionable or absent pathology:

1. The history rarely gives a definite previous acute attack.
2. Symptoms are more or less constant.
3. Results are unsatisfactory—that is, symptoms return in a large percentage of cases.

This report concerns chiefly the so-called "chronic appendix," but a brief preliminary review of the acute cases may be found of interest, as a contrast.

In the history of acute appendicitis, one finds, as a rule, the story of definite, more or less typical attacks, with absence of localized pain or tenderness

in the region of the appendix, between the attacks, which is in marked contrast with the history of the usual so-called chronic appendicitis.

In the acute case with evident pathology a satisfactory result is to be expected in a very large percentage. In the small percentage, the unsatisfactory results in these cases are rarely, if ever, due to a return of the original symptoms, differing strikingly from the chronic case with unsatisfactory result, but are due to such causes as coincident or complicating disease, hernia, fistula, incomplete operations, ileus (acute not chronic) due to adhesions. Without evident pathology it is obvious that a mistaken diagnosis has been made and that unsatisfactory results are to be anticipated.

In the acute cases this classification according to the evident pathology is satisfactory, but in chronic cases it is exceedingly difficult to accurately gauge the extent of the disease by the gross pathology, and in many cases it is absolutely impossible to differentiate between pathological appearance due to post-inflammatory conditions and that due to developmental imperfections, or other non-inflammatory conditions.

An appendix in which there has been a previous acute process, even gangrenous and suppurating, with abscess formation, except for the presence of easily overlooked scars, may appear comparatively normal at later appearance; while an appendix removed during the course of an operation for other conditions, performed in a purely prophylactic manner, with an absence of symptoms suggestive of appendicitis, may show signs that might be considered pathologic, such as deformity, thickening, congestion, enteroliths, or "adhesions." As examples, one might mention the report of Williams and Slater¹ of the Boston City Hospital on the condition of the appendix in 500 laparotomies in patients representing no symptoms of appendicitis, 167, or almost exactly one-third, of whom showed changes in the appendix. Pitzman² claims that there is "no surgical appendicitis without organic stricture. Beutner³ objects to systematic appendectomy as a routine supplement to operations on the adnexa. Microscopic examination of the appendix in 87 cases in which this had been done showed that the appendectomy had been actually indicated in only four of the cases. C. Waegeli⁴ studied 896 laparotomies, 16.4 per cent. of which showed lesions of the appendix. After careful study of this material he does not believe simple hyperemia, swelling of the appendix, superficial adhesions to the diseased adnexa furnish sufficient indication for ablation. A recent important contribution reporting the results after operation in cases of chronic appendicitis is by Chas. L. Gibson,⁵ who emphasizes the necessity of follow up reports of remote results in cases of this type. J. B. Deaver⁶ discusses chronic appendicitis, but emphasizes those resulting favorably. The case that should be given close study and attention is the case of operation for chronic appendicitis in which the same symptoms present after appendectomy.

The gross section and even the histological picture may be very difficult to interpret, the evidence of a previous inflammation, unless progressed to destruction, may be obliterated, and if destructive it may be overlooked unless serial sections of the entire organ are made; the same microscopic section

may be variously interpreted by different pathologists, the personal equation of the one looking through the microscope being of great import in such a differentiation.

The pathology of appendicitis has been very ably presented, by Kelly, Aschoff and others, but in an article by Moschcowitz one finds considerable attention given to the chronic type of disease.

Eli Moschcowitz' in an admirable study of the pathological diagnosis of diseases of the appendix based on the study of 1500 specimens, emphasizes many important points. Referring to chronic appendicitis he says:

The histological characters of a healed or chronic appendicitis are therefore the following:

1. A narrow lumen (stricture) or
2. Complete obliteration of the lumen by new connective tissue.
3. The absence of mucosal crypts. This absence indicates, except in cases where the lumen of the appendix has been dilated from other causes (to be shown later) that a previous acute suppurative inflammation has taken place. This phenomenon is important in differential diagnosis, in cases where there is a question as to whether the lumen of the appendix is narrower than normal.
4. The widening of the submucous connective tissue zone.
5. The attenuation and diminution (or even complete disappearance) of the lymphoid tissue.
6. The infiltration of the muscular coats by new connective tissue, and consequent deformity.
7. The thickening, increased density and deformity of the peritoneal coat.

I may say, in passing, that I have closely studied Moschcowitz's photomicrographs in conjunction with text, and with these in mind have studied sections of over one hundred consecutive appendices removed for acute and chronic appendicitis, and during the course of operations for other purposes.

The acute may always be recognized, but in attempting to differentiate between those removed for symptoms and those without symptoms, my results were not more accurate than those one might expect by the rules of chance.

Appendicitis has been subdivided and classified into many more or less definite groups, for example:

Barker, groups acute appendicitis into four types as follows: 1. Acute simple catarrhal appendicitis. 2. Acute, diffuse, non-suppurative appendicitis. 3. Acute suppurative appendicitis with abscess formation. 4. Acute fulminating appendicitis, gangrene of the appendix and perforative appendicitis.

Da Costa' well says: "As a matter of fact, genuine appendicitis, that is, actual inflammation of the appendix, is always one disease which varies in intensity and complication. It is useless to divide it into a great number of symptomatic groups."

Robert T. Morris' presents a characteristic paper entitled "Notes on Four Kinds of Appendicitis," and gives a very satisfactory discussion of the symptoms of the so-called chronic appendicitis under the heading "Irritative Appendicitis," which would be most convincing were it not for the fact that in many cases the symptoms persist or return after a successful appendectomy. Another type of chronic appendicitis Morris calls "Syncongestive Appendicitis," which occurs as a common complication of general enteroptosis. The explanation for the appendix presenting symptoms of its own pecu-

liar sort is again most rational and satisfactory, but need not be repeated here for the reason that this same localization of the pain occurs frequently after the removal of the appendix. Morris's article concludes with the following paragraph: "Syncongestive appendicitis does not often call for operation. The symptoms of local pain and tenderness disappear when the swelling of the cecum disappears or when tolerance toward chronic swelling of the appendix has become established."

This attempted subdivision of appendicitis into cases requiring and cases not requiring operation calls for considerable presumption on the part of the surgeon, is a backward step, and will lead to trouble, dissatisfaction, and an occasional disaster. Many years of teaching, with much sad experience, have finally driven home the truth that appendicitis is a surgical disease and that one does but little better than guess in an attempt to foretell the outcome as to whether there will be a natural subsidence of symptoms and spontaneous recovery, or suppuration, gangrene, abscess or peritonitis.

With our present knowledge, the diagnosis of appendicitis calls for the advice to remove the appendix, not because all such cases lead to peritonitis, but because one may not tell, with any degree of accuracy, which will and which will not lead to serious complication.

By calling a condition appendicitis that is not appendicitis (judging from similar cases proved to be unrelated to the appendix), even modifying it by some adjective, merely makes the subject more complicated and causes confusion. Such confusion relative to the question of *chronic* appendicitis may be seen in the following report from the Mayo Clinic by Graham and Guthrie":

Chronic appendicitis with fecaliths	58
Chronic adherent appendices	20
Chronic appendicitis	14
Chronic obliterating appendices	8
Chronic appendicitis, cystic tip	6
Subacute appendicitis	6
Carcinoma of appendix	1
Tuberculosis of appendix	1
Acute appendicitis	1
Total	115

As showing the trend of opinion, I take pleasure in referring to the preface of the last edition of "Physical Diagnosis" by R. C. Cabot," in which we find an expression of growing skepticism as to the diagnosis of chronic appendicitis.

There is thus plainly indicated the necessity of a definition of chronic appendicitis before one may discuss it intelligently.

Definitions from many text books or articles could be quoted, but they are all quite similar and equally unsatisfactory.

Barker' very rationally subdivided *chronic* appendicitis as follows: (1) That following an acute process; (2) that in which the process is chronic from the start. He discusses the second subdivision of the question in the following manner:

In chronic appendicitis the patients suffer from discomfort in the right iliac fossa. Slight tenderness can be elicited on pressure. There is usually obstinate constipation and often hyperchlorhydria, though a normal acidity, or even a subacidity of the stomach-juice may be met with. In the obliterative appendicitis, or in-

volutional appendix, there may be no symptoms, the condition being found accidentally at operation done for other causes, but in the so-called "harmful involution of the appendix" the symptoms include headache, anorexia, chronic intestinal dyspepsia, discomfort in the region of the appendix, and tenderness at Morris's point. Sometimes a narrow hard appendix can be palpated.

This leaves very much more to be said regarding a subject so important that it might be called the most frequently treated (surgically) disease of the abdomen.

The above definition will hardly answer because in cases of recurrent appendicitis, definite, unquestionable and corroborated by competent testimony, or those in which operation finally proves the diagnosis, such symptoms as above detailed are not the rule between attacks; and more important still, such symptoms many times persist after successful appendectomy.

Inasmuch as it is difficult to gage the extent of the pathology in chronic appendicitis from the symptoms, *before* the abdomen is open, as it is still difficult from the gross pathology *after* the abdomen is opened and the organ is palpated and inspected; and as it is still difficult from the histopathology after the appendix has been removed and subjected to microscopic study, one may anticipate a certain degree of complexity and difficulty in a study of the subject of chronic appendicitis. A condition that is among the most difficult to diagnose within the entire list of surgical diagnoses, but one which is made everywhere, every day, by everybody, with as much nonchalance and much less evidence than is called to one's support in commenting upon the weather. One might say of this condition that it is the most treated and the least diagnosed surgical disease. In the authoritative text books and treatises upon the subject of appendicitis one finds hundreds of pages devoted to *acute appendicitis*, with often less than a proportionate number of lines, at most paragraphs, devoted to the subject of *chronic appendicitis*, while in every hospital in the United States hundreds of chronic appendicitis cases are being operated upon to the one acute case.

Because of the occasional error in differentiating between normal appendix and chronic inflammation of appendix by the signs and symptoms and even by the gross and microscopic picture, it has been suggested that a study of the "previous history" be called upon as an aid in such a differentiation. The previous history is difficult to obtain and still more difficult to correctly interpret. To properly correlate the more or less vague, indistinct and often incorrect recital of an attack of abdominal complaint, given often years after its experience, is many times utterly impossible, and the previous attack may have been anything from renal colic to dysmenorrhea. The patient's idea as to the severity of the attack is of little value, of course, when we remember that cases under our own observation may continue at work with an acute appendicitis, which is proved by finally terminating in abscess formation. In securing the history I have been astonished to find the number of times in which the patient states that the attending physician did not even take the temperature in the attack under consideration, and in which the patient walked to the office for

examination, complaining of pain in the right side, frequently calling the complaint appendicitis, and in which the examination consisted of merely palpation of the right iliac fossa. In reply to my question, many times I have been told that the *left* iliac fossa was not examined or inquired about. After such a superficial examination, which is worse than none, the advice, "to be operated upon tomorrow morning," was given and, to the detriment of medicine and surgery, has many times been acted upon.

One can but regret the lack of some authority regarding the question of operations for chronic conditions, similar to that in military service and the draft activities, by means of which errors were reduced to a minimum. It would seem that in matters as important as life and health, the exercise of such authority might well be extended to a peace footing. For example:

A soldier home on a furlough complained of pain in his abdomen, consulted a physician, who made a diagnosis of appendicitis and advised operation. His commanding officer was notified and the following laconic reply was received that is well worth repeating, and operating surgeons might well learn it by heart, to many times ask themselves in the absence of some other authority: "Telegram concerning E. M. received. If appendicitis is acute, may operate. Complete clinical history with diagnosis and method of arriving at diagnosis required and must satisfy local military surgeon. Answer what action you are taking."

Suffice it to state that the man was referred to the Medical Advisory Board, which, in time, reported a diagnosis of "hysteria"—which time has since proved to be correct.

We have made an effort to subdivide supposed cases of chronic appendicitis into those in which there is and there is not given a history of a previous acute attack that might reasonably be supposed to be appendicitis. We would arbitrarily suggest that an acute attack be considered probably only in cases in which there was pain, tenderness, temperature, nausea or vomiting, with invalidism necessitating rest in bed for at least one day. This is recognized, of course, as not being positive, but it gives one a suggestion as to the nature of the so-called "acute attack." This led to the rather consistent findings that:

A. Chronic appendicitis with known previous acute attack: the symptoms in the interval were slight; B. Chronic appendicitis with no known previous acute attack: the symptoms were more or less constant.

It led to the further constant finding relative to the remote result following appendectomy, the result not being considered until the elapse of one year or more:

Chronic *with* evident history of acute attack: *Cure* following appendectomy: large percentage. *Not cure*: small percentage.

Chronic *without* evident history of acute attack: *Cure*: Small percentage. *Not cure*: large percentage.

In a consideration of chronic appendicitis Class A, in which operation is usually followed by cure, need not concern us except as to show us the dif-

ference between A and B. Class B concerns us because it is one in which our result is not satisfactory because of either improper method of treatment (which is not reasonable if our diagnosis is correct) or an incorrect diagnosis, and consequently a wrong and ineffectual line of treatment.

If this conclusion is correct, and it would seem to be so, then it is incumbent upon us to find out what is the cause of the right iliac pain. What is there in the right iliac fossa and not in the left that might give rise to such symptoms as are presented in the complaint commonly misnamed "chronic appendicitis"?

In the first place, as to this pain being in the right iliac fossa and not elsewhere: In many cases of this type I find, on careful examination, that there is objective pain and tenderness in both the right and the left iliac fossa, as well as in the epigastrium and hypochondria, if carefully searched for, while the subjective pain is more often complained of only in the right side. Therefore it may be said that in a certain proportion of cases the pain and tenderness is only in the right side for the simple reason that it is looked for only in the right side.

Royster" has called attention to left-sided pain in women, in relation to adhesion between the tube or broad ligament and the sigmoid, and recommends a plastic operation upon such adhesions, which operation I have carried out many times with results that leave me unconvinced as to its value.

Of the cases in which the pain and tenderness are in the right iliac fossa, we know it is *not* due to certain conditions, for example: (1) The appendix. (2) Pericolic membrane, ileal kink, similar definite bands. (3) "Adhesions." (4) Coincident pathology.

Not due to the appendix because of previous appendectomy: This is the one outstanding fact regarding this subject. Relief of symptoms may follow the removal of appendix and there may still be a rational opinion that recovery took place in spite of the operation. But in cases operated by removal of the appendix followed by a return of the same symptoms, we are correct in saying that the symptoms were not due to the appendix.

In 1914 the author, under the title "The Chronic Abdomen," considered at length a series of cases of secondary operation for persistent symptoms following appendectomy. Again in 1916 the writer once more called attention to this type of abdominal complaint and presented a detailed analysis of 87 such cases in an article entitled "Pseudo Appendicitis."

Not due to definitely named bands or membranes such as Lane kink; ileo pelvic band; genito-mesenteric fold of Douglas Reid; Jackson's membrane; parieto-colic fold of Jonnesco and Juvara; the bloodless fold of Treves; and others. In 1911 the writer called attention to these bands, membranes and kinks under the title of "Ileo-cecal Adhesions—Lane's Kink and Jackson's Membrane." This was followed in 1912 by a contribution entitled "Etiology of Lane's Kink, Jackson's Membrane and Cecum Mobile," in which an attempt was made to show that these bands and membranes were not of inflammatory origin, and in "A Review of Nineteen Cases of Pericolitis and Ileal Kink in Which the Ap-

pendix had Been Previously Removed," that they were not the cause of the symptoms that led to appendectomy, such conclusions are now quite generally accepted. (See the authoritative work of Samuel Clark Harvey" entitled "Congenital Variation in the Peritoneal Relations of the Ascending Colon, Cecum, Appendix, and Terminal Ileum.")

Not due to adhesions.—In this day of promiscuous operations and operators a most unusual opportunity has been given to perform definite experiments within the living human abdominal cavity which, if recognized, would have served a splendid opening for the antivivisectionists who have been so strenuous in their efforts to eliminate experimentation upon the lower animals that they have overlooked this field of activity, which might much better have been the object of their misdirected efforts. All that has been necessary to carry on a series of such experiments was to observe, tabulate and report the findings before, during and after the various multiple abdominal operations that have been so common in the past few years—an opportunity so commonplace that it has been many times overlooked and neglected, a failure to embrace an opportunity that I fear will be a long time returning.

The glib manner in which the laity and many of the profession make a diagnosis of "chronic appendicitis" has given a rather unusual opportunity for observation and study of the abdominal findings and of the results following treatment.

The first defense in failure to relieve symptoms after an appendectomy for chronic appendicitis, has been an explanation attributing the persistence of symptoms to "adhesions." Very little seems to be really known about adhesions, their cause and prevention, despite the many communications upon the subject. One fact has been constantly evident in my observations at secondary abdominal operations following appendectomy, viz., that in practically every case, examination of the site of the appendiceal stump reveals the absence of adhesions. Adhesions to the abdominal scar were frequent; but the visceral scar, despite the necessary traumatism and manipulation, was non adherent. The exact significance of this has not been presented satisfactorily, though Quain has emphasized the importance of injury to the intercostal nerves in the development of abdominal adhesions. In these cases of supposed adhesions an acute obstruction is a most uncommon occurrence. In cases of true obstruction coming to operation, the previous history is most unlike that given in these cases of supposed adhesions. After definite attacks of acute appendicitis the adhesions that usually cause symptoms are those that produce ileus.

Another important point that is often overlooked is that these same symptoms supposed to be due to *post operative* adhesions were present *before* the operation which was supposed to cause the adhesions.

Repeated operations in which adhesions were divided at secondary operation have failed to permanently improve the symptoms. And repeated secondary operations for various conditions in which there had been no return of the original symptoms have many times shown the same adhesions that are here innocuous.

Thanks to these many operations for various causes there is a failure to accept "adhesions" as a cause of symptoms of "chronic appendicitis" after the removal of the appendix.

Not due to pathology in the stomach, duodenum, gall bladder, liver, kidney, ureter or bladder, tubes, ovary or uterus, vertebra, sacro iliac articulation, or diseases of the nervous system. That these symptoms are not due to the usual or unusual abdominal disease named is granted for argument's sake; of course, there is always a possibility of overlooked abdominal organic pathology, but a weakness on the part of the laity and, in turn, of operators, to attribute abdominal symptoms following unsatisfactory primary laparotomies to "adhesions" has again made a most unusual opportunity to allow re-examination of these cases during which coincident diseases have been excluded.

Multiple operations have sometimes located the cause of the symptoms in some other intraabdominal or related organ or structure, but in the class under consideration, by no means a negligible class, subsequent general exploration, often repeated many times, has proved other usual sources to be negative, or such sources have been reasonably excluded by careful study.

So that leaves for our consideration cases of "chronic appendicitis" in which the appendix is not the cause of the trouble, neither are "adhesions," and, to the best of our knowledge, neither are the other possible sources of pain in this region, such as the above enumerated list of diseases.

The explanation of nervousness, neurasthenia, psychasthenia, etc., seem to do no explaining in these cases. They are nervous, of course, but this does not explain the reason for pain on the right side and not on the left. One neurological consultant, in all seriousness, suggested that the reason for the localization of pain, spasm and tenderness in the right side was that these people *knew* that the appendix and gall bladder were on the right side, and therefore their choice of a location for their pain and hypersensitiveness!

If the above remarks will emphasize the fact that certain cases of so-called chronic appendicitis may not be remedied by appendectomy, they will have fulfilled their purpose. The cause of the symptoms in such cases, it would seem, must lie more central than in the appendix itself, either in the cecal or colonic mucosa or wall, the ileocecal valve, the root of the mesentery, or still more central in the vagus or sympathetic nerve supply, or in the ductless glands.

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19 JEFFERSON AVENUE.

A CONCEPT OF X-RAY PATHOLOGY.

V. OSTEOPATHY.

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IN the study of the x-ray pathology of bone, there are six structures that interest the roentgenologist. These are: (1) Bone tissue, (2) Marrow, (3) Periosteum, (4) Cartilage, (5) Synovia, (6) Ligament.

BONE.—Bone is composed of calcium salts and of organic material. It is the same wherever it is found, differing only in the arrangement and in the relative proportion of inorganic to organic constituents. Two general classes of bone are recognized; the dense and compact, and the soft spongy or cancellous. In each class the bone is the same. Dense bone occurs at the circumference of the shafts of the long bone, and generally as a layer on the outside also of spongy bones. Parallel to the long axis of the bone a system of channels, the Haversian canals, are directed. The shaft of the bone is not to be regarded as an external layer of dense bone filled with a cylinder of marrow, but as a mass of bone differing in the relative amount of bone and marrow as the center is approached; that is, at the circumference of the bone there is relatively little marrow, while in the middle of the bone there is relatively little matrix.

MARROW.—Normally, marrow may be red or lymphoid, or yellow and fatty. Red marrow is typical. It carries various cells, the derivation, function, and destination of which are still only partially known. Marrow is not a passive filling for the bones but is one of their active constituents busily engaged in building up and tearing down osseous tissue. It is important to remember that the changes incident to disease begin first in the marrow; so that bone may be considered as consisting essentially of two parts: (1) Non-vital matrix, (2) Vital cellular content.

The first of these parts is anatomical, the other physiological. The structural arrangement of bone is such that the vital protoplasmic element with its blood vessels is inclosed within the walls of a rigid non-vital framework of mineral salts. The vital element, inclosed in the bone, is possessed of the property either gradually to absorb the rigid structure that incloses it, or to increase the extent of rigid structure by depositing thereon additional mineral salts. Bone is radiopaque, marrow is radioparent.

PERIOSTEUM.—The periosteum is composed of

two layers; an inner or cellular and an outer or fibrous. The inner is thick in children and thin in adults. It bares a strong analogy to the marrow of the subadjacent bone. It has similar functions to the marrow and is vulnerable to the same diseases. It is proper to regard it as a layer of marrow on the outside of the bone not at all separate or distinct from the marrow in the interstices. The two communicate by small channels or canals in the bone and contribute to nourish the bone tissue.

The outer layer of periosteum is relatively functionless and appears to serve as a mechanical cloak to protect the bone from crass injury. Where joint cartilage begins, at the ends of the long bones, the outer fibrous layer of the periosteum is continuous with the ligament; and for the purposes of x-ray pathology the inner or cellular layer may be regarded as continuous with the synovia.

THE JOINT.—A joint is a closed cavity between two bones in which two tissues abound. These are the cartilage and the capsules; where one begins, the other ends.

Cartilage is embryonic bone in potentiality. It is connective tissue, fundamentally fibrous in structure. Normal cartilage is radiopaque, or at most radiolucent; but if the nutrition of the cartilage is disturbed, or if the joint be put at rest, the real fibrous structure of the cartilage becomes evident, the striæ attaining a radiolucency and sometimes radiopacity sufficient to render them identifiable on the x-ray plate. Deep in the cartilage these fibers are at right angles to the surface, more superficially, they are parallel to the surface. Joint cartilage forms an absolute barrier against the extension of disease from the bone into the joint until the cartilage has been perforated by cutting off its nutrition. This is an important physiological fact. It is a positive sign, in x-ray pathology, in the differentiation of malignancy and nonmalignancy. A malignant growth cannot traverse a joint. Any x-ray lesion of a bone that crosses a joint is, *a priori*, not malignant.

Capsules.—The capsule, virtually, is a continuation of the fibrous lay of the periosteum. Like the periosteum it consists of two layers, an outer fibrous and an inner cellular. The outer fibrous layer is known as ligament, the inner cellular is the synovia. While they are not different structures, but simply continuations of the same structure, it is convenient for the purposes of x-ray pathology to consider them apart. The synovia is active, the ligament passive. It is a matter of great aid to visualize the ligament as being periosteum, and the synovia as marrow.

Synovia.—In its simplest form, the synovia represents a layer of round cells lining the capsule of the joint. For most of its extent it is smooth; but in the recesses of the joint it is thrown into false villi. When an inflammatory process invades the synovia, the round cells proliferate sometimes enormously. This accumulation of cells conduces to a general villous proliferation. Proliferation of this form is found in tuberculosis, in other infectious processes and in mechanical irritations to the joint cavities.

Ligament.—The ligament is the fibrous layer of the periosteum forming the capsule of which the synovia is the cellular layer. The only x-ray sig-

nificance that attaches itself to the ligament is its general configuration. From the bulging of the ligament an increase in the volume of joint-fluid is inferred.

CHARACTERISTICS OF BONE DISEASE.—In dealing with bones it is ever to be remembered that the morbid process runs its course in the marrow, locked up in the firm rigid casing or shell. The effects of the disease are rendered manifest upon this shell, which changes in the shell must not be regarded as the disease itself, but only as the effect of disease. In children there is the additional feature of the epiphyseal cartilage, which may influence the spread of disease.

CLASSIFICATION OF OSTEOPATHIES.—Following the classification proposed by Barker, osteopathies may be conveniently subdivided into the following groups: (I) The congenital osteopathies; (II) The degenerative, the toxic, and the endocrinopathic osteopathies; (III) The osteopathies of circulatory origin; (IV) The inflammatory osteopathies; (V) The neuropathic osteopathies; (VI) The parasitic osteopathies; (VII) The neoplastic osteopathies.

Congenital Osteopathy.—The congenital absence of bone is a matter of immediate recognition in x-ray pathology. Roentgenology is the most satisfactory method of investigating bone defects of all sorts. Two particular bone defects require special mention. First, in determining the presence of a cervical rib by x-ray study, it is important that the precaution be observed to ray the entire spine. Occasionally one finds variations from the normal. There may be seven cervical, twelve dorsal, and five lumbar; or eight cervical, twelve dorsal, and four lumbar. When there is a variation of more than one spinal element the tendency is to induce an abnormal visceroptosis. Visceroptosis is more apt to be present when there are four lumbar vertebrae than when there are five. There is but one positive means for determining the presence of cervical ribs, that of x-raying the entire spinal column. This is especially necessary when the cervical ribs are double.

Two types of vertebral abnormality may exist, the incomplete development of an existing vertebra, affecting the seventh cervical, the first dorsal, the fifth lumbar, and the top of the sacrum; and the actual development of an additional vertebra, rudimentary in type.

The transverse process of the seventh cervical vertebra is rudimentary. The processes get larger down to the fifth lumbar, where they are quite marked. If the laminae fail to unite, the condition is spina bifida. Ordinarily the laminae unite and form a spinous process. Occasionally, the spinous process may be formed from one lamina and mistaken for a fracture. The most common sites of rudimentary spina bifida are the seventh cervical, first dorsal, fifth lumbar, and top of the sacrum.

An abnormality with little significance is one involving the top of the sacrum. There may be either partial or complete sacralization of fifth lumbar vertebra. Instead of a perfectly straight transverse process, the fifth lumbar vertebra may show a bulbous end. No particular significance attaches itself to this condition; it is simply a peculiarity pertinent to the fifth lumbar vertebra to assume the characteristic of the top of the sacrum.

The x-ray diagnosis of sacroiliac subluxation is a matter of speculative conjecture. It is difficult to understand how the character of the sacroiliac synchondrosis would permit of a subluxation; and any slight sprain in the region of the synchondrosis might not affect the bony relations sufficiently to register on the x-ray plate.

Variation in the Bones of the Hand and Foot.—Dwight has very exhaustively dealt with the variations of the bones of the hand and foot. In a recent survey in which twenty-five thousand x-ray plates of the wrist were examined, the more common variations in the bones of the wrist could be plainly elicited on the x-ray plate. This is particularly true of the os magnum and scaphoid. In another series of sixteen thousand x-ray plates of the foot, there was twice encountered an abnormality of the pedal scaphoid, which appeared in a divided condition. The separated fragment detaches itself from the anterior upper surface of the pedal scaphoid.

With constant regularity in the forty-one thousand plates examined it was observed that the bones of the wrist or of the ankle were either of normal contour, or, if variant, the variable was never single but always multiple. So constant was this observation as to make for the formulation of a law called the "law of multiple variants."

The "law of multiple variants" has an extremely practical application. In a given examination, if a divided scaphoid is to be studied to determine whether the division is congenital or recent fracture, if tendencies to variation in other carpal bones are noticeable, the law of multiple variance would point to a congenital condition, always granting that the clinical history concurs. If, in the same case, no other variations are noticed in the carpal bones, the law of multiple variance not being sustained, the inference would be for an acquired trauma rather than a congenital defect.

Degenerative, Toxic, and Endoeritropic Osteopathies.—When the nutrition of a bony part is impaired, the changes that indicate the deviation from the normal are accompanied by variations in the radiopacity of the bone. Radiolucency is observed as the result of mineral absorption. Radiolucency occurs much earlier and more quickly than changes which induce radiopacity. Radiopacity results from the extra deposition of mineral matter or from the appearance of a new bony growth.

It may be gathered generally that acute bone disease is made evident by a change from radiopacity to radiolucency; and that chronic bone disease is made manifest by an increase in radiopacity.

Osteoporosis.—Should a muscle or a part be kept at rest for any considerable length of time, the bones in that part lose some of their calcium. The mineral is absorbed by the marrow where it comes in contact with the bone; so that, in effect, the marrow spaces everywhere become greater than normal. The bone assumes a more marked porosity and the condition is known as osteoporosis. It is important to recognize that in osteoporosis, or bone atrophy, the bone is not affected in radiopacity. Such bone as remains maintains its normal radiopacity; simply the Haversian spaces together with the trabeculae in general, exerting their demineralizing action through the marrow, occasion a more porous bone structure. This is to be con-

trasted with the actual radiolucency that involves a bone attacked by tuberculous infection, to be subsequently described.

Rickets.—Rickets is a common disease among young infants. It may be of fetal origin and consequently it may occur at any time. In this connection it is to be differentiated from scurvy which never occurs in utero, but generally occurs during the very early days of growth. The skeletal changes that dominate in the clinical picture of rickets consist of: (1) Softening of the bones with a lowering in their content of lime salts leading to abnormal curvatures; (2) Loss of bony substances; (3) Thickenings due to deposits upon the bones or to swelling of the epiphyses; (4) Disturbances in the longitudinal growth of the bone.

Rickets is characterized by a definite change in the epiphyseal line but not in the joint surface proper. All the disturbances occur at the epiphyseal line where there is an absorption and a softening of the bone. Hemorrhages extend into this area so that the growing cartilaginous structure is riddled. The area between the epiphysis and diaphysis becomes softened and putty-like. With muscle spasm these bony surfaces are approximated, the pressure causing the softened area to yield, producing a flaring-out. With the changes in the joint, in which the flaring-out extremity of the diaphysis is prominent, a marked absorption of calcium salts in the remaining portion of the bone becomes noticeable. The absorption affects all of the bone tissue; so that, differing from bone atrophy in which only the edges of the bone are demineralized, in rickets all of the bone is demineralized and assumes a radiolucency. The radiolucency may become so extreme as to make it difficult to distinguish between the shadow of the affected rachitic bone and the surrounding soft tissue. When the bone reaches this condition it becomes excessively pliable and prone to fracture. It is not uncommon for multiple fractures to occur; ten, twelve, and even as high as seventeen fractures having been seen in one case.

Periostitis may occur in rickets but is not common. It seldom occurs when the absorption of lime salts has been great.

It is advisable to examine the chest, in cases of rickets, where the cupping of the sternal attachment of the ribs is readily demonstrated. It is a reproduction on the plate of the "rachitic rosary" felt by the clinician.

On either side of and just beyond the shadow of the heart and aorta, a radiolucent band in the lung may sometimes be observed. It results from a direct pressure of the expanded ribs bearing on the lung surface and producing a line of atelectasis. It is pathognomonic of rickets.

The delayed bone formation, affecting particularly the cranial bones, is an added sign of rickets.

In summary, the x-ray pathology of rickets is manifested by halisteresis conducive to bone radiolucency; periarticular swelling; changes at the epiphyseal line producing mushroom flarings; fragility leading to fractures; occasional periostitis; the atelectic pulmonary band; and the rachitic rosary.

Scurvy.—The x-ray pathology of scurvy centers in and around the joint. Those changes that register occur directly behind the epiphyseal line on the

diaphyseal side of the epiphysis. A white line just back of the epiphysis in the shaft margin is the earliest evidence of the presence of scurvy. The line is thin, more radiopaque and more sharply defined than that occurring in rickets. Overlaying this line there is a radioparent space, or black line in which the bone has been nearly completely removed and only detrital fibrous tissue remains.

As soon as the eburnated radiopaque zone appears periosteal changes generally occur. Hemorrhages frequent the cellular periosteal layer. The hemorrhages are irregularly located at first; so that periosteal elevation of irregular and unequal distributions are found associated with the eburnated zone. At times the hemorrhage may invade the space between the epiphysis and the diaphysis, and its volume may be such as to occasion a separation of the epiphysis. The fibrous layer of the periosteum is generally stimulated to proliferation. In addition to being raised by the infiltration of blood into the cellular layer, the fibrous layer of the periosteum thickens and thereby becomes radiopaque.

Inflammatory Osteopathies.—Inflammation may involve the marrow contained within the bone and affect its changes on the surrounding bone, when the condition is known as osteomyelitis; or it may involve the cellular and fibrous layers of the periosteum when the condition is known as periostitis. In general, from the viewpoint of x-ray pathology two types of inflammation may be recorded; those due to usual organisms, including staphylococci; or, organisms like typhoid bacillus and pneumococcus that produce changes in the marrow that cannot be differentiated from those produced by pyogenic organisms. Then, there are the inflammatory reactions that are due to an invader by syphilis or tuberculosis, which invasion produces a somewhat distinctive x-ray pathology and which is called, clinically, specific inflammation.

Acute Osteomyelitis.—In the order of frequency, the common sites for osteomyelitis are the shaft of the femur, the clavicle, scapula, a rib and a tibia. This is particularly true when the infection is primarily the result of a hematogenous origin; but any bone may become involved, including the flat bones of the skull, the spine, the sternum or the small bones of the extremities. The inflammatory agent exerts its effect upon the bone matrix through the elaboration of toxic products that become diffused in the marrow of the affected region. In the case of pyogenic organisms, and also typhoid bacillus and pneumococcus, the first effect of the presence of suppurative products is to induce on the surface of the bony framework that includes them an overdeposit of lime salts. This deposit encroaches on the adjacent spaces and give the appearance of eburnation. It cannot be recognized on an x-ray plate unless the radiograph is enlarged some three or four times. The sign is generally overlooked in spite of the fact that it is an early and only x-ray evidence of acute osteomyelitis in the very first stages.

As the osteomyelitic process continues, the sclerotic lining of the bone spaces disappears; the bone being replaced by bone absorption, a condition formerly recognized as halisteresis. If an enlargement of a suspected bone area fails to show a sclerosis of the margins of the bone space, the x-ray

inference may be that no infection is present, or that if infection is present, it has passed the very incipient stage and has begun to occasion necrosis. Necrosis may progress rapidly and circumscribed and produce a bone abscess; or it may effect the necrosis of a diffused mass of bone leaving sequestered areas with sequestra *in situ* and perpetuate chronic suppuration with sinus formation. It is seldom that acute osteomyelitis is diagnosed from the x-ray plate unless it has reached the stage of abscess formation or until a considerable area of bone has been attacked. Periosteum is never visualized on an x-ray plate unless it has undergone a change accompanied by the infiltration of radiopaque or radiolucent material, generally calcium salts. Osteomyelitis, when purely of a hematogenous origin, is usually medullary. When it results from trauma it is more generally cortical. Cortical osteomyelitis is characterized by a marked production of periosteal bone. It is accompanied by periosteal swelling, the cellular layer of the periosteum being engorged with purulent products of inflammation. It is extremely important to remember that bone deposition following osteomyelitis is on the osteal side of the periosteum; never in the soft tissues. If bone growth or deposition is found in the soft tissues, the pathology is not osteomyelitis but is more probably an osteal growth or a form of myositis ossificans. There is an inverse proportion between the acuity of osteomyelitic infection and the deposition of calcium salts. In the early stages and when the acuity is highest, lime salts are resorbed; in the later stages and as the process assumes a chronic character calcium salts are deposited.

Chronic Osteomyelitis.—The peculiarities affecting inflammations in bone are two; one anatomical and the other physiological; the former resides in the structural arrangement of bone wherein the essential protoplasmic element with its bloodvessels is enmeshed within the walls of a rigid, non-vital mineral framework; the later, physiological, resides in the special activities and powers possessed by this vital element in two opposite directions, that of gradual absorption of the rigid element which surrounds it, and that of stimulating additional deposit of mineral salts. It is to this second peculiarity that two pathological processes, osteoporosis or caries, destructive and rarefying, and osteosclerosis, defensive and reparative, result.

Necrosis.—When an appreciable amount of bone dies it undergoes necrosis. Necrosis is gangrene of bone tissue and applies to the death of any microscopic quantity of bone. Death affects only the vital cellular elements, the inert matrix undergoing no immediate change. All the changes that occur in the matrix are secondary and subsequent to the necrosis, forming no essential part of the gangrene. Caries is a gradual, progressive process varying with the character and intensity of the irritant. When the infectious agent is of such virulence as to occasion degenerative changes in the bone forming cells, caries results in destruction of all of the elements of the bone; but where, on the other hand, the irritant agent is avirulent, or the infective agent is of subminimal level of intensity, the carious process consists merely of rarefaction incident to an absorption of the bone matrix alone.

Cavity Formation in Bone.—Cavities may be classified according to an etiological, a pathological, or a bacteriological basis. J. Renfrew White gives the following classification:

1. Aseptic cavities of traumatic origin. (a) The aseptic cavities of simple fractures. (b) The cavities left after the removal of an aseptic foreign body. (c) The cavities left after the removal of new growths of bone.

2. Aseptic cavities of spontaneous origin. (a) The cavities due to new growths. (b) The cavities of fibrocystic disease of bone.

3. Infected cavities of traumatic origin. (a) Cavities the result of the presence of an infected foreign body in bone. (b) The cavities of compound fractures proper, either before or after the performance of simply sequestrectomy.

4. Infected cavities of spontaneous origin. (a) Cavities the result of chronic spontaneous (hematogenous) osteomyelitis. (b) Cavities the result of acute spontaneous (hematogenous) osteomyelitis.

In some cases, as in fulminating osteomyelitis, destruction beginning in a small focus spreads so quickly as to preclude the x-ray differentiation from a malignant bone disease. Osteomyelitis may, with practically no new bone production, produce a vacuolated area in the shaft of the bone. Bone destruction may increase and the cortex be broken through. This breaking through releases the tension produced by the accumulating suppurative products; but the destruction, after the breaking through is accomplished, does not penetrate the opposite side of the shaft. This is a differential distinction from the x-ray pathology of malignant growths wherein breaking through is multiple and often involves both sides of the shaft. The moment the bone is broken through and the suppurative products are released there, bone production begins. Bone production follows the stimulus of an irritant; and osteomyelitis acts as an irritating agent. The locus of stimulation is practically always confined to the junction of the normal bone with the infected bone. Chronic osteomyelitis is characterized by a thickening of the bone which gives an appearance of increased radiopacity. The appearance is due not so much to an additional deposit of new mineral in the already existing bone, but more to an obliteration of the radiopaque marrow spaces. Mineralization proceeds at the periphery of the shaft, where it is more or less confined by the protective periosteum, but it advances rapidly in the medullary region, where the existing marrow channels offer less resistance to the deposit of mineral than does the protective periosteum. The effect is to obliterate the medullary canal. In the x-ray pathology then, a general enlargement of the bone, a more radiopaque structure and a tendency approaching completeness to obliteration of the medullary canal, all are x-ray signs of chronic osteomyelitic involvement.

Acute Periostitis.—Acute periostitis may follow trauma or infection. It is not uncommon as a complication in typhoid fever, in which infection the acute periostitis involves the tibial periosteum and sometimes the periosteal covering of the clavicle. The cellular layer of the periosteum is invaded by organisms that engorge the cellular periosteal space. If the resistance of the cellular periosteum is greater

than the infecting force, the products of infection neutralization accumulate in the cellular periosteal layer, raising the fibrous layer and giving the x-ray appearance of a radiolucent mantle surrounding the bone shaft; but if the infection is of great virulence, and the cellular periosteal reaction is of subminimal resistive capacity, the cellular elements are attacked and destroyed, a partial liquefaction necrosis ensues and the necrotic products distend the cellular periosteal space with a material that is more radiopaque than the normal radiolucency of the fibrous periosteal layer. In each case, the fibrous layer is elevated and separated further from the bone by the swollen cellular periosteal mantle. In successful immunity, the cellular periosteal space is radiolucent; in unsuccessful immunity, or progressive infection, the cellular periosteal layer becomes more radiopaque.

Chronic Periostitis.—In chronic periosteal inflammation the fibrous layer may thicken and become radiolucent, at times radiopaque; while the cellular layer may occasion an infiltration of mineral salts both in itself and also into the fibrous layer. The x-ray pathology is evidenced by a periosteal radiolucent or radiopaque mantle surrounding the shaft but less radiopaque than the shaft. Ordinarily, the bone deposit in the fibrous lamellae is striated and is deposited in superimposed layers growing usually by centrifugal accretion.

Bone deposition is the result of an irritant stimulus and proceeds, regardless of the origin of the stimulus able to produce it, in an identical manner; it is, therefore, barely possible to distinguish the various stimulants that occasion a periosteal chronic inflammation. There is an exception in the case of periostitis due to syphilis. When of luetic origin, periostitis may assume its usual form; but occasionally the deposition of lime salts in the periosteal tissue is irregular and unevenly distributed. The result is a "lace-like" appearance of the elevated periosteum. When it occurs, this lace-like periosteal reaction, serrated or tooth-like, is so typical of syphilis as to make it practically an infallible x-ray sign distinctive of syphilis. No other form of periosteal infection manifests itself in this way.

Chronic Pulmonary Periosteopathies.—In some pulmonary conditions, and occasionally in tuberculosis and in sarcoma, the fibrous layer of the periosteum thickens and becomes radiolucent or radiopaque, depending upon the amount of thickening. The cellular layer widens and elevates the fibrous layer. The x-ray pathology is that of a radiopaque "hair-line" elevation separated from the bone by a markedly radiopaque space. The x-ray appearance is difficult to differentiate from that of acute or subacute periostitis of virulent infection in the initial stages. Chronic pulmonary periosteopathy affects particularly the long bones. It can be distinguished from acute suppurative periostitis by the fact that chronic pulmonary periosteopathy is multiple and affects all the long bones, while suppurative periostitis is usually localized, involving only one bone or part of one bone.

Syphilitic Osteopathy.—In x-ray experience, syphilis manifested in children is generally congenital; that manifested in adults is usually acquired. It is rare if ever that acquired bone syphilis is

found in children. When syphilis invades a joint the capsule is swollen with fluid and periosteum at the junction of the periarticular cartilage is thickened. In children this is accompanied by more important changes in the bone itself at the epiphyseal line. There are erosions at the side and edge of the epiphyseal line on the diaphyseal side. This erosion is accompanied by a periostitis with rarely occurring superperiosteal hemorrhages, by which it is distinguished from scurvy. The lesion in syphilis is multiple. Syphilis is a stimulant to mineral deposition. The deposit of lime salts is manifested under x-ray pathology by the marked calcific infiltration invading the periosteum. There is no infectious irritant that induces as much bone deposition as does syphilis.

In secondary syphilis the superficial bones (skull, anterior surface of tibia, ulna, and metacarpals) are most often affected. Superperiosteal deposits of mineral, giving rise to syphilitic nodes, become clinically palpable and readily visualized under x-ray examination.

In tertiary syphilis, gummata appear. These may be either in the form of circumscribed periostitis, causing round nodes, or they may begin in the marrow and in the spongy part of the long bones. Occasionally a phalanx may be affected as in dactylitis syphilitica, or a metacarpal bone may suffer luetic invasion giving rise to an appearance very much resembling the appearance produced by a tuberculous "spina ventosa."

Tuberculosis.—In bone, tubercle manifests itself chiefly by a markedly increased radiopacity of the structure. In children, the order of frequency of bone lesions is (1) Rickets, (2) syphilis, (3) Scurvy. Tuberculosis is said not to occur in children under one year of age. The claim is made that it requires nine months for tuberculosis to develop sufficient changes to be recognized in the form of x-ray pathology; and since it is further maintained that tuberculosis can not occur in utero, obviously about a year forms the first period in the age of the child when tuberculosis can be sought in the bones. More generally, it seldom appears before the second year. Tuberculosis is distinguishable in that tubercle produces halisteresis. At the site of lesion in the bone all grades of radiopacity are observed from a slight change to extensive areas of rarefaction, even necrosis or cavity formation. The rarefaction is the result of a resorption of mineral. This resorption proceeds with great rapidity and is marked by the fact that the lime is withdrawn from the bone and is apparently transferred to the marrow for transportation elsewhere; but while in the marrow it remains in an insoluble form, and therefore renders the radiopaque marrow spaces radiopaque. In this fashion, the added radiopacity in the marrow spaces, together with the increased radiopacity of the mineral matrix make for a rarefaction characterized by diffuse indistinctness of outline. The analogy has been made, for the purposes of imaginative illustration, to the effect produced by drawing the outline of a bone with chalk on a black-board and gently rubbing the sketch with a soft cloth, the general haziness and obfuscation resulting simulating a bone invaded by tuberculosis as revealed on the x-ray plate.

If the lesion is in the neighborhood of a joint,

additional changes are superadded. In the region of the joint there are two lymphoid structures, the red marrow and the synovia. Red marrow occurs also in short and flat bones, vertebrae, sternum, cranial diploe, carpi, tarsi, and so forth; and it is to be noted that, wherever red marrow occurs, the bone is vulnerable to tuberculosis. Contrariwise, when a bone region is free from red marrow, tuberculous invasion is not found. Tuberculosis localizes in the red marrow of the bone and of the joint. In itself tuberculosis does not produce bone. Bone is only produced when there is a concomitant infection. The synovia is greatly affected in tubercle. Unless a secondary infection is present no new bone is produced; but the mineral is withdrawn from the adjoining non-vital matrix and is thrown into the fluid of the joint, where, remaining as an insoluble suspension, it renders radiopaque the normally radiopaque joint fluid. Says Edward W. H. Shenton:

Instead of the clear outlining of the bones and their cancellated structure, a fluffy effect is seen, the outline being blurred and the cancellous tissue difficult of detection. The unskilled will observe "what a pity the photograph is not clearer," and one has learnt to regard this criticism as a strong confirmation of a diagnosis of tubercular disease in joints (as well as in certain other situations spoken of later). This blurring is due to fluid in part, but also to thickened synovial membrane, the fluid in the case of tubercle being much less than in simple acute arthritis. An acute or sub-acute arthritis may show a greater degree of blurring than early tubercle, and unless clinical evidence is very definite a simple and a tubercular arthritis may be confounded. It is not often that the mistake is made. A careful examination of the surrounding bone tissue will help to confirm or disprove a suspicion of tubercle.

Paget's Disease.—It is seldom that Paget's disease is visualized in persons under 40 years of age. The symptoms develop clinically with pains and enlargement of bone. There are instances in which the onset is insidious, and the deformity of the bone structure is the only change at first recognized. In the order of frequency, the bones affected are: Skull, tibia, femur, pelvic bones, spine, clavicles, ribs, radius. The disease may or may not be bilateral. In the bone the pathology consists of a softening and a pathological swelling in the longitudinal direction on the convex side. This swelling is at the expense of existing matrix, the marrow spaces becoming widened. It may be compared to a bone emphysema. Its x-ray pathology is manifested by long longitudinal areas of radiopacity.

The changes in the skull closely approximate those seen in hydrocephalus, the entire head assuming the form of a triangle, base upward. The frontal bone projects. In the swollen skull there are irregularly distributed areas of radiopacity. Baetjer characteristically describes the x-ray pathology of the skull in Paget's disease by the effect in the kinks of a negro's skull impregnated with calcium salts.

In the extremities, calcified arteries are somewhat characteristic, or at least marked features of Paget's disease. The technology for the exposure of a knee as described by I. Seth Hirsch is useful in demonstrating a calcification of the popliteal arteries in the popliteal space ("Principles and Practice of Roentgenological Technique," I. Seth Hirsch, page 173). There are certain changes in the base line of the skull to which Leri has sub-

scribed a special formula. The x-ray pathology of Paget's disease is sufficiently recognizable without the use of base-skull measurements.

Neuropathic Osteopathies.—Syringomyelia of the Morvan type is recognized by a gradual disintegration of a finger tip. In other forms syringomyelia always involves a joint. The changes affecting a joint in cases of syringomyelia are difficult to distinguish by x-ray pathology, from Charcot joint. In the Charcot joint, however, there is more bone destruction and more detritus present than in syringomyelia.

Raynaud's Disease and Leprosy.—Raynaud's disease and leprosy give a pointing of distal phalanges. Raynaud's disease usually fails to show any signs until it has gone on to gangrene.

Parasitic Osteopathies.—Parasitic osteopathies are rare. An echinococcus cyst has been described within a bone. Amebic necrosis of bone has sometimes been found to occur in cases following pyorrhea alveolaris. It is obvious that in these cases the x-ray pathology would be that of a bone cavity already discussed under the classification previously given by White.

Neoplastic Osteopathies.—Fibromata occur most commonly in the periosteum of the bones of the head and face. They are apt to form polypoid tumors projecting into the antrum of Highmore. Fibromata are generally loose textured, and may undergo some calcific changes, when they appear as radiolucent tufts with circular parallel fibers that are distinctly radiopaque.

Central fibromata are rare. Their most common seat is the inferior maxillary bone. Maxillary medullary fibromata are exceedingly prone to calcification. They may even ossify. Sometimes, fibromata undergo sarcomatous changes.

Chondromata.—Following a fracture, the periosteum may become invaginated between the fragments and a portion may give rise to cartilage growth. Or, according to Virchow, there may be an aberrant cartilaginous nidus that remains unossified in an epiphysis; and as the epiphysis progressively grows, the nidus remains isolated. At some later time, cartilaginous proliferation is stimulated in the nest, and a cartilaginous growth proceeds.

When the growth is near the cortex, the growth may project into the soft parts; but it remains attached to the bone by a very broad base. If the growth is medullary, the cortex simply expands to accommodate the cartilage nodule. It is not until the growth expands the normal contour of the bone that includes it, that it is objectively appreciated by the patient; so that chondromata are detected in young adults, though they are most often congenital and appear more frequently in young people than might be thought. In 250 youngsters, twelve years of age and less, rayed at random, three cases of chondromata in the manipalanges and one case in the pediphalanges, were observed.

Chondromata affect multiple bones in one individual, generally phalanges. A form of chondroma, more calcified than the commoner variety, develops beneath the periosteum in the femur and tibia near the knee joint, giving the bone a club-shaped enlargement.

Their x-ray pathology is characteristic. When

pure, they show as hyaline radiolucent areas quickly contrasted from the surrounding bone and entirely free from structure. If they have suffered trauma, they may calcify. The tumor matrix is less radiolucent in proportion as the calcium phosphate and carbonate precipitates its colloidal particles. The precipitation may go on to complete radiopacity. In the more fibrous chondromata, the calcific infiltration may orient itself according to the fiber distribution of the cartilage and radiopaque whorls become manifest.

While chondromata appear electively in the phalanges and tibial and fibular heads, any bone in the body may be the seat of these tumors, excepting the skull, ribs, scapula and only very rarely in the spine. These tumors may become sarcomatous.

Osteomata.—Bone outgrowths as a result of inflammatory processes are common. While they are not, strictly speaking, tumors, some of their forms are closely allied to them and can be conveniently considered under that head.

New growths of bone arising from surfaces are exostoses if the origin is external, enostoses if internal. They may contain all the elements of bone; bone proper, medulla, vessels, periosteum and cartilage. The new bone may be compact and ivory like (eburnate), or spongy and cavernous, the spaces being filled with marrow.

Small, sharp, narrow, spiculated processes, occurring in connection with periostitis, are osteophytes.

Polypoid, or large rounded tumors, may be seen. The bone may be enlarged and its surface greatly roughened, a condition called hyperostosis. Beneath these new growths the bone may appear normal, radiopaque (due to sclerosis) or radiopaque (due to rarefaction). In instances, the medullary canal of the bone may communicate with that of the exostosis.

Exostoses develop usually from the periosteum, sometimes in the insertion of tendons and ligaments. They are nearly always multiple and may occur at all ages, including even uterine life. Chondromata are multiple in the sense that many bones are involved in the same case; osteomata are multiple in that the same bone may show numerous osteomata. Exostosis occur near the joint, and, singularly, always point away from the joint to which they are nearest.

Enostoses develop in the interior of bones, apparently from the medulla. They increase in size, absorbing the surrounding bone as they grow until they project from the surface like exostoses. Enostoses are rare, affecting mostly the bones of the cranium and face. In cases, when an exostosis is viewed through a long bone, its relation to the superimposed tissue is such as to give the appearance of a growth in the medullary canal.

Ossifying Hematoma.—Hematoma result generally from trauma. In young adults and adults, they are most common in the femur; in infants, the cranium is involved, the hematoma occurring two to four days following delivery, undergoing calcific infiltration up to one year, during any time of which calcifying process, ossification may ensue.

In adults, it may be mistaken from its x-ray appearance with sarcoma. The bone is deposited parallel to the shaft in ossifying hematoma; and in

no malignant bony tumefaction is this order of bone deposition visualized. This differential is significant. Also, in hematoma, ossification proceeds from the periphery inwardly, or centripetally. Ossifying hematoma has a definite border.

Bone Cysts.—These occur in and near the epiphyseal line, their origin being quite similar to that of chondromata, with which they are readily confused. In tumor pathology of bone, cyst cases occur once to 98 cases of chondromata (series 6200 bone tumor cases, cysts found 3 times, chondromata 294 times), when they were preceded by a definite history of perforation by bullet in two cases, and osteomyelitis in the third case.

True cysts are found most frequently in the maxillary bones in connection with teeth. Here they may be unicellular or multilocular. They begin in the medullary portion and increase in size, distending the bone as they grow.

Occasionally, dermoid cysts are found in connection with skull bones.

General Discussion of Tumor Pathology.—When typical, the condition just discussed offer little difficulty in recognizing them on the x-ray plate. Diagnostic acumen is necessary in distinguishing the various malignant tumors that may arise in bone, or in differentiating a malignant from a benign growth when the latter is atypical.

Malignancy of a growth is established if invasion can be demonstrated by the x-ray. Invasion is the destructive progression of a new growth characterized by the complete replacement of all tissue in the path of the procession. Invasion follows a rapid growth during which there is no opportunity for bone production. Invasion irradiates in all directions; but it may be more generally cortical or more generally medullary.

Tumors of cortical origin may be:

<i>Malignant</i>	<i>Benign</i>
Periosteal sarcoma	Ossifying hematoma
Osteosarcoma	Osteochondroma

Those of medullary origin may be:

<i>Malignant</i>	<i>Benign</i>
Sarcoma	Osteochondroma
Carcinoma	Cysts
Osteosarcoma	Giant cell sarcoma (?)

Having determined the origin of the tumor, whether cortical or medullary, it is imperative that the question of bone production be established. In studying bone production, the direction of bone deposition in relation to the axis of the bone must be ascertained. Bone production may be parallel to the shaft of the bone, or irregular and more generally perpendicular to the axis. According to bone production, tumors may be classed as—

<i>Irregular bone-producers or Malignant</i>	<i>Parallel bone-producers or Benign</i>
Periosteal sarcoma	Osteoma
Osteosarcoma	Osteochondroma
	Hematoma

No malignant tumor of medullary origin is a bone producer; so that if a tumor is demonstrably medullary in origin, and its tendency is to bone production, malignancy is ruled out. Medullary tumors that do not produce bone, or malignant, are

Sarcoma
Carcinoma
Giant cell sarcoma

Of these, sarcoma and carcinoma destroy the cortex; giant cell sarcoma generally leaves the cortex intact.

In the x-ray analysis of tumor pathology one determines: (a) Origin; whether cortical or medullary. (b) Bone production; whether present or not present. (c) How bone is deposited; centripetally or without arrangement. (d) Cortex; whether destroyed or intact.

The following chart shows the tabulated analysis: **Sarcoma.**—Sarcoma is especially common in bones, affecting young adults. It may be primary or metastatic. It may grow from the cellular layer of the periosteum, or from the medullary layer.

ANALYSIS OF X-RAY PATHOLOGY OF TUMORS.

ORIGIN	Cortical	Bone Producer	Parallel to Bone	{ Centripetal parabola Hyaline matrix	Ossifying hematoma (B) Osteochondroma (B)
			Helter Skelter	{ Disarranged and undelimited Tendency to metastases	Myositis ossificans (B) Osteo sarcoma (M)
		Non Producer		Purely hyaline	{ No metastases	Periosteal sarcoma (M)
					Peripheral enchondromata (B)
	Medullary	Bone Producer	Hyaline Bone after trauma	Chondromata (B)	
				Non Producer	Cortex intact	Giant cell sarcoma (*)
		Cortex destroyed	Adults			Carcinoma (M)
				Young adults	Sarcoma (M)

M—Malignant. B—Benign. ?—Questionable malignancy.

Periosteal sarcoma commences in the cellular layer of the periosteum, pushing outward the fibrous layer. After a time, the fibrous layer is involved and the tumor invades the surrounding soft parts. The cortex beneath may remain normal, or it may be eroded and gradually disappear until the tumor is continuous with the medulla. The origin is never medullary, however; and the tumor may attain great size without producing a visible change in the cortex. Bone production is seen, the growth of new bone usually taking the form of plates or spicules, radiating outward—an appearance fancifully described as the "setting sun rays."

Periosteal sarcoma occurs near a joint and can be mistaken, in certain stages, for an arthritis. It is fundamental to remember, however, that malignancy does not involve a joint. In x-ray pathology, a lesion that ultrapasses a joint is other than malignant. This rule seems infallible. Periosteal sarcoma affects young persons, between puberty and middle age, and favors the femur near the knee.

There is a mixed form of tumor, osteosarcoma, which is prone to spread and to form metastases. If it grows rapidly, it may produce little bone, if slowly, much bone may be formed. Osteosarcoma might be mistaken for osteomyelitis, from which it is differentiated by the fact that osteomyelitis never produces bone out in the soft tissues; and osteoma, which latter is generally smaller, more eburnated and usually multiple. Osteosarcoma distinctly invades, sweeping the cortex away in many places.

Giant cell sarcoma originates in the medullary portion of the bone. It expands in every direction, like a malignant growth, but is more limited. Its favorite site appears to be radius and tibia. It does not produce bone. When there is cortical expansion, the cortex is smooth and symmetrical, not nodular.

Spindle and round celled sarcoma begin in the medulla. No bone production accompanies these growths. They radiate equally in all directions and distinctly invade the cortex. Their x-ray pathology is closely allied to the appearance given by carcinoma. Age of the patient and location of the growth may make probable a differential inference. Sarcoma is generally singular, carcinoma, multiple.

Carcinoma.—It is questionable whether carcinoma can arise *de novo* in bone. Nearly always it is a metastatic invader of bone. Being conveyed by the lymph channels that accompany the nutrient vessels through the nutrient foramen, carcinoma is more apt to localize in the region of the nutrient artery inlet.

Carcinoma is generally circular in character. It does not expand the cortex, but invades and destroys it. Excepting in the case when there is a sacral metastasis from the prostate, when, owing to irritation, bone is produced, carcinoma occurring in other locations is a non-producer of bone. The femur, pelvis, spine, humerus, and bones of the head are more commonly, in the order named, attacked. The scapula and clavicles are more rarely invaded. Extremely rare invasions of the tibia are met; and the bones of the hand and foot have never been recorded as carcinomatous.

Distinction between carcinoma and sarcoma is

difficult from x-ray pathology. The site and the age of the patient may suggest the probable character of the tumor.

The important factor in bone diagnosis of tumors is less to decide the exact histopathological character of the growth than to determine whether or not the tumor is malignant. As in the microscopic histology, malignancy is inferred in a measure from the contour and limitation, so in the x-ray pathology the limiting surface of the tumor may suggest malignancy or not. In general, if the limits of the bony outline of the growth are broken through, trauma being excluded, malignancy is assumed. Malignancy is especially suspected if invasion is established.

Probable Tumors in Various Sites.—In reviewing 4800 bone tumors, the exact character of which was established by histopathologic section in each case, x-ray pathology of tumors gave the following favorite sites for each type of tumor.

TABLE OF BONE TUMOR INCIDENCE
(Study of 4800 x-ray cases of bone tumor clinically corroborated)

LOCATION	TUMOR	REMARK
Highmore's antrum	fibroma	benign
Lower jaw	1 cysts	
Spine	2 medullary fibroma	both benign
Cranium	1 metastatic carcinoma	malignant
	2 dermoid cysts	benign
	2 carcinomatous metastases	malignant
	3 sarcomatous metastases	malignant
Clavicle	1 sarcoma	malignant
Humerus: upper end	1 sarcoma	malignant
lower end	1 hypernephroma	malignant
Radius: upper end	1 exostoses	benign
lower end	1 giant cell sarcoma	doubtful malignancy
Phalanges	1 enchondromata	benign
Pelvic bones	1 carcinomatous metastases	malignant
	2 sarcomatous metastases	malignant
Femur: upper end	1 all forms sarcoma	malignant
	2 osteomatous growth	benign
	3 bone cysts	benign
	1 exostoses	benign
lower end	2 sarcomata	malignant
shaft	1 ossifying hematoma	benign
Tibia: upper end	1 sarcomata, giant cell	malignant
	2 bone cyst	benign

CONFESSIO FIDEI MEDICI.

By BEVERLEY ROBINSON, M.D.,

NEW YORK.

It would be well to-day, in my judgment, for every practitioner of medicine and especially the younger men, to read "Religio Medici." If that charming companion, Sir Thomas Browne, could again come to life, he would surely inculcate many a useful lesson of mind and heart. But, alas; he can not. Sir Thomas Browne was not a great discoverer, or, maybe, very renowned as a mere healer of the body, but when we come to read and absorb his genial philosophy of life, we learn much of what best pertains to this world and indeed, his philosophy does not go amiss when we turn to things of the life beyond. Somehow in thinking of Sir Thomas Browne, I also think of the immortal Pasteur, not because they are at all in the same line as great discoverers. Pasteur was eminently one of these. Browne was not. When, however, it comes to what is the best, the lovable part of man, they were united, and their ideas and affections rose to heights far beyond what we meet with to-day, except in the rarest instances.

These reflections come to me as I think of the past in my profession as I knew it, and of what is ever present and evident to me to-day. Then it was, indeed, a hard calling in more than one sense. The practitioner had few luxuries and fewer distractions from his profession. He labored night and day, and at all hours, for his patients. Their welfare was his first thought; at times it seemed as if it were his single, absorbing one. And as to the pecuniary reward, that was usually a very minor consideration. Sacrifice of self and going about doing good were the delight and the essence of the old doctor's life.

The return to him, his reward, was the deep love and abiding faith and trust of his patients. In this was his splendid compensation.

How is it to-day? The past is gone. The present means the specialist with all his fresh, advanced ideas of practice. But is there much thought of self-sacrifice and devotion? Alas, no! It is time, money, ambition, ease, distraction, change, vacation—and in addition, big, not to say exorbitant fees for services rendered. This way of looking at things is not now, invariably, that of the city physician alone. The country doctor has imbibed it to a certain extent; indeed, so far as he is able. He must have time to rest and play his game. Of course he has his motor car and whenever it is desirable and at all possible, he takes a trip of several weeks to Florida, or to California, to renew his vigor and, surely, to add to life's pleasure. If he does not get what he wants legitimately he simply takes it. It may be that no other practitioner is left in the village during the cold, stormy winter months. He goes and that is all there is to it. Now, how do the patients think and feel about all this? Surely, of course. But what can they do? One thing they can do and it is this. They can give to the worthy, experienced country practitioner, if he will stay by them, such remuneration and such a comfortable home, that he will feel that his services are really appreciated, as they should be, and in that case he will not leave them in the lurch, but will stick by them—remain true, trustworthy and willing, and above all, most helpful to all in time of greatest stress and need. When the influenza strikes them and lays low many, young and old, he will be there helping, prescribing, doing, comforting—cooking if need be, and when the epidemic is over, they may well rise up and call him blessed. All little stories such as mine, should have an end—and a speedy one, too, if the moral rehearsed is to be graven within. I go to my lunch and thus exemplify my tale—perhaps, "peut-être oui et peut-être non!"

129 EAST THIRTY-FIFTH STREET.

Public Hospitals' Liability to Persons Other Than Patients.—The New York Court of Appeals holds that, within the rule a hospital, though public, is liable to strangers, i.e. to persons other than patients, for the torts of its employers committed within the line of their employment, a hospital corporation under contract to furnish a city with ambulance service under section 693a of the Greater New York Charter, added by Laws 1909, c. 395, was liable for injuries to a person in a taxicab sustained in a collision with the hospital's ambulance.—*Murtha v. New York Homeopathic Medical College, etc.*, 228 N. Y. 183, 126 N. E. 722.

REPORT OF A CASE OF POLYCYTHEMIA VERA (VAQUEZ'S OR OSLER'S DISEASE).*

By SAMUEL GITLOW, M.D.,

NEW YORK.

(From the Lebanon Hospital Dispensary.)

MRS. I. A., 59 years of age. A widow, born in Russia. Occupation light housework.

Chief complaints: Dizziness and giddiness, easy fatigability, and pains of a neuralgic character over various parts of the body.

Family History: Mother died at a young age, from a cause unknown. Father died at 65 years of age of asthma. The patient has one brother and two sisters, all of whom are alive and apparently well. Her husband died two years ago of a perirectal abscess, but had been well until then. She had two daughters, one of whom died at the age of five years of septic scarlatina; the other one is living and well.

Past History: Measles in infancy and smallpox as a child. There is no history of malaria, tuberculosis, or lues. The patient had no primary lesion or secondaries or miscarriages. She had pneumonia 16 years ago, which was followed by empyema (?) and recovery without operation. Six years ago she was at the Lebanon Hospital with a disease which was there diagnosed as influenza. She has never had a chronic cough, asthma, or chronic expectoration. She has never had any acute or chronic diarrheal disease, nor any condition of intermittent or persistent sweating.

Present History: This dates back two years or from the death of her husband. Her daughter noticed that the patient's face began to get ruddy and that this ruddiness gradually increased. At one time a physician who saw her asked how she had become so sunburned. Together with this she began to complain of much headache, dizziness, and giddiness. She became fatigued at the slightest exertion as well as dyspneic. Various paresthesias developed over her body, as well as an attack of severe pain extending back of the ears and down the neck. One year ago she had a fairly well defined attack of sciatica from which she shortly recovered and during which I saw her. At that time her face was not as markedly ruddy as now. With the development of all these symptoms there was an obstinate constipation, whereas formerly she had been very regular. She occasionally has colicky pains in the epigastrium, during which she always vomits bloody mucus. Her gums bleed at the slightest provocation and she has occasional nose bleed. Her menstruation was normal to the menopause of 44. Micturition is normal three or four times daily, none at night. There are no nervous manifestations. She sleeps fairly well. There is no history of jaundice or gall-bladder disease. She has very seldom taken coal tar drugs, never for any length of time.

Summary of History: The only etiological point in the history is the concurrence of the death of the husband with the onset of the symptoms. An emotional factor has been mentioned as a possible exciting cause of polycythemia.

Physical Examination: A woman past middle age, fairly well nourished. Face, neck, and hands markedly turgid. Lips of a cyanotic red hue. This ruddiness extends down the neck and well down on the chest and back. It also involves almost the entire arms, but does not extend over the abdomen or legs. The skin is extremely dry, more so at certain times than at others. The eyes are normal in appearance except for marked, almost cyanotic, injection of the palpebral conjunctivæ. The pupils react normally to light and accommodation. There is no nystagmus or other eye-signs. The mucous membrane of the mouth is markedly red and cyanotic, as is also the tongue. The teeth are in poor condition, while the gums are red and cyanotic and bleed at the slightest touch. There is no palsy of any kind about the face or mouth.

The thyroid cartilage lies well forward and gives the impression of general enlargement of the thyroid gland, which, however, has only the right lobe slightly enlarged. There are no other glandular enlargements in

*Presented at a meeting of the Bronx County Med. Soc. at Lebanon Hospital, April 21, 1920.

the neck, neither the anterior nor the posterior cervical chain being palpable.

The chest and abdomen are normal in appearance except for the redness over the upper part of the chest. There are no palpable glands in the axilla or in the epitrochlear region. The respiratory excursion is normal. Percussion and auscultation of the lungs yield nothing abnormal. The heart is enlarged slightly to the left, the apex being auscultated, percussed, and palpated about $\frac{1}{2}$ inch to the left of the mid-clavicular line in the fourth interspace. The right border of the heart is found by percussion at the right border of the sternum. The sounds at the apex are slightly muffled, but there are no adventitious sounds or irregularities. The sounds at the base are normal except for moderate accentuation of the second aortic sound. There is no dullness above the heart.

The abdomen is soft throughout. There are no masses to be felt. The liver and spleen are not palpable. The spleen is found on percussion to be normal in size.

The genitals and lower extremities are normal. There are a few enlarged glands in the groin but none elsewhere.

The ears are normal. The posture and gait are normal. There is no Babinski, Oppenheim, Kernig, or Romberg sign.

The blood pressure taken at two successive times was 150 and 140 systolic, and both times 100 diastolic.

The pulse is normal but is inclined to be full. The arteries are not palpably thickened.

The urine was examined and showed nothing abnormal.

The blood was examined twice. The first count yielded 6,500,000 red cells and 105 per cent. hemoglobin (Dare.). The white count was not made at this time. The second examination gave 6,740,000 red blood cells and 140 per cent. hemoglobin (Sahli). There were 14,000 white blood cells with 83 per cent. polymorphonuclears. The color index was 0.7 the first time and 0.9 the second.

Diagnosis: In the absence of anything that might cause concentration of the blood, such as diarrhea or profuse sweating and in the absence of residence at a high altitude, and because of the evident plethora, the condition is not one of relative polycythemia, but is absolute. In the absence of any signs of portal obstruction, of chronic cardiac or pulmonary disease, of impeded circulation, of an old malaria, or of tuberculosis, the case becomes one of primary erythremia and not of secondary absolute polycythemia or erythrocytosis. The spleen is not palpable in this case. Of some of the cases reported as erythremia without splenomegaly there are four that were confirmed by autopsy; one of Osler's, one of R. C. Cabot's, one of Christian's of the Peter Bent Brigham Hospital, and one of Herringham's. Thus the case is by exclusion one of erythremia without evident splenomegaly.

830 DECK STREET.

PATHOLOGICAL CONDITIONS OF THE ORGANS OF REPRODUCTION IN THE FEMALE CAUSING AND SIMULATING GASTROENTERIC DISTURBANCE.

By JOSEPH H. KATZ, M.D.

BROOKLYN, N. Y.

THE female sex, as a whole, is more subject to digestive disorders than the male sex. One of my old teachers used to define woman as "A creature of figure eight, having hair on one end, leucorrhea and constipation at the other end." This, as well as other like definitions, may sound humorous, yet it is true as far as digestive disturbances are concerned. Considering their make-up, mode of living, and dress, and the physiological processes—menstruation, starting at an early age, throwing the nervous balance into disharmony for a time, altering the internal secretions, repeated monthly,

giving rise to congestions in nearly all vital organs, then matrimony, even without pregnancies, causing changes and slight alteration, for a time, in the workings of the female physiologic machinery, then pregnancies, lactation and again monthly menstruation, not even considering the pathological conditions that may arrive from all these phenomena—one finds enough, even though physiological, to cause any disturbance in a human machinery. By adding the pathological factors to the normal physiological female mechanism it is easy to comprehend the harm done to other organs and systems of the human being and how they interfere with its mechanism and normal physiological work.

In speaking of pathological conditions in females, I would like to include not strictly pathologic conditions in the organs but aberration from the physiological on the part of the women:

1. *Abnormal or unnatural coitus*; due to fear of conception. Most of the cases of nausea, sometimes vomiting, headache, constipation or sometimes diarrhea, slight pain in lower abdomen, sometimes simulating even appendicitis, where no real organic disturbance in the digestive tract can be traced, are due to the above mentioned cause which, by creating a nervous disturbance, leads to improper circulation and digestive rearrangement.

2. *Abortion* or sudden interference with pregnancy, where physiological processes have begun to adjust themselves after sudden evacuation of the uterus, which has to undergo involution, changing again from a nearly compensated, so to speak, settled physiological state into a normal physiological state, throwing the balanced human system again into discord, and causing—not thinking of the pathology that may sometimes arrive as infection, etc.—gastric derangement sometimes requiring a long period of time to relieve, the patient often remaining a dyspeptic for life.

3. *Retroversion or Retroflexion uteri*. The constant lodging of the mass and pressing against the lower end of large bowel, preventing its easy evacuation, causing the lower bowel at first to do more work—peristaltic action to drive its contents against a force put on it by the mass and later producing an overworked dilated lower bowel unable to evacuate, sending reflexes to the whole digestive tract and thus disorganizing its system.

4. *Partly involuted uterus*, flabby, boggy, large, besides disturbing the normal internal secretions and adjacent organs, has the same effect as retroversion.

5. *Prolapsus uteri*, which manifest its effect first by pressing upon lower bowel; secondly, by being lowered from its original normal location, leaving a vacant space at times causing sinking of all abdominal contents, sometimes a general ptosis, thus disturbing the smooth straight outline of the intestines, and converting it into twists and kinks, preventing its easy mechanism and causing at times a severe pathologic condition in the whole tract.

6. *Tears at perineum*, disturb the natural abdominal strength, and weaken the vis-a-fronte in the natural forces of abdomen, so far as digestive work is concerned.

7. *Tumors of uterus* or adnexa are too well known to be discussed.

8. *Inflammations of uterus and adnexa* are often

met with, and their effects on gastrointestinal tract are well understood.

The last condition I am going to speak about seems to me very important and yet most neglected from the standpoint of the gastroenterologist, namely:

9. *Erosions and inflammations of the cervix*, may simulate nearly every gastroenteric disturbance possible, and in order to bring my point home, I shall better emphasize it by illustrating with several cases that recently came under my care and observation for various digestive disturbances and who were relieved or cured by treating the cervical pathology.

CASE I.—Mrs. X, age 32 (looks much older), married, Russian, referred to me at the gastroenteric clinic of the New York Post-Graduate Hospital by Dr. Woloshin of the medical clinic. Previous history negative. Began to menstruate at 15, married at 22, gave birth to six children, first child taken by instruments, the rest normal deliveries; perineal lacerations, repaired with good results. Present complaint dates back to last childbirth about four years ago. Pain in epigastric region nearly constant, relieved by rest and heat, aggravated by food. Constipated, at times nauseous, pyrosis relieved by drink and sodii bicarbonate; sometimes pain at night; no headaches, but weak and emaciated. Has been treated for ulcer and appendicitis with no relief. On further questioning the following points were brought out: that the pain sometimes radiates downward to pubis and even to inside vagina, painful coitus, very painful menstruation, rest and hot applications to lower abdomen relieves the condition. Vaginal examination revealed the following: lacerated, eroded cervix; cervix large, boggy, circumference double the size of a normal average cervix; right adnexa rather tender to pressure, although not palpable. Under cervical treatment the condition subsided and gastric disturbances all went.

CASE II.—Mrs. G, 46, Russian, widow. Menses normal, gave birth to five children, one miscarriage at six weeks' gestation. Present complaint dates back about four months, starting with a cold and pain in epigastrium; advised by a physician to stay in bed for a few weeks. She followed instructions, but condition became worse; pain in epigastrium and lower abdomen was very severe; relieved by rest, food and sodii bicarbonate. Belching; sour regurgitation. Slight pain radiating from vaginal vault to rectum. On first casual examination, patient being in very painful state, I made a tentative diagnosis of ulcer. Put patient to bed, advised frequent, small, nonirritating liquid food, prescribed antispasmodics, hot application to lower abdomen. In one week patient improved so that she asked permission to be allowed out of bed; when out of bed the pain returned only in the lower abdomen. I was called in again and made a vaginal examination, finding in exposing the cervix a pussy discharge from an eroded area. The cervix was swollen and boggy. Under cervical treatment the pain and other symptoms cleared up.

CASE III.—Mrs. F. Born in United States, aged 28, married. Gave birth to one child about two years ago; since then complains of constipation, pain and tenderness at McBurney's point. Operation for appendicitis was advised. I was consulted, and on examining her, although she was complaining at the time of pain, I could not elicit local deep tenderness at McBurney's, there was no rigidity of recti muscles; at no time did she have any elevation of temperature. I made a vaginal examination, finding a deep lacerated and eroded cervix. Advised repair and treatment of cervical pathology, which was done, relieving all the symptoms.

Conclusions.—A vaginal examination should be made in all female, married patients complaining of digestive disturbances, exploring the uterus and its adnexa, convincing oneself of its freedom from pathological conditions, before beginning treatment for the digestive complaints.

Medicolegal Notes.

Father's Failure to Provide Medical Treatment for Burned Child Not "Manslaughter."—The Florida Supreme Court, reversing a conviction imposing a penalty for manslaughter on an indictment charging that, by means of culpable neglect to support and provide for his minor daughter, she was unlawfully killed, holds that the failure or refusal of a father to provide medical attention for his child, who was accidentally burned by falling into a fire, from which burns the child subsequently died, does not make the father guilty of the crime of manslaughter, defined by the Florida statute to be "the killing of a human being by the act, procurement or culpable negligence of another." In a concurring opinion Chief Justice Browne says that the reasoning upon which the State's case rested was this: The child was badly injured; it did not have medical attention for three weeks; after that it was in the care of a physician for two weeks before it died; if the father (who was a believer in Divine healing) had called a physician it would have recovered; therefore the refusal of the father to call a physician caused the child's death. The fallacy of this, Chief Justice Browne says, is that it was not proven, and was not capable of being proven that if the child had had medical attention it would have recovered. And that must always be the fallacy in an attempt to attach the guilt of manslaughter to a father for failing to call a physician whenever his child is sick, if it subsequently dies. In a dissenting opinion, Mr. Justice West discusses various cases relating to the point.—*Bradley v. State* (Fla.) 84 So. 677.

Hypothetical Question Omitting X-Ray Result Errorneous in Malpractice Action.—In a malpractice case a new trial was granted after a verdict for the plaintiff, for error in permitting a medical expert witness for the plaintiff to answer a certain hypothetical question. The evidence showed that the defendant had charge of the plaintiff from the time of the injury, a fracture of one or more of the pelvic bones, causing the head of the right femur to be driven in. Soon after the accident, the defendant took two x-ray pictures of the region of the pelvis and used these pictures in making his diagnosis. It was admitted that these did not show a fracture, and it was clear that they did not reproduce the parts of the pelvis where the fracture or fractures occurred. There were x-ray pictures in evidence taken by others after the defendant ceased his treatment, and these plainly showed a fracture. The hypothetical question, with much confused detail, gave a history of the case and of the treatment, assumed that a fracture existed, and then, "assuming all of these things to be true," asked "whether or not, in your opinion, the examination and treatment employed by the attending physician was in keeping with proper practice." The question assumed that the defendant took x-ray pictures as above mentioned and that he reported to the plaintiff that there were no bones broken, but the pictures were not produced and the question did not assume or call further attention to the result of the x-ray pictures taken by the defendant. This was held error for the reason that the pertinent inquiry was not whether or not there was a fracture in fact, but whether, on all the data considered by the defendant in his diagnosis, his conclusion that there was no fracture was arrived at in the exercise of due care; that negligence in a malpractice case is to be determined by reference to pertinent facts existing and of which the physician knew or should have known in the exercise of due care at the time he acted, and that the expert witness should have been placed in the position the defendant was in when making his diagnosis, and should then have been permitted to give the jury his opinion as to whether the defendant used due care. A hypothetical question must embody substantially all the undisputed facts relating to the subject upon which the opinion of the witness is asked. This question did not do so. The witness was asked the broad question whether the defendant's examination and treatment were in keeping with proper practice. He could not answer that question with justice to the defendant without considering the x-ray pictures.—*Harju v. Allen*, Minnesota Supreme Court, 177 N. W. 1015.

MEDICAL RECORD.

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THE ATYPICAL FORMS OF AORTIC INSUFFICIENCY AND MITRAL STENOSIS.

It might be assumed from reading most textbooks that the differential diagnosis of the various valvular lesions can be made without much difficulty. The presence of a murmur over a distinctly limited focus, its appearance at a specific time in the cardiac revolution, its intensity, tone, manner of propagation in a given direction, the presence of a rolling sound, etc., forming a symptomatic ensemble which might appear to possess a pathognomonic value. Now, such a schematic grouping, which is absolutely necessary for the needs of elementary teaching, will lead to serious mistakes when resorted to for clinical application, and Ribiene has recently called attention to this fact and insists on the atypical forms—larvate and otherwise—of certain valvular cardiopathies, foremost among which he places aortic insufficiency and mitral stenosis.

The classic signs of aortic insufficiency are a diastolic murmur over the third right costal cartilage which extends along the right edge of the sternum. In type it is soft and aspirating, present during all or part of the diastole, while the pulse is bounding, depressible. Now, this diastolic murmur at the base, which Laubry and others regard as of special value no matter where its maximum focus exists in the precardiac region, may be seated in proximity to the left third costal cartilage, at the apex of the heart, tip of the sternum, left axilla, or even in the left interscapulo-vertebral space. Its propagation is also very variable, since it may extend along the left border of the sternum toward the apex of the heart or toward the second or third left intercostal space. It is often detectable outside the limits of its usual focus quite far from the base toward the lower part of sternum, a little above the xiphoid appendix, less frequently towards the cardiac apex. In marked insufficiency the murmur replaces the snap of the aortic valves and fills the diastolic silence, but there are cases in which the valvular snap can be clearly heard and it is only afterwards and instantaneously that a very brief murmur can be detected and must be searched for. Finally, aortic insufficiency without

a murmur, on which Bard and his school have insisted, is now generally accepted. The disappearance of the murmur does not seem to be influenced by age, sex, modality, or cause of the cardiopathy. Bard attributes it to the progress of the arrhythmia which lessens or causes the disappearance of all murmurs, as well as complete arrhythmia and the coexistence of other valvular lesions, aortic or mitral.

During the phase of formation of the lesion the absence of the murmur is very important. Bard maintains that it is wanting especially in insufficiency of arterial origin where the lesions develop slowly, while its absence is the exception in rheumatismal valvular endocarditis. However, Ribiene recalls the fact that in rheumatism certain signs may lead one to foresee the appearance of the lesion. Durozier's double crural murmur, muffling of the second aortic sound, its parchment-like character often preceding the diastolic murmur, are characteristic of the valvular lesion.

The diastolic murmur is often wanting in the functional aortic insufficiency of high blood-pressure; it only appears at the time when the myocardium is giving way, when the heart has become somewhat dilated and disappears after a few days of rest in bed. It is very unusual that aortic insufficiency goes through its entire evolution without a murmur, but this important sign may nevertheless be wanting for a long time. The larvate forms of mitral stenosis may easily escape notice by an inattentive observer and unfortunate mistakes in diagnosis may ensue.

The tuberculous and chlorotic forms of mitral stenosis are known. In the former, the hypertension in the lesser circulation engenders pulmonary phenomena which cause one to suspect a commencing tuberculosis. These patients have dyspnea and cough, are subject to repeated bronchitis and hemoptysis and if the temperature goes up or the general health declines, a diagnosis of tuberculosis may be made when a more attentive examination would have revealed mitral stenosis. Mitral stenosis may also simulate chlorosis, usually in pale young females. There is oppression which is due to the existing anemia, amenorrhea, or dysmenorrhea, epistaxis, gastric disturbances and occasionally a very manifest neuropathic state. These symptoms indicate the real trouble, which is a mitral stenosis, and mistakes in diagnosis must be carefully avoided. It is, in fact, uncommon to find all the signs attributed to this lesion in a patient, because were this so it would be inexcusable to overlook it. A fruitless search may be made for presystolic increase, diastolic rolling and doubling of the second sound, because many mitral stenoses remain perfectly silent. Iluchard made nine autopsies on subjects with this lesion in which during life there was nothing detected by auscultation.

The occult character of certain instances of aortic insufficiency is very striking, as well as of some cases of mitral stenosis. Therefore, auscultation alone cannot always solve the problem of diagnosis and all means at our disposal should be

resorted to, including orthodiagraphy. It should also be recalled that the variability of the signs of valvular cardiopathies is frequently related to the phase of the evolution of the lesions.

THE RARER LOCALIZATIONS OF ARTICULAR AND MUSCULAR RHEUMATISM.

It would appear that the number of localizations of muscular rheumatism has considerably increased since the war, at least such is the opinion of competent observers. This fact may be attributed to prolonged duty in the trenches, to long and forced marches, and to thermic and mechanical traumata to which soldiers are particularly exposed. First of all, a special place should be given to rheumatismal affections of the muscles and tendons of the lower limbs, but this is so well known that it requires no comment.

On the other hand, many officers suffer from rheumatism of the muscles of the thorax, which is too frequently mistaken for a symptom of pleurisy. As differential characters may be mentioned, the absence of friction sounds and cough and a peculiar sensibility of the intercostal muscles, especially in the upper intercostal spaces with, occasionally, an inflammatory edema of the skin, with extreme sensibility over the point of junction of the osseous parts of the second and third ribs and their cartilaginous portions. In this respect a case of rheumatism of the thorax has been recently recorded by Janowski, of Warsaw, in which it was very difficult to come to a diagnosis, and this observer points out that the sensibility of the muscles in these cases results in a marked decrease of the respiratory murmur which may be the cause of mistaken appreciation of the case. Hence the necessity of very careful palpation of the thorax in patients complaining of such localized pain before making the usual diagnosis of pleurisy, or even, as has happened in not a few cases, of pneumonia.

There are three rare localizations of articular rheumatism to which attention should be directed. The first is that of rheumatism of the sacroiliac synarthrosis, which appears to be becoming very prevalent. The diagnosis of sciatica, or even osteomyelitis of the iliac bone, has been made, so severe have been the painful phenomena. Next in order comes rheumatism of the intervertebral articulations. Janowski reports an interesting example of this condition in which the four vertebrae of the neck were involved and in which the pain was so intense that a basal meningitis might easily have been diagnosed if care had not been taken. In other instances, the rheumatic process becomes localized in the dorsal vertebrae and may closely simulate Pott's disease, vertebral syphilis or even cancer of the esophagus. Finally, there is a localization of rheumatism at the junction of the ribs with the spine, usually in the four or five last ones. In these cases again pleurisy may be suspected or pyelitis or paranephritis may be diagnosed. But the sensibility is singularly increased by forced movements of the trunk while the pelvis is immobilized, while careful

palpation will locate the maximum point of pain over the points referred to. Palpation of the neighboring vertebrae may occasionally be painful.

In all these rather uncommon manifestations of rheumatism the test by salicylate medication is sometimes the best means of clearing up a difficult diagnosis.

KERATIN DERIVATIVES FOR THE STIMULATION OF HAIR GROWTH.

In the *Wiener klinische Wochenschrift* for August 5, 1920, xxxiii, 32, Fuhs gives a full account of this preparation and its effects on the organism. Early in the present year Professor Zuntz, the well-known biochemist, announced the discovery of a specific nutriment for the hair which has become of great interest to the dermatologist. It has long been known that the growth of hair in wild animals could be improved by the phosphorus and lime of the salt licks. Zuntz obtained the idea that certain constituents of horn with high sulphur and cystin content might exert a nutrient action in disturbed hair growth. First he gave a certain amount of hydrolyzed keratin *per diem*—1 to 1½ gms.

Blaschko, the dermatologist, then began the use of a chemically pure horn hydrolysate in the clinic and announced good results in the various cases of alopecia. In order to obtain a quantitative test to control the statements of patients a certain area of the scalp was closely clipped and the clippings weighed on a delicate balance. The hydrolysate was then given for a month and the scale then showed a double amount of clippings. Similar experiments with wool sheep showed a gain of over one-third in the yield of wool. Professor Riehl, another dermatologist, then tried the preparation in certain cases of alopecia, for a period up to two months. The cases comprised alopecia areata and symptomatica and the seborrheic form as well as normal scalps. But little improvement was noted in the first named form and the same was true of the symptomatic and seborrheic forms, while in the normal scalps there was no increase in hair production, or in the length or breadth of the individual hairs.

It is difficult to understand why the remarkable results obtained by Zuntz and Blaschko could not be corroborated. The best that can be said is that the remedy produced no bad collateral effects and it may be possible that the scanty material in some of the forms of alopecia was insufficient for a fair test. The results reported by Zuntz for sheep have not been controverted and would seem to be beyond doubt. They are at least encouraging for a further trial in the human subject. Curiously, although no attention was at first paid to nail growth in general, from the use of the remedy, one of the subjects while under the influence of the hydrolysate presented an increase in the mass of one or more nails. This suggested measuring the nail growth by making a file mark at the border of the lunula, which was done in 17 of the patients. Not one, however, showed any accelerated growth rate or increased production of nail substance.

EPIDEMIC ENCEPHALITIS.

ONE of the most complete short accounts of this affection which has yet appeared in literature is to be found in the *Anales de la Facultad de Medicina* of Montevideo, July-August, 1920, v, 7-8. The author is Dr. Ricaldoni, and the deductions are made from extensive personal experience controlled by the writings of authorities in other countries. At the time of writing the disease was epidemic in the Uruguayan capital. There is evidence that gripe has preceded some cases, while in others a preceding gripe may have conferred immunity. The extreme variety of symptoms and the number of types are readily explained by the diverse localization. In addition to focal symptoms there are radiated symptoms; but the remote lesions themselves may be due to unusual independent localization. The former the author terms derived symptoms, the latter aberrant symptoms. There are also frank and abortive forms, typical and masked forms.

Disturbance of the motility of the eye is responsible for a group of symptoms. There is also a lowered muscular tonus. Ptosis was once thought to belong under the dyskineses but actually, at least in many cases, it results from muscular hypotonia. Dissociation in the innervation of the eye amounts in some cases to complete anarchy. The two eyes act individually and independently, much as when a subject is being anesthetized with chloroform or ether. There is a similar dissociation in muscular tonus. Spasticity and hypotonia may be seen side by side. Muscular rigidity is seen in much variety and may be total, simulating or causing the Parkinsonian syndrome. The author has little to say of the pareses. The toxo-infectious manifestations are very few, pulmonary complications being sometimes seen. Fever seems constant and universal.

Under irradiated, derived and aberrant types the author enumerates forms of delirium, intense meningeal reactions, hemiplegias of several types, facial paralyses, trismus, paraplegias, retention of urine, bulbar symptoms, and various algias. The course is prolonged, convalescence seeming interminable. Death is preceded by hyperthermia, and followed at times by sweating (postmortem sweating). Of unique manifestations the author saw a subject with chronic paralysis agitans improve notably after an attack of encephalitis. The mortality in Uruguay has been lower than in some localities—19 to 20 per cent.

CAUSES OF DEATH OF THE FRENCH KINGS.

IN the erudite little book on the causes of death of the English kings, the learned author, it will be recalled, utterly ignores the doctrine of the modern origin of syphilis and makes the latter the actual or contributory cause of death of a number of the monarchs who reigned before the discovery of America. A propos of this a new edition of Witkowski's "Comment moururent les Rois de France," has recently been issued, and a notice of it appears in *Le Progrès Médical* for Nov. 13, 1920, xlviii, 46. This author has the merit of proving or making highly probable that the deaths of the monarchs

were due chiefly to the most banal affections such as cancer, tuberculosis, and pneumonia. The tendency of the older biographers of this type was to accuse either poison or some effect of immoral life. Witkowski has devoted forty years to medical history and in consequence has become severely critical, and he has eliminated many conclusions from specious reasoning. Charlemagne seems to have died of pneumonia, while Louis VII and Philippe VI succumbed to the results of venereal abuses, and François I died of syphilis outright. Louis X is said plausibly to have died from the effects of a draught of ice water. But it is possible to throw doubt on such diagnoses because the symptoms were not recorded by men of professional training. Witkowski has sought to assemble the evidence of qualified medical men, results of autopsies, and the character of the treatment given. In any case the subject is one fit only for passing the spare time of those of scholarly tastes, and the conclusions should be accepted at their true value, which is very slight.

INTESTINAL PERFORATION AND CHILD TYPHOID.

A YOUNG child usually escapes the fatal ending in typhoid fever because of its relative immunity from intestinal lesions, but when the latter do develop they give a grave prognosis. In other words only about 1 per cent. of children develop these complications, but the mortality is two patients out of three. Gioseffi contributes a brief clinical article on this subject in *La Riforma Medica*, 1920, xxxvi, 42. The case observed by him occurred in a girl of 14 admitted to the clinic with malaise and vomiting. She had had nosebleed and the pulse was dicrotic. After several days there was tenderness in the right inferior quadrant of the abdomen. The seroreaction was then negative for typhoid. The spleen was enlarged a little but a roseola had not appeared. The abdominal symptoms increased and peritonitis was evidently beginning. The blood tests had not been completed when the indication for operation became urgent, as perforation was believed to have occurred. Laparotomy gave exit to pus and gas. The same day there was a positive Widal, rather weak, and Ebert's bacillus was also found in pure culture. The patient recovered. The case is of interest from the simulation of typhoid appendicitis. The author has seen another case in a child of 6 in which the perforating ulcer was seated in a Meckel's diverticulum. In this young subject the typhoid syndrome was not present, the only symptoms being meteorism and semicollapse attributed to endocarditis. Hence no operation had been performed.

News of the Week.

House Leaders Approve Program for Veterans' Hospitals.—Republican leaders in the House of Representatives have given their approval of a program which calls for the construction of five hospitals for war veterans suffering from mental and nervous disorders and tuberculosis. A bill appropriating \$13,000,000 for such hospitals will be introduced. The estimated cost of the hospitals is \$2,500,000 each, and the remainder of

the fund will be used to convert buildings in the Government reservation at Walla Walla, Wash., and at Fort McKenzie, Wyo., into hospitals. Members of the Appropriations Committee have given assurance that they will report the bill favorably.

Committee Reports of Sheppard-Towner Bill.—In its report on the Sheppard-Towner Bill, which provides an appropriation of \$1,480,000 for safeguarding the health of mothers and babies, the House Commerce Committee classed this bill as emergency legislation and said there was practically no opposition to it. The committee finds that the maternal and infant mortality in the United States is not decreasing, statistics showing a 15 per cent. increase in deaths from child-birth between 1919 and 1920. The report states that in rural districts 80 per cent. of mothers receive no advice or trained care preceding the birth of children and that motherhood is safer in any of seventeen foreign countries than it is in the United States.

"Sleeping Sickness" in Sweden.—A cablegram from Copenhagen, under date of Jan. 29, reports that from Jan. 1 to 15 there were 203 cases of "sleeping sickness" in Sweden, 12 of which have terminated fatally.

Chicago Combats Epidemic Encephalitis.—According to Dr. C. St. Clair Drake, director of the State Health Bureau, lethargic encephalitis is prevalent in Illinois. Up to January 26, 33 cases have been reported in Chicago. A field physician from the State Board of Health has been assigned to study these cases in an effort to combat the spread of the malady.

English and French Birth Rates Rise.—According to the Registrar General's provisional returns for 1920, births per thousand of population in England and Wales were 25.44 and in London 26.3. Deaths were 12.4 per thousand in England and Wales and also in London. The infant mortality rate per thousand was 80 in England and Wales and 75 in London. The birth rate for 1920 is the highest for a decade and the highest ever recorded, while the death rate, as a whole, as well as the infant mortality rate, is the lowest ever recorded. In Paris during the last year 55,813 children were born, while there were only 43,000 deaths. There have not been as many births since 1901, when the number exceeded 56,000. During the war the births fell as low as 28,200 in 1916 and 30,400 in 1918. While the figures are not yet available for the entire country, the increased number of marriages in 1919 warrants the assumption that a similar increase in births may confidently be anticipated. In all the birth statistics the proportion of boys to girls is about seven to six in favor of the male sex.

Wants Federal Control and Pay for Physicians.—Ex-Mayor Heth of Kitchener, Ont., himself a doctor, in an address recently delivered at St. Catharines, urged the nationalization of the medical profession. He advocated placing doctors under Government salary and educating the public by a system of lectures on hygiene. He also declared that about 50 per cent. of the operations now being performed were unnecessary.

Asks Nobel Prize for American Red Cross.—

The Finnish Government has decided to recommend to the Nobel Prize Committee that the Nobel Peace Prize be made to the American Red Cross, on the ground of "its blessed activities materially relieved suffering in the war, served the purposes of humanity, and promoted mutual solidarity of the nations." During the past year the American Red Cross, as shown in a recent official report, spent \$780,000 in 57 large disasters in the United States. In these disasters 425 lives were lost, 2,700 persons were injured, and the property loss was \$11,250,000. Besides giving aid in domestic troubles, the Red Cross assisted sufferers in earthquakes in Italy and Mexico, extended aid to famine sufferers in China, and took part in relief work in Haiti during an epidemic.

Constitutional Amendment Eliminates Lunacy Commission.—The proposed constitutional amendment which would eliminate the New York State Lunacy Commission and provide instead for a commission on mental hygiene to inspect all institutions for the care of the insane, epileptics, idiots, feeble-minded and mentally defective was introduced into the Legislature on January 28. This measure passed the Legislature last year and if passed again this year will go to the people for their general approval at the general election next fall.

Bill to Assist Pension Fund.—A bill introduced into the New York State Legislature by Senator McCue provides for appropriations to meet any deficiency in the New York City Health Department Pension Fund.

Nurses Poisoned by Canned Spinach.—Twenty nurses and attachés of the Blodgett Hospital, Grand Rapids, Mich., partook of canned spinach at luncheon on Jan. 22, and all have shown signs of poisoning. As a result two of the nurses and one orderly are dead and several others, at the time of writing, were in a critical condition.

Two Additional Diseases Made Reportable.—The New York City Board of Health, at its meeting on Jan. 28, passed resolutions placing botulism and encephalitis lethargica on the list of reportable diseases.

Health Supervision an Aid to Industry.—The National Industrial Conference Board, with headquarters at 10 East Thirty-ninth Street, New York City, has just published the results of physical examinations of industrial workers in thirty-four plants, which go to show that these examinations have increased efficiency, diminished accidents, reduced absence, lowered the labor turnover, eliminated tuberculosis and other contagious diseases, brought about a better adaptation of the worker to the job, and a feeling among employees that their interests are being intelligently safeguarded. The study includes 410,106 workers, 237,183 men and 82,923 women. Little or no objection to the examination was shown on the part of the workers, the largest number of objections being 200 among 62,000 employees. Ten plants employing 155,000 workers had no refusals. Physical examinations were introduced into this group in 1910 but in twenty-three of the thirty-four plants they were not introduced until 1914 or later.

Serum Cures Dogs of Rabies.—A special cable-

gram to the New York *Herald* states that Professor A. Marie and Professor Remlinger of the Pasteur Institute announce that they have discovered a new serum which will cure dogs of rabies and render them immune to that infection thereafter. They express the belief that the new serum will be equally effective when applied to human beings.

Board of Regents Approves Army School for Nursing.—The Board of Regents of the State of New York, at a meeting held Jan. 1, 1921, formally registered the Army School of Nursing, under section 421 of Regents Rules, as an approved training school for nurses. The Army School of Nursing is conducted in connection with the Walter Reed Hospital, Washington, D. C., and the Letterman General Hospital, San Francisco. At present there are about 520 student nurses enrolled in the Army School of Nursing. In addition to the facilities afforded students in this school by army hospitals, arrangements have been made whereby they receive special instruction in affiliated civil hospitals and welfare institutions.

Fumes from Jersey Shore Minimized.—At a hearing held at the New York Academy of Medicine Jan. 29, at which Dr. Hermann M. Biggs, State Health Commissioner, presided, the acid fumes nuisance from New Jersey plants opposite Riverside Drive, Manhattan, was discussed. Dr. Theodore Horton, engineer of the State Department of Health, stated that his observations showed that the pollution of the atmosphere over the West Side of Manhattan has been lessened considerably as a result of installation of apparatus to control the fumes. This apparatus is said to result in a great diminution of the objectionable fumes though the system is not entirely satisfactory.

Nurse Buys Drugs on False Permit.—A woman, giving her name as Mary Smith, was recently held in \$500 bail in the West Side Court, Manhattan, charged with obtaining narcotics falsely by forging a physician's name. The prescription calling for twenty-four morphine tablets was written on correspondence paper, and the druggist's suspicions led him to telephone to the physician, who notified the narcotic detectives.

Dies at Ripe Old Age.—Mrs. Anne Lizea Philips Hastings died in West Chester, Pa., on January 29, in her 108th year. She was born in Framingham, Mass., in 1814.

Dr. Pearce Bailey of New York has been awarded a Distinguished Service Medal by the War Department for his services as Chief of the Division of Neuropsychiatry, Surgeon General's Office.

Dr. George Gray Ward, Jr., has removed his office to 48 East Fifty-second Street, and not West Fifty-second, as was printed in a previous notice.

Memorial to Sir Victor Horsley.—Friends and colleagues of the late Colonel Sir Victor Horsley have organized to take steps to commemorate his services to science and the British Empire by the foundation of lectureship or scholarship bearing his name. It is suggested that the most appropriate trustees would be the Senate of the University of London, and that if a scholarship should be finally decided upon, the subject should be left

widely open so as to secure the services of men distinguished in some department of public life who might consider it an honor to be the "Victor Horsley Lecturer" for the year. Sir Charles Ballance is chairman of the General Committee. Other officers are. *Honorary Treasurers*, Sir Frederick Mott and Dr. H. H. Tooth; *Honorary Secretaries*, Sir Arbuthnot Lane and Edward J. Domville. A considerable number of contributions to the fund have already been received. Subscriptions may be sent to any of the above-named officers or to the "Victor Horsley Memorial Account" Westminster and Park's Bank (Hanover Square Branch), London County.

Italian Society of Medical Radiology.—This organization announces that its third congress, held in Rome October 28-30, 1920, was highly successful. One hundred communications were presented and freely discussed, showing that great interest has been aroused in the medical aspects of radiology in Italy. Professor Ghilarducci presided at the meeting.

Semi-Centennial of American Public Health Association.—The fiftieth annual meeting of the American Public Health Association will be held in New York City in November, 1921. The date tentatively announced is November 14-18. The first organization meeting of the Association was held in New York City on April 18, 1872, and at that time Dr. Stephen Smith of New York City, who is now 99 years of age, was elected first president of the new organization. It is anticipated that his approaching centennial may be celebrated together with the semi-centennial of the Association.

The Brownsville and East New York Hospital.—A lecture by Prof. E. V. McCollum of the School of Hygiene and Public Health of Johns Hopkins University was delivered on January 29 at the Kings County Medical Society, Brooklyn, on the subject of "Nutrition." This was the first of a series of monthly lectures to be given under the auspices of the medical staff of the Brownsville and East New York Hospital, Brooklyn. The latter institution will open its doors for the reception of patients about March 1.

Obituary Notes.—**PROFESSOR WILLIAM THOMPSON SEDGWICK**, professor of biology and public health at the Massachusetts Institute of Technology, died suddenly at his home in Boston, on January 26, at the age of 65 years.

Dr. DAVID LUTHER HAZARD of Berwyn, Md., died at his home on January 22, at the age of 74 years.

Dr. JAMES H. BROWNFIELD, a graduate of Jefferson Medical College, in 1878, died at his home in Fairmont, W. Va., about January 20, at the age of 84 years. He served in the Union Army during the Civil War and was once Mayor of Fairmont.

Dr. EDWARD W. KELLOGG, the family physician of Mark Twain, Charles Dudley Warner, and Harriet Beecher Stowe, died at his home in Avon, near Hartford, Conn., on January 15, at the age of 80 years. He was a graduate of the Long Island College Hospital in 1867, a former president of the National Homeopathic Medical Society, and Civil War veteran. Early in his career Dr. Kellogg was a musician, and one of his compositions, "We Three Kings of Orient Are," is widely known.

Correspondence.

THE REAL CAUSE OF STAMMERING AND A LOGICAL TREATMENT.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR: In an article entitled "Stammering As It Really Is" in the MEDICAL RECORD for December 4, 1920, Ernest Tomkins has endeavored to reduce the confusion of personal opinions and theories now existing concerning stammering. Mr. Tomkins has cleared up several matters, yet the treatment suggested in his last paragraph seems to me as impracticable of application as it looks sound in theory; and the experiments which I performed upon a trephined stammerer and upon other stammerers at the Harvard University Psychological Laboratory disprove his assertion that breathing exercises should be omitted from treatment.*

I agree with Mr. Tomkins that the stammerer's mind should be kept off the impediment in his speech and that vocal gymnastics, although sometimes necessary before or after treatment should be omitted during treatment, as they necessarily focus the patient's mind on his stammering. It would seem, at a casual glance, that breathing exercises should be omitted for the same reason, but my experiments show that a proper breath before speaking removes the real cause of stammering, and that such a breath is highly beneficial.

My experiments demonstrated not only that stammering was accompanied by marked cerebral congestion and vasoconstriction, but that sudden cerebral congestion and vasoconstriction, however induced, brought on either cessation of speech or stammering in normal speakers as well as in stammerers. When cerebral congestion ceased, stammering ceased. The emotions which were accompanied by marked cerebral congestion and vasoconstriction are the same emotions that aggravate stammering. A sudden blast of a shrill whistle while a person is speaking will cause immediate stammering if the speaker is able to speak at all.

My experiments showed that recovery from cerebral congestion and vasoconstriction can be greatly hastened by appropriate breathing. Quick breathing or sniffing increased cerebral congestion; slow, moderately deep breathing, preceded by a second of relaxation, reduced this congestion in a few seconds. Although breathing exercises in themselves may do little if any good, and a quick breath before speaking may aggravate the stammering, my experiments proved conclusively that a slow, natural breath, taken while the patient is relaxed, reduces cerebral congestion and encourages normal speech.

As my experiments demonstrated, also, that the surplus energy which stammerers frequently put into their speech is accompanied by cerebral congestion, it is important that stammerers should be taught to speak without effort. It is useless merely to ask them to speak without effort, because the more they try to, the more their attention is focused on their stammering, and the worse they stammer. If they breathe as I have outlined, they will have little, if any, tendency to put surplus

energy into their speech, and, with a little help from a competent teacher, they will be able to learn how to speak easily in a very few lessons. The breath will soon automatically remind them to speak correctly, just as putting on a shoe automatically reminds one to lace it up and tie the lacing. Then the stammerer needs only to think how he takes the breath with which he is to speak (for the purpose of speaking more distinctly rather than of overcoming stammering), before he focuses his attention on what he is saying. It does not take long to convince the patient that he *cannot* stammer if he breathes properly before speaking and speaks without effort. He at once associates this breath with normal speech because it is normal speech; and this association keeps his mind off his stammering and enables him to speak to any person anywhere at any time under any conditions without hesitancy.

Under this treatment the patient can at once fit into the environment wherein he lives; public opinion and sentiment, which are hard to change, need not be altered; the patient need not undergo the mortification of writing his message on a pad of paper, of using a poorer word for the one he desired to speak, or of desisting altogether from speaking, as Mr. Tomkins advises. Such mortifications only increase the fear of stammering and aggravate the difficulty. The fear of speaking under certain conditions can be overcome only by speaking normally under those conditions, as the treatment I have suggested makes possible. To forbid a child to stammer on school property would increase the fear of stammering and be equivalent to forbidding him to speak on school property, a rule obviously impossible to enforce. Children should be taught in the earliest grades of every school how to breathe properly and how to speak without effort, and their teachers should be instructed not to hurry them or to subject them to unnecessary embarrassment. Teachers should make it a rule to talk sociably with stammering pupils before and after school and thus let these pupils see that their teachers are interested in them and that they can speak fluently to their teachers. Children who ridicule stammerers on school property should be severely reprimanded and, if such cruelty persists, be suspended from school.

Although stammering may cease in a very few months under the treatment I have outlined, recovery does not come until this normal speech has become more natural than stammering. If the stammerer does not think how he breathes for a year or so after stammering ceases, or until this correct breathing becomes automatic, he will gradually revert to his old trouble. As he will unconsciously breathe the old way every time he does not remember to breathe the new way, he must constantly be reminded by a patient teacher throughout this period to breathe slowly. He should go to this teacher two or three times a week at first, and once in two weeks or once a month for at least a year after stammering ceases. Because of the habit nature of stammering and of the emotion of stammering, recovery is slow, and many stammerers who lack the ability to stick to anything fall by the wayside. In almost every case recovery is *certain*, however, if the patient persists for a year

*Robbins, S. D.: *American Journal of Physiology*, April, 1919, May, 1920.

or two, and it is well worth this effort; I myself have entirely recovered from a severe case of stammering, so I *know*.

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MECHANOTHERAPY: A TERMINOLOGICAL READJUSTMENT.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—For one who has this particular therapy at heart, it is somewhat distressing to observe how dim is the average practitioner's conception, not only of its proper terminology, but also as regards its scope—not to mention its actual application. Possibly the reason for this may be found in the step-motherly manner in which most medical schools treat this therapy, and the fact that the student is imbued there with an idea that, although the subject cannot conveniently be altogether ignored, it is a matter of course that his dignity can not possibly permit him to put actually a hand to it—at any rate, so far as massage and medical gymnastics are concerned. And yet, how infinitely more important, as a remedial agent, is not Mechanotherapy than, for instance, Electrotherapy! This relatively *nouveau riche* among therapeutics has still to make good a great deal of its boasted reputation, based to no mean extent upon the optimistic speculations of its Liebhabers and a very human weakness on the part of the public for spectacular display. Whereas the former, old already at the time of Hippocrates, has plodded its more laborious way down the centuries, humbly but honestly, at times abused, at times forgotten, or obscured by things possessing the more acute charm of novelty, only to emerge to-day triumphantly, not only holding its own, but more than that, as the war more than anything has revealed to us. If age, ancestry, and tradition go to make the aristocrat, I would suggest that a great many of the therapeutic measures now in vogue may well make their respectful courtesy to Mechanotherapy.

What then does the word Mechanotherapy imply? To most people it suggests the employment of mechanical contrivances in the treatment of disease. To many it means Zander apparatus and nothing else. And indeed when I look for the word in Stedman's Medical Dictionary I get: "treatment of diseases by means of apparatus or mechanical appliances of any kind." And I am inclined to think it natural enough in a country so great on mechanical contrivances as this. I turn to the French *Encyclopédie Universelle du XXe Siècle*, but get from bad to worse; I read: "—le traitement des maladies articulaires et musculaires (note its limited scope) par des instruments mécaniques"; and the Spanish *Enciclopedia Universal Ilustrada* echoes very much the same: "—metodo terapeutico, que consiste en la aplicacion de aparatos, etc." Desperately I address myself to Meyers (German) *Konversationslexikon* for comfort, only to be referred at once to "Heilgymnastik," under which heading I find the word inseparably connected with Zander apparatus. Fairly disgusted, I fall back on the Swedish "Nordisk Familjebok," the last word in encyclopedias

and the pride of every Swede, and find to my horror the German version translated word for word from it—or vice versa. And I begin to understand how mechanical is the way in which encyclopedias and dictionaries are made up. Evidently, for some strange reason, perhaps lack of interest, the word Mechanotherapy has more or less universally come to imply treatment by some constructed apparatus or engine.

But why—in the name of Galileo and Newton—limit the word "Mechanism" to mere machinery? One may as well limit Mathematics to Laundry bills or Geometry to Union Square. That the word is derived from the Greek "mekhane," usually translated "machine," does not justify any such limitation since it is so freely applied in its larger philosophical sense, when used in other connections. Even Dr. Stedman expands into the larger conception of the word when defining "Osteopathy," which he describes as "a treatment directed to the mechanical correction by means of manipulation." Now, Osteopathy and Chiropactic (I have never been quite able to make out where the first ends and the second begins) are, if anything at all, but forms of mechanical treatment, forming like more static Orthopedy, part of Mechanotherapy—provided of course that by Mechanotherapy we understand the treatment of pathological conditions by *mechanical* means as distinct from, say chemical or thermal or electrical.

As for Orthopedics, no one will seriously deny its mechanical nature. Its connection with surgery is after all but incidental, unless one has in mind "bloodless surgery," and the fact that occasionally it avails itself of surgery as an auxiliary, hardly justifies the term "orthopedic surgeon," particularly popular in this country and used to signify a person, may be a surgeon, who specializes in the mechanical treatment of deformities, thereby by no means limiting himself to the mere static pressure afforded by bandages, splints, plaster of Paris encasements, and other orthopedic paraphernalia, but who also, and naturally, freely employs the "dynamic" pressure of massage, as well as medical gymnastics. The fact that the orthopedic surgeon usually considers it beneath his dignity to apply the two latter kinds of mechanical treatment in person, may well make him less efficient in his craft, but does in no manner influence their close and natural affinity to the first mentioned (orthopedics) especially when the treatment of deformities is in question. Incidentally it follows that, while the orthopedic surgeon is a mechanotherapist to the extent of 90 per cent. (allowing 10 per cent. for surgery), a mechanotherapist who confines himself to the treatment of deformities only, that is, becomes an "orthopedic surgeon," is limiting to about 10 per cent. the full scope and curative resource of Mechanotherapy.

The terminological inexactitudes thus abroad in matters belonging to the realm of Mechanotherapy seem then mostly to have their root and origin in this one fundamental anomaly: the deliberate limitation of the word *mechanical* as appertaining exclusively to machinery. The moment we think of the word in its broader sense, such terms and phrases as "mechanical massage," "manipulative and mechanical stimulation," "massage and mechanotherapy," etc., become absurd.

As a remedy for this anomaly I venture upon the extravagance of proposing the coining of a new adjective, to relieve the overburdened *mechanical*, namely *machinal*.

By mechanical massage is evidently meant massage applied by means of some mechanical contrivance or machine, as for instance a vibrator (vibrations being a form of *tapotement*) or certain forms of Zander apparatus. By substituting *machinal* for mechanical, we have at once the desired differentiation from *manual* massage, without offending the mechanical nature and dignity of either. Likewise "*manipulative* and *machinal* stimulation" both, of course, being mechanical). And so on.

In a paper giving printed kinetic instructions and informations, issued from the office of a prominent New York neurologist, I read the other day that "a resistance movement is a movement in which one group of muscles opposes another." This is an excellent definition of a balance movement, but of course has no application to a resistance movement. Mix-ups of this kind, although unpleasant for the parties responsible for them, are pardonable enough, since the enormous field and extensive terminology of Mechanotherapy requires considerable special attention, not always possible for the general practitioner to give to it. But when coupled, as they sometimes are, with a certain superciliousness, suggestive of omniscience, they become amusing.

FRITHIOF NORBERG.

8 WEST ONE HUNDRED AND FIRST STREET.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, January 7, 1921.

The Insurance Bill and Medical Research.—The Insurance Bill has been in many respects a failure, or perhaps it would be more correct to say a comparative failure. As regards the prevention of sickness, it is safe to say that it has been a failure, although it was introduced "for the prevention of sickness." Neither has the German Act on which it was modeled prevented sickness. However, as it is obvious that the prevention of sickness is, at least, as difficult of accomplishment as the treatment of disease (most authorities will probably agree that it is more difficult), it is easy to comprehend why the Insurance Bill has not fulfilled expectations and prophecies in this direction. If and when Sir James Mackenzie has succeeded in a scheme to teach general practitioners how to diagnose early symptoms of disease and the general public have been taught to consult medical men as soon as early symptoms manifest themselves, then will preventive medicine be placed upon a proper basis. But it must be borne in mind that the teaching and practice of preventive medicine itself is in its early stages and until it has been thoroughly organized it is futile to expect too much of it. The claim that the Insurance Bill in its medical aspects is a failure and especially from the point of view of the medical man himself, is, at any rate, partially justified. It has been damned with faint praise, while at the same time it has been loudly execrated by some. One feature of

the bill has been, nevertheless, worthy of the highest praise, the work of its medical research committee is that to which reference is made. It is superfluous to state that medical research in this country is not in the healthy state it is in America. Or rather it may be said that funds are lacking to prosecute medical scientific investigations in the way they should be prosecuted. Our rich men do not seem to have the far seeing vision of the American plutocrats and to recognize that money spent freely for the encouragement of such research is the act of wisdom from every standpoint. Prosperity and contentment originate from good health, and sagely directed medical research paves the way to good health. Although there is nothing here to compare with the Rockefeller Institute, nor is money forthcoming for medical research in the streams that flow from the pockets of American millionaires, yet medical research in Great Britain is by no means stagnant. The Medical Research Committee of the National Health Insurance Commission did yeoman work during the war, largely inspired and helped by that wonderful man, Sir Robert Morant, whose genius and intellectual foresight were chiefly responsible for the formation of the Ministry of Health and whose untimely death was an almost irreparable loss to that body and to the country. It was his view that medical research should not be limited by coming under a ministry which was not nation wide, but confined to England and Wales, and by his advice the Medical Research Committee of the National Health Insurance Commission became the Medical Research Council under the aegis of the Privy Council of which Mr. Balfour, a man of vision and science himself, is Lord President. The first report of the Medical Research Council has just been issued. The report, which is excellently compiled, is a veritable mine of valuable information and will be referred to and quoted from in succeeding letters. Among the manifold subjects discussed are the clinical work of hospitals, investigations into industrial disease and fatigue, and researches on influenza, tubercle, infant welfare in all its phases, vitamins, medical problems involved in flying and radiotherapy. The question here as regards medical research is very different from that in America. Money is badly needed in Great Britain to carry on such work in a manner best calculated to be most productive of good results. This country has an unsurpassed tradition of medical scientific research, an unfailing supply of men and women, who are willing to toil faithfully and unsparingly for starvation pay. It therefore seems incumbent on the Government to increase largely the trifling sum of £125,000 which Parliament votes for the purpose of medical research. Unfortunately, unless the public can be made to understand the inestimable value of wisely directed medical research Parliament is not likely to open its purse-strings more widely. The masses control Parliament to a very large extent, because they have the voting power. They do not understand the uses of medical science, it cannot be directly computed in pounds, shillings and pence, and therefore they despise it. If they can be taught to comprehend, as the rich men of Amer-

ica sagaciously understand, that money expended for the purpose of medical research will be returned an hundred fold, instead of dealing in niggardly fashion with laboratory workers and medical scientific investigators of every description, they will be eagerly anxious to endow medical research most generously. The masses and the rich, too, must be so educated that they will give freely to the cause of medical science, recognizing the fact that it is for the good of the country and the individual.

The Fellowship of Medicine and the Post-Graduate Medical Association.—At a general council meeting of this body held on December 10, 1920, the following resolutions were adopted and referred to the newly appointed executive committee: (1) That the executive committee be requested to consider the advisability and practicability of appointing a general organizer of post-graduate medicine with full powers to take such action as he thinks fit in order to promote the facilities for post-graduate education in the United Kingdom for practitioners registered in this country and for visitors from Dominions and foreign countries. And that the Government be approached with a view to obtaining an annual grant. (2) That the executive committee be requested to report at an early date upon the possibility of providing a hospital solely for post-graduate study and the possibility of obtaining a grant in aid. (3) That it is desirable to obtain as early as possible suitable accommodation for post-graduates attending courses of instruction. If those responsible for the direction of the medical schools of London wish, and no doubt they do wish, to make of London the great European medical center, they must bestir themselves or they may find that Berlin or even Vienna will regain its old pride of place as a center of post-graduate medical teaching. Too great insistence cannot be placed on the point that London possesses all the opportunities and facilities for post-graduate medical teaching and for Americans in particular. But these facilities must be organized and opportunities put to the best use. A laissez-faire policy will not do at the present juncture. Every effort must be made to attract post-graduate medical students, and to provide the best means of instruction, clinical and otherwise, and to make them comfortable and at home when they come. The establishment of an American hospital and club is the first step in the right direction, and the provision of a hospital solely for post-graduate study is certainly another forward step. It is to be hoped that both these schemes may come to fruition quickly.

The Treatment of Oral Sepsis in Great Britain and America.—Dental infection is frequent in Great Britain and in America and consequently the question of its treatment is important in both countries. Probably defective teeth are more often seen in the former country, due to the fact that more care is taken of the teeth in America. In connection with oral sepsis Dr. W. Bertram Watson contributed to the *Lancet*, January 1, last, an article on oral sepsis, in which, after pointing out that dental infection in Great Britain and America is one of the most widely discussed prob-

lems of the day went on to draw unfavorable comparisons as to the knowledge of dental disease and the condition of dental radiography in this country and the United States. He was greatly impressed during a recent visit to your side of the Atlantic, by the high standard to which this branch of medical science had attained and deplored the lack of progress made in this direction in his own country. In the next number of the *Lancet* Dr. Stanley Colyer, one of the leading dental surgeons here, took up the cudgels in defence of dental surgery. In his opinion since the great stir made by that pioneer, the Englishman, Dr. William Hunter, in 1898, the subject was earnestly and energetically taken up by doctors and dentists and is still being actively carried on. He allows, however, that American doctors have recently taken up the matter with characteristic vigor and thoroughness. Dr. Colyer further pointed out that dental radiography is by no means at a standstill in Great Britain and adduced several facts in support of this statement. It really seems that in his article Dr. Watson was casting reflections on the doctor's neglect of oral sepsis rather than upon the dentist's want of knowledge and progress in the treatment of oral sepsis and lack of appreciation of the value of radiography in its diagnosis. It is true that William Hunter was one of the first, if not actually the first, to draw attention to the evil influence on the general health exercised by infected teeth and gums. It is equally true that pyorrhea alveolaris was first diagnosed by the American, Riggs. Dentistry in this country has made great strides in the past few years and more particularly since the war, and although there is a scarcity of dentists, some remarkably good dental work is being done. There are, however, in this country, and doubtless in America, many prominent medical authorities who hold that an exaggerated importance is now attached to dental infection and that wholesale extraction of teeth is, at any rate, sometimes done when more conservative measures would answer the purpose better.

A Venerable Journal.—The *Medical Press and Circular* has reached the very respectable age of eighty-two years, this being exceeded in Great Britain only by the *Lancet*, which will soon be one hundred years old. In America, if my memory serves me right, the *Boston Medical and Surgical Journal* is even older than the *Lancet*, while the *MEDICAL RECORD* is of a grave and serious middle age. It is also interesting to note that since the transference of the *Medical Press and Circular* from Dublin to London in 1866 its management has been in the hands of Mr. Albert Alfred Tindall. Mr. Tindall is eighty years of age and still "going strong," and thus has been at the helm for fifty-four years, a record in journalism of whatever description.

The New Year Honors.—The New Year Honors List as it affects medicine is commendably and unusually short, and as mentioned in a former letter is unique in one respect in that for the first time medical journalism is recognized. Among the other Knighthoods awarded is that of Sir Edward C. Bigger, M.D., Crown representative on the General Medical Council, and late Medical

Commissioner to the Local Government Board, Ireland, and of Mr. Charles Ryall, F. R. C. S., senior surgeon to the Cancer and Bolingbroke hospitals. In the Colonial office list of honors appears the name of Dr. Alexander Jarvie Hood, senior physician to the Prince of Wales's Military Hospital, Randwick, New South Wales, who is given a knighthood. As the honors bestowed upon the editors of the *Lancet* and *British Medical Journal* may be justly regarded in the light of a tribute to medical journalism as much as to the abilities and personal qualities of the recipients, it will not be out of place to give a short sketch of their careers. Sir Squire Sprigge is the eldest son of the late Dr. Squire Sprigge, who was an able and greatly liked country practitioner of Norfolk, an East coast county of England. He was educated at Uppingham, one of the famous schools of England and at Caius College, Cambridge. He completed his medical education at St. George's Hospital, London, graduating in arts at Cambridge and taking the Cambridge degree in medicine. He also took the membership of the College of Surgeons of England. After holding various literary and professional posts, in 1893, he became associated with the *Lancet*, being appointed assistant editor in 1895 and editor in 1908, a position he still occupies. From 1910 to 1913 he was chairman of the Society of Authors, and he has himself written several works dealing with medical history and education, a volume of short stories entitled "Odd Issues," and an ingeniously conceived and amusing novel, "An Industrious Chevalier," which enjoyed a considerable vogue some fifteen years ago. Sir Squire Sprigge both from the point of view of professional and exact knowledge and of his literary attainments is well fitted for the post of medical editor. He has not only kept up the *Lancet* to the high standard set up by Thomas Wakley, its founder and first editor, but has moved with the times in the traditional somewhat conservative English way and has, moreover, impressed upon it his own individuality.

Dr. Dawson Williams, the editor of the *British Medical Journal*, when he entered medical journalism, enjoyed a greater clinical position than any other medical journalist. Neither Ernest Hart, whose assistant editor he became, nor the Wakleys of the *Lancet* had any thing like his scientific equipment. A gold medallist in medicine at the University of London and Fellow of University College, he was assistant physician to the East London Hospital for Children and the author of many papers, showing him to be in the van of the new medicine following upon the discoveries of Lister and the bacteriological work of Pasteur. With such a dossier Dr. Dawson Williams had no intention of making journalism his career. He came in under terms with which we are now so familiar, a "half-time man," but, as was inevitable, he soon found that as the conduct of the *British Medical Journal* fell more and more into his hands it became more and more impossible for him to attend to practice, and the inverse of this proposition, of course, is true. To the great benefit of medical journalism he elected to devote all his time to this, succeeding Ernest Hart in the

editorial chair early in 1898. As further evidence of Sir Dawson Williams's ideal that medicine should be international, it may be mentioned that he is treasurer of the International Medical Press, a body whose sessions before the war were held in conjunction with the meetings of International Medical Congresses and whose activities will no doubt be resumed when normal international relations are restored.

Progress of Medical Science.

Boston Medical and Surgical Journal.

January 20, 1921, cxxxiv, 3.

1. The Clinical Recognition of the Various Types of Paroxysmal Rapid Heart Action. Samuel A. Levine.
2. Medical Complications Following Surgical Operations. William E. Preble.
3. The Balneology of Japan. Horace Packard.
4. Congenital Heart Disease with Complete Auriculoventricular Dissociation. F. A. Willius.
5. Sixty-four Consecutive Examinations of the Duodenum on the Cadaver. H. F. Aitken.
6. Conditions in Palestine During the War. Izak Alcazar.
7. The Duty of State Medical Societies. R. C. Fish.

1. The Clinical Recognition of the Various Types of Paroxysmal Rapid Heart Action.—Samuel A. Levine holds that it is possible to distinguish the various types of paroxysmal rapid heart action (paroxysmal auricular tachycardia, paroxysmal auricular fibrillation and paroxysmal auricular flutter) one from each other and from normal acceleration by the simple means that all physicians have with them at the bedside in the majority of instances. The points involved in the differential diagnosis are discussed and the importance of vagal stimulation as a life-saving measure in rare instances is emphasized. The proper treatment of the various types of paroxysms will depend on the correct differentiation of the abnormal mechanism.

New York Medical Journal.

January 22, 1921, cxiii, 4.

1. Modern Commentaries on Hippocrates. Jonathan Wright.
2. The Modern Treatment of Acne. Walter J. Highman.
3. Backache Due to Neurological Conditions. Charles Rosenheck.
4. Gynecological Backache. E. A. Bullard.
5. Sceleratina. Hyman I. Goldstein.
6. Scrobbles of the Scalp. Charles Greene Cumston.
7. Latent Pulmonary Tuberculosis in Its Various Disguises. Myer Solis-Cohen.
8. Tabes Mesenterica Following Influenza. Ralph J. Melman.
9. Transient Heterophoria and Strabismus in Neurasthenics. George Edward Barnes.

4. Gynecological Backache.—E. A. Bullard studied a series of 721 cases of backache at the Woman's Hospital, New York City, eighty-five per cent. of which were cured by an appropriate operation. About fifteen per cent. of this series, presenting one or more common gynecological causes of backache, were not relieved of the backache by anatomically satisfactory operations. Probably much more than fifteen per cent. of the backache in females is not gynecological. This series suggests that fifteen or twenty per cent. of all women with retroversion, prolapse, pelvic inflammations, obstetrical lacerations, or pelvic tumors, do not have backache. Closer cooperation with the orthopedist, the internist and the neurologist should enable gynecologists better to diagnose and treat backache in women.

8. Tabes Mesenterica Following Influenza.—Ralph J. Melman reports one case in a boy seven years of age, who made an uneventful recovery following operation under spinal analgesia. The following points are emphasized in connection with this history: 1. Severe pleuritic pain on the eighth day of the disease, which was thought to be referred from the abdominal cavity, possibly due to the fact that this complication commenced in that part of the peritoneum, in proximity to the diaphragm. 2. The peculiar temperature curve being at its highest between 11 A. M. and 3 P. M. 3. The importance of the von Pirquet test in conjunction with other phenomena in puzzling cases in children. 4. The importance of early surgical intervention in this disease, and not resort to watchful waiting until the glands

break down and have tuberculous meningitis as a possible complication. 5. It is interesting to note that in a proportion of cases of so-called potbelly, due to rickets, where distention persists, one may have as a complication a chronic tabes mesenterica.

The Journal of the American Medical Association.

January 22, 1921, lxxvi, 4.

1. The Evolution of Preventive Medicine. Charles V. Chapin.
2. Synergistic Colonic Analgesia. James T. Gwathmey.
3. Determination of Cure in Gonorrheal Infection of the Male: Description of Improved Methods. Russell D. Herold.
4. Induced Atrophy of Hypertrophied Tonsils by Roentgen Ray. James B. Murphy, S. L. Craig, R. G. Hussey, and Ernest Sturm.
5. Polypoid Carcinoma of the Stomach: Report of a Case Diagnosed as Primary Pernicious Anemia Eighteen Months Before Death. T. Grier Miller.
6. Roentgenographic Evidence of Ulcer Healing. Jacob Buckstein.
7. Second Improved Method for the Demonstration of Spirochaeta Pallida in the Tissues. Warthin and Starry's Silver-Agar Cover-Glass Method. Alfred Scott Warthin and Allen C. Starry.
8. Multiple Renal and Ureteral Stones in an Infant of Eleven Months, with Results of Ureteronephrectomy. Frank Hinman.
9. Acute Myelogenous Leukemia. Carl W. Maynard.
10. Rabies Vaccine. A. M. Stimson.
11. Pertussis Vaccine. Wilbert C. Davison.
12. Cholera Vaccine. Oscar Teague.
13. Vaccination Against Plague. Oscar Teague.
14. The Use of Vaccines in the Prevention and Treatment of Influenza and Its Sequels. Frederick P. Gay.

2. Synergistic Colonic Analgesia.—James T. Gwathmey states the physiological fundamentals of colonic analgesia as follows: 1. It is necessary to give at one time the total amount, as determined by age, weight, and the general condition of the patient, in order to establish the ether tension in the blood, which is necessary to produce anesthesia. It is a fallacy to assume that the total amount given to a patient is immediately utilized. If this were so, there would be shock and gradual recovery with every oil-ether administration. As the plane of anesthesia is constant, it is now definitely established that the patient absorbs two ounces of ether an hour—a smaller amount than by any other method in common use. 2. After administering the oil-ether mixture, it is impossible to withdraw the oil and leave the ether, or to withdraw the ether and leave the oil. Every molecule of ether is bound to a molecule of oil, and this union is broken only when vaporization occurs. In no other way can they be separated. When anesthesia is established, it is automatically maintained by the ether separating from the oil according to certain inflexible physical laws. The amount of this vaporization never varies. Therefore it is impossible to have deep anesthesia at one time and a light anesthesia at another, unless the anesthesia is deepened by rebreathing or lightened by an airway tube. Thus the administration is as definitely under the control of the anesthetist at all times as if he were giving it by an inhalation method. While the total amount of the mixture is within the body, the patient is as safe from an overdose as if it were in a container outside the body. The patient under oil-ether colonic anesthesia inhales a warm, moist vapor at all times. When the ether is taken up by the small blood vessels surrounding the colon it is carried thence through the liver by the greater circulation and on to the heart; from there it is pumped into the lungs. By the time the anesthetic has reached the lungs it is moistened and thoroughly warmed to the body temperature. There is no irritation of the lungs, and mucus and saliva are usually absent. 4. When the ether evaporates from the oil in the colon a frigid condition ensues, which cools the mixture and retards evaporation. This process recurs automatically until all the ether has parted from the oil. During this time the temperature of the patient remains normal, as determined by a thermometer placed in the axilla. The skin is warm to the touch; the color of the face suggests thorough oxidation all the time. The cold, clammy sweat often noticed with ether given by other methods does not exist with oil-ether. 5. Quiet respiration, normal pulse, and good color during the anesthesia indicate that no toxic condition exists. The absence of nausea and vomiting, the absence of change in urine or blood, in conjunction with other clinical facts

noted, indicates that there is less toxicity with this form of anesthesia than with the usual inhalation methods. It is proposed to take advantage of the principle of synergism and to convert colonic anesthesia into synergistic colonic analgesia; in other words, to get a complete brain block by using much smaller amounts of ether than heretofore employed and adding to this effect of ether the synergistic effects of the combined morphine and magnesium sulphate. From his observations in this connection the writer deduces that when magnesium sulphate (from 1 to 2 c.c.) is used with morphine (from 1/12 to 1/8 grain), instead of plain water, and given by hypodermic injection, the value of the morphine is increased from 50 to 100 per cent. That is, one hypodermic injection will do the work of from two to four. Magnesium sulphate (from 6 to 15 c.c.), given by hypodermic injection two hours before operation, followed by morphine sulphate hypodermically (from 1/12 to 1/8 grain) one hour before the operation, when supplemented by nitrous oxide and oxygen (the oxygen being employed in a much higher percentage than usual), gives a safer and better relaxation than when ether is used. Synergistic analgesia is the logical evolution of general anesthesia. Analgesia with consciousness is present oftener with colonic anesthesia than with other methods of administering any of the general anesthetics.

3. Determination of Cure in Gonorrheal Infection of the Male.—Russell D. Herold concludes from his studies that cultures of prostatic and seminal fluids and first urine sediment, carefully collected, are the most reliable single means of determining whether or not a gonorrhea is cured. For this purpose, phosphate agar with blood and ascitic fluid is suitable, and the inoculated plates should be incubated under reduced oxygen tension. The complement fixation test is a valuable aid, but the results should be taken in conjunction with the cultural results. Low degree positive fixation may persist up to a year after positive smears and cultures can be obtained. However, with positive serological reaction cultures should be repeated at intervals, and the patient kept under observation until the serological tests give negative results. The gonococcus may be identified by agglutination tests with polyvalent antigenococcus serum. A satisfactory antigen can be easily prepared. The use of provocative tests before taking cultures and smears is of no advantage. The pus cell content of smears and macroscopic urinary appearances may be misleading, and constitute no safe index of cure.

4. Induced Atrophy of Hypertrophied Tonsils by Roentgen Ray.—Murphy and his associates base this report on the result of the following treatment on forty-six patients ranging from 3½ to 45 years of age, all showing more or less hypertrophy and disease of the tonsils and surrounding tissues. The factors governing the dose of roentgen ray given to the region of each tonsil were as follows: The spark gap, measured between points, was 8 inches; 5 milliamperes; 10 inches distance from the target to the highest point of skin exposed. The time of exposure varied from three to seven minutes, according to the age of the patient. The ray was filtered through 3 mm. of aluminum. The approximate value of this dose was from 1 to 1½ skin units. The patient to be treated was placed on a table in such a position that the ray entered under the angle of the jaw and penetrated through the soft tissues to the region of the tonsil. The area exposed on each side was about 3 square inches, the surrounding parts being protected by heavy sheet-lead. For young children a special board was used with retaining straps, and the head secured by means of a gauze bandage. No patients were treated during a time when the throat showed evidence of acute infection. The results suggest the possibility of utilizing the well-known fact that lymphoid tissue is easily destroyed by the roentgen ray for clearing the throat of an excess of this tissue. In the series reported only one patient received more than one treatment. From their studies on animals the writers believe it should be possible to induce almost any degree of atrophy by repeating the roentgen-ray treatments at suitable intervals. They attribute the disappearance of hemolytic organisms of the throat, not to the direct action of the roentgen ray on these organisms, but rather to the proper drainage of the crypts as the tonsil tissue atrophies.

The Lancet.

January 1, 1921, cc. I.

1. The Huxley Lecture on Recent Advances in Science in Their Relation to Practical Medicine and the Nutritional Requirements of the Body. Gowland Hopkins.
2. An Address on the Psychology of Anesthesia. Dudley Wilmot Buxton.
3. Oral Sepsis, with Special Reference to Chronic Dental Apical Infection. W. Bertram Watson.
4. Experiments with the Flocculation Test (Sachs-Georgi) for Syphilis. W. R. Logan.
5. A Case of Enteric Fever Due to the *B. Enteritidis* of Gaertner. A. B. Rosher and G. Selby Wilson.
6. Pseudo-Coxsackia: Osteochondritis Deformans Juvenilis. H. A. T. Fairbank.
7. A Note on Spirochetes in the Etiology of Certain Paralyzes. G. Schuster.
8. Observations on the Use of Citrated Media. H. C. Brown.
9. Some Problems in Marine Hygiene. With Special Reference to Merchant Ships. Surgeon Vice-Admiral Sir Robert Hill.

2. An Address on the Psychology of Anesthesia.—Dudley Wilmot Buxton notes that gentle surgery protects the patient from reflex dangers, while some form of blocking the centripetal nerves by analgesics, as in Crile's anoci-association method is probably a protection against some shock effects, although, of course, the latter cannot be entirely abrogated in abdominal or thoracic operations. If the induction is performed hurriedly or without due attention to detail, and if the operation is commenced before absolute anesthesia has been obtained for some minutes, the whole course of the anesthesia proves unsatisfactory. Do what one may, it is marked by an uneven level of narcosis; vomiting or retching is constantly imminent, and disturbances, usually vagal in origin, are common. Throughout the anesthesia anxiety and dissatisfaction obtain, and severe aftereffects usually occur. The writer believes this trouble arises through no initial and complete control having been obtained over the higher centers. Consciousness may eventually be lost, but the influence of the unconscious mind is aroused; for some reason, at the nature of which one can only guess, its effects persist and are hardly abrogated. To recognize this state is to suggest its treatment, whether or not one admit its suggested causation.

5. A Case of Enteric Fever Due to the *B. Enteritidis* of Gaertner.—Rosher and Wilson report the case of a patient suffering from pyrexia which simulated closely a typhoid course, but which was probably due to infection with the *B. enteritidis* of Gaertner. The case, moreover, was of a purely sporadic nature, and was unconnected with any coexisting outbreak of food poisoning. It is suggested that it would be advisable, in view of this case, to test the sera of patients suffering from enteric-like infections against a more extended series of antigens than are commonly employed, in order to ascertain whether sporadic infections with organisms of the enteric group other than *B. typhosus*, *B. paratyphosus*, A, and *B. paratyphosus* B are more than mere pathological entities.

7. A Note on Spirochetes in the Etiology of Certain Paralyzes.—G. Schuster undertook a research in the parasitology and pathological tissues of general paralysis of the insane, at the Psychological and Neurological Clinic of the Royal Hungarian University of Budapest, soon after the publication of Noguchi's researches. His investigations were interrupted by the war and resumed at the end of 1918. He summarizes his findings as follows: 1. Large quantities of spirochetes are to be found in the central nervous system in cases of paresis, even when it runs a simple course without paroxysm. 2. The main colonies of the spirochetes settle in the lowest strata of the cortex, and while increasing in number there they may spread over other areas of the cortex; while alterations of the tissue of the cortex may be extensive the alterations of the medullary sheath are most obvious just on the edge of the cortex and medullary sheath. 3. He was able to show fine spirochetes in the lower layers of the cortex in a case of disseminated sclerosis; there seems to be some connection between disseminated sclerosis and alterations of medullary sheath, because in both cases the result caused by spirochetes is plexiform disintegration of the medullary sheath, of which the site of election is the boundary of the cortical and medullary substance. 4. Formalin injection prevents demonstration of spirochetes in the central nervous system.

British Medical Journal.

January 1, 1921, I, 3131.

1. The Diagnostic Significance of Abdominal Pain in Childhood. Robert Hutchison.
2. A Clinical Lecture on Epilepsy Considered as a Symptom, Not a Disease. James Taylor.
3. An Address on the Hour-glass Stomach. C. Thurstan Holland.
4. Massage of the Heart and Resuscitation. J. A. Gunn.
5. The Practical Gains of Clinical Cardiology Since 1900. W. Gordon.

1. The Diagnostic Significance of Abdominal Pain in Childhood.—Robert Hutchison reminds one that abdominal pain in a child may be due to nothing worse than an attack of acute indigestion set up by a green apple; or it may indicate an attack of acute peritonitis set up by a green and gangrenous appendix. It is a matter, therefore, which craves wary walking in diagnosis, for a mistake may be fatal, and between one's anxiety not to overlook a serious cause and one's natural reluctance to alarm the parents unduly, it is often difficult to steer a proper course. The difficulty is increased by the fact that the pain may be the only symptom of abdominal disease. Extra-abdominal causes of pain are especially apt to lead to error. These causes are divided according as the cause has its seat in the abdominal wall or in the thorax. Causes in the abdominal wall are spinal caries, lateral curvature, rheumatism, herniæ through the abdominal wall, hip disease, and herpes zoster. Discussing thoracic causes, the writer states that the commonest form of error is to diagnose a case of pneumonia occurring at the right base as one of appendicitis. Vomiting, which is a very constant and conspicuous feature of early pneumonia in childhood, helps still further to simulate the picture of abdominal disease. There is reason to believe that the abdominal pain in these cases occurs only when the diaphragmatic pleura is affected. Pericarditis, when the diaphragmatic surface is involved, may simulate abdominal disease, although it is much less common as a source of error than pleurisy or pneumonia. The intra-abdominal causes of pain are divided, for the sake of convenience, into cases of sudden or catastrophic pain, and cases of chronic or recurrent pain. By the "catastrophic" cases Hutchison means those in which the pain sets in suddenly and is of great intensity. They are cases often spoken of as "abdominal catastrophes," and include many examples of what are known in surgical slang as "the acute abdomen." The possible causes of an abdominal catastrophe are fewer in the child than in the adult. The possibilities which one has to consider when confronted with a case of severe abdominal pain of sudden onset at this age are acute indigestion, appendicitis, and some form of acute intestinal obstruction, of which that due to intussusception is specially frequent in the child. Among the rarer causes are abdominal or Henoch's purpura. Chronic or recurrent abdominal pain in childhood is rarely traceable to the stomach, the seat of origin usually being the intestine. The intestinal cases are divided into those due to (a) ordinary colic, (b) "umbilical" colic, (c) enterospasm, and (d) chronic obstruction. The cases which cause the greatest anxiety are those in which the question arises whether a chronic or recurrent pain has its seat in a diseased appendix. Worms are often believed by parents to be a cause of abdominal pain in childhood, but the writer's experience does not bear this out. Enlarged glands, on the other hand, more commonly give rise to abdominal pain than is generally realized. Affections of the urinary tract are a frequent and often overlooked cause of abdominal pain in early life. Movable kidney and attacks of true renal colic are rarely to be reckoned with; on the other hand, kinking of the ureter and ureteric calculus are frequent causes of abdominal pain in childhood. In the male urethral obstruction as a result of phimosis or a narrow meatus may cause attacks of hypogastric pain from overdistention of the bladder. In girls one sometimes has to think of pelvic causes such as salpingitis.

4. Massage of the Heart and Resuscitation.—J. A. Gunn lays down the following directions for resuscitation in cardiac arrest in man or animals, whether from chloroform anesthesia or from any other condition in which cardiac arrest is "accidental." If the heart has stopped, artificial respiration should be resorted to im-

mediately by the usual methods. If, at the end of three or four minutes, no pulse can be felt, and especially if no heart beats can be heard on auscultation, adrenalin should be injected into an external jugular vein, by an assistant available; if no assistant be available, the gain from adrenalin more than compensates for the loss of time, provided the materials are at hand, as they ought to be. In the meantime, or subsequently, as the case may be, the abdomen should be opened high up, one hand inserted in the opening, passed up over the left lobe of the liver, and the heart felt for above the diaphragm. The heart should then be massaged intermittently. As soon as spontaneous beats of the heart, however feeble, are felt, massage should be interrupted for several beats to allow the contractions to establish themselves; otherwise, continuous massage may abolish them again. The heart should then be massaged again for a short time, when the beats will probably improve. When the heart has begun beating it is safer to use too little than too much massage. The hand should not be removed from the abdomen till the heart is beating well. When the heart continues to beat regularly and strongly an intravenous injection of atropine should be given. Artificial respiration must be kept up continuously also after the heart begins beating. After five minutes it may be interrupted to see if natural respiration will begin, but not for long. No harm is done by keeping up artificial respiration, even if it inhibits the natural respirations, whereas, on the other hand, it is not safe to interrupt artificial respiration very long, if natural respiration does not commence. Natural respiration may be expected to begin in five to ten minutes after the heart begins to beat again, but may be delayed for thirty minutes. During the manipulation, and afterward, if these procedures be successful, care must be taken to maintain the body temperature.

Indianapolis Medical Journal.

December, 1920. xxiii, 12.

1. Heroic Treatment of Malaria in the Tropics. G. C. Graves.
2. An Unusual Case of Rupture of the Gall-Bladder. Karl R. Ruddell.
3. Anesthetic Notes. Arthur E. Guedel.

1. Heroic Treatment of Malaria in the Tropics.—G. C. Graves states that, after careful study, much experimenting and comparing of the several methods of treatment, the so-called follow-up treatment of patients who have been discharged from the hospital in which some doubt exists as to whether a cure has been completely accomplished, has proved highly satisfactory. The plan is given in brief as follows: Upon the discharge of a patient who has been treated for malaria (only positive blood cases being considered), the overseer of the mines or foreman of the railroad from which the laborer was sent to the hospital is notified that the man was treated in the hospital for malaria, and he is requested to place the man on the quinine list and to give him 30 grains of quinine in solution (fifteen grains in the morning and fifteen grains in the evening) on every Saturday and Sunday for eight weeks. A copy of this request is sent also the superintendent of the mines or of the railroad, as the case may be. Each farm keeps a supply of the quinine solution. As soon as the discharged patient has finished his eight weeks of treatment his name is erased from the quinine list.

Long Island Medical Journal.

November, 1920. xiv, 11.

1. The Mechanical Treatment of Tuberculosis. Foster Murray.
2. The Roller System and Its Application in America. Jacques Rushmore.
3. Radium Treatment of Tuberculous Adenitis. C. Everett Field.
4. The Care of the Patient with Moderately Advanced Tuberculosis. Thomas A. McGoldrick.
5. Controlling Tuberculosis. Philip P. Jacobs.
6. Résumé of Tuberculosis Problems in State Hospital Practice. Delmer D. Burghin.
7. Some Underlying Principles of Gastric and Intestinal Surgery. J. Shelton Horsley.

1. The Mechanical Treatment of Tuberculosis.—Foster Murray, on the premise that the mechanical treatment of tuberculosis is accomplished chiefly by the employment of artificial pneumothorax, confines his dis-

cussion to this method. The attainment of successful results in this form of therapy depends largely upon the proper selection of cases. It is now fairly universally agreed that the following types are suitable for induced collapse: (1) Cases of severe, massive hemoptysis where it is definitely known, through physical and radiographic examination, from which lung the hemorrhage arises. (2) Cases of small or moderate hemoptysis recurring in spite of all less radical measures directed toward their control. (3) Unilateral active ulcerative lesions which, regardless of the prolonged application of a rigid rest-dietetic-hygienic regime, progress steadily, even extending and destroying. The more immediate happy effects resulting from successful collapse are many and sometimes startling in the rapidity of their accomplishment. A rather prompt reduction in temperature and pulse rate invariably follows. If other expressions of toxemia be present, such as dyspnea, night sweats, and neurasthenia, definite and comparatively rapid improvement may reasonably be expected. Weight and strength are regained. Cough and expectoration may at the beginning be moderately increased; later, both become markedly lessened and in a fair percentage of cases finally completely checked. The general results of pneumothorax therapy, when there is taken into consideration the unfavorable types in which it has been regularly employed, are encouraging. The lives of such patients have, in many instances, been greatly prolonged. A fair percentage of patients have been restored to lives of certain usefulness. A small percentage have become apparently permanently cured. Yet these are all cases which would otherwise most likely have proceeded to fatal termination.

Wiener klinische Wochenschrift.

December 2, 1920. iii, 49.

The Oligodynamic Action of Sublimate.—Weltmann of Professor Chvostek's clinic takes up the subject of Saxl's researches in the field of "oligodynamic distance action" of the salts of certain metals, which in turn appear to be an outgrowth of Naegeli's work with the same substances as inhibitors of the growth of minute plants like the algae. This botanist invoked a special form of energy termed by him "isagy," and advocates of infinitesimal dosage in medicine appear to have derived some doubtful comfort from these finds. Saxl calls special attention to an action exerted at a slight distance, a stratum of air and a piece of filter paper being interposed. The tests mentioned have to do with ordinary chemical reactions and we have to assume either a volatile or an evaporative activity of the salt, or the presence of some as yet undescribed force. In repeating Saxl's experiments the author placed a number of sublimate tablets in a Petri dish and covered the latter with a sheet of filter paper. Powdered glass was now placed on the paper, which at no point came in contact with the tablets. Three days later the filter paper was found to possess remarkable bactericidal powers over the bacillus coli, a power not shared by the glass. The paper was also found to be strongly hemolytic. The most sensitive tests failed at first to reveal the presence of mercury in the paper. Later the tests became positive and the glass was also found to possess the same biological properties as the paper. Naturally it must be shown that these properties conferred on the paper and glass are not due to evaporation. In starting out with this aim the author was able to demonstrate that the mysterious behavior was due to simple evaporation; the assumption of an unknown force is therefore gratuitous.

Skigrams, Etc., Admissible Evidence in Malpractice Case.—In a malpractice action, charging that defendant hospital's surgeons left a piece of gauze in a sinus, it was held that skigrams of the plaintiff's teeth, made for the purpose of determining whether or not the plaintiff had septicemia, also testimony as to the plaintiff's physical condition as evidenced by her ability to work before and after the surgical operation, and the piece of gauze taken from the sinus, were all properly admitted in evidence.

Society Reports.

SOUTHERN SURGICAL ASSOCIATION.

Thirty-Third Annual Meeting, Held at Hot Springs, Virginia, December 14, 15 and 16, 1920.

THE PRESIDENT, DR. WILLARD BARTLETT, ST. LOUIS, MO., IN THE CHAIR

Fractures of the Skull; Report of Cases.—Dr. C. E. CALDWELL of Cincinnati stated that skull injuries might be divided into two primary divisions, those in which the traumatism to the neural centers was of such severity that the patient was obviously doomed, and died within a few hours of the receipt of the injury, and those in which the injury was of such a nature as to permit of the patient living to present those problems of intervention or nonintervention which were to determine the ultimate results of treatment. These problems were obviously those of correctly estimating the amount and character of the brain lesion. Certain well known clinical signs were helpful in arriving at conclusions. The presence or absence of paralysis or spasticity, the presence of brain irritation, as shown in the contracted pupil and exaggerated reflexes; the succeeding phase of brain anemia, as seen in the dilated pupil and failure to react to light. The evidence of cerebral compression in the increased blood pressure, and increased pressure of the spinal fluid on spinal puncture. All these various phenomena were those by which the surgeon was guided in determining his conduct. The 41 cases reported in this paper represented the cases of head injuries with fracture which had come under his personal care since January 1, 1918. Of these 41 cases, 7 were operated, and 34 not operated. Of the 7 operated on, 5 recovered and 2 died. Of the 34 not operated on, 24 recovered and 10 died. Of the 10 who died, 8 died within two or three hours after admission. The other 2 lived respectively four and five hours and would have been decompressed had he been called earlier. Of the 2 who died after operation, both had severe intradural hemorrhage, and 1 had a steadily rising temperature from the time of admission, possibly due to the lighting up of old mischief in a formerly diseased mastoid into which the fracture line ran.

The Late Results of a Series of Head Injuries.—Dr. C. C. COLEMAN of Richmond, Va., said that the incidence or severity of the late results of head injuries could not be predicted upon the type or degree of an acute injury. Epilepsy as a late complication in the series reported had lessened incidence in the cases with early operation. To have value this observation must be substantiated by a larger series. Compensation had a direct etiological influence on the development of post-traumatic neuroses, but this influence could be determined only by careful neurologic study. The prevention of late effects of head injuries was closely linked with the early treatment and aftercare. The pathology and evolution of many head injuries of civil life were as yet impossible of demonstration by present methods.

Dr. ROBERT T. MORRIS of New York City stated that intracranial pressure in these cases, which was relieved by decompression, was frequently due to an irritative lesion, and that lesion was due to contraction of dural adhesions, and unless one recognized the presence of dural adhesions in many of these cases of epileptic and epileptoid seizures and various psychoses coming on as late symptoms, headache, nausea, etc., an important factor was overlooked in the condition of these patients. In cases in which the dural adhesions covered only a small area one sometimes had a marked demonstration from the relief of pressure. Where secondary changes had taken place, if the parenchyma had been injured seriously, with fatty changes in the cortex and cells of Purkinje destroyed, one was not going to have good results from the separation of dural adhesions alone. Where there was simply an irritative lesion of limited area, decompression was not the operation, but a separation of dural adhesions, and the application of methods for the prevention of their recurrence.

Dr. HENRY O. MARCY of Boston said that Hunter McGuire told of one of the most remarkable cases of

head injury on record. A man in one of the southern battles was struck on the head with a missile. He was brought into Richmond unconscious. He made a slow recovery. He lost his ability to speak; he lost his mentality so far as reasoning and thinking were concerned, and lived an animal life for thirteen years. Dr. McGuire operated on him at the end of that time, and the man on waking from the ether exclaimed, "Where has the Army moved today?"

Dr. W. P. CARR of Washington, D. C., said he would like to confirm what Dr. Morris had said about separating dural adhesions. It had been his experience to observe great improvement by separating dural adhesions with his finger in some cases, while in others he had found them so tough or dense they had to be cut with a knife or scissors. Decompression, a necessary part of the operation, had a good deal to do with recovery of these cases because in most of them one found an edematous condition of the brain, and a great deal of that fluid would drain off during the operation.

Dr. JAMES E. THOMPSON of Galveston, Texas, stated there were certain cases that would naturally be fairly well understood by the surgeon the moment he saw them, but in the severe cases no one would dream of interfering except by spinal puncture, where the patient was practically moribund and would probably die within an hour or so. In the other class one felt reasonably certain he could ward off the symptoms by spinal puncture to relieve pressure. In all probability, these cases eventually fell into two classes, one of which got better without further interference, and the other would necessitate subsequent interference. The main difficulty was in understanding in the second class of cases what had really occurred. In other words, what was the condition of the brain after a cerebral injury?

Dr. J. W. HENSON of Richmond, Va., said he would like to ask Dr. Morris to tell how he would locate dural lesions.

Dr. MORRIS replied that almost always there was local tenderness on pressure and the scalp was tender over that point.

The Work of the American Society for the Control of Cancer.—Dr. CHARLES A. POWERS of Denver, president of the society, read this paper (see page 211).

Cancer Infection.—Dr. ALBERT L. OCHSNER of Chicago, said that cancer developed very constantly on the proximal side of the pylorus and on the distal side of the ileocecal valve, while it developed only rarely between these two points. The fields in which it would develop contained substances that were acid in reaction, while the intestinal contents in the intervening portion was alkaline. Every precaution should be taken against cancer infection, notwithstanding the fact that its infectiousness had not been proven. According to Virchow's theory, cancer was due to local irritation either mechanical, as in the form of friction or pressure, as in smoker's cancer and the cancer of betel nut chewers, or chemical, as in paraffin workers, chimney sweeps, and electric irritation, as in x-ray workers, or heat, as in workers in certain trades. Cancer occurred almost exclusively in portions of the body exposed to the irritation of the outside world. This included the gastrointestinal canal which came in contact constantly with filthy food in locations in which stasis insured long continued contact and persistent irritation. One found a notable example in the enormous amount of cancer of the stomach in manure eating people, i.e. people eating raw vegetables growing in soil fertilized with night soiling or with barnyard manure. A marked example of this was found in the Japanese who ate such vegetables in abundance and who suffered greatly from cancer of the stomach, while the inhabitants of India, whose religion commanded them to boil food and drink, were notably free from stomach cancer. Sewerage was said to be an important factor in the production of cancer.

Cancer of the Uterus.—Dr. JOHN B. DEAEVER of Philadelphia said that the cervix was the more common site of uterine carcinoma, and in this location it spread very rapidly, caused earlier fixation of the uterus and extension into the broad ligaments and walls of the vagina. Carcinoma of the cervix in the vast majority of cases developed in women who had had children. Very often there was present a laceration not entirely

healed and presenting a reddened eroded surface covered with a discharge and giving evidence of chronic inflammation. In the presence of undoubted cancer, complete hysterectomy was probably as sure a means of curing the disease as we had, provided that the growth was not so far advanced as to threaten adjacent tissues. It was these cases also that the radiologist believed were the most amenable to their treatment. This might be so, but it had not been his experience. He had too often seen an apparent regression of the tumor for several months after radium treatment, only then to be confronted with evidence of recurrence. This might possibly be due to faulty technique, but the same held good to a large extent with regard to surgical failure. His remarks were based on 500 hysterectomies performed by him since January 1, 1916. These 500 cases comprised: carcinoma of the uterus, 27 (no deaths); myoma uteri, 367; diseases of the uterus, tubes and ovaries, 106, among the last being six ovarian cysts associated with malignancy. The operative mortality of the entire series was 2 per cent., 10 deaths.

Radium in Carcinoma of the Uterus.—Dr. WILLIAM KOHLMANN of New Orleans said that radium was being more frequently used in the treatment of malignant disease than formerly, and the excellent results achieved in many cases impressed the profession with its importance as a valuable adjunct of surgery in the treatment of malignancy. In many instances it might be compared very favorably in its effects with the results obtained by surgical measures, and frequently in cases where surgery failed it would bring about relief and even apparent cure. Great care was necessary in the application of the radium because of the formation of cicatricial tissue due to the previous operation and the close proximity of the bladder and rectum. The effect of radiation in cases of carcinoma was noted clinically in a few days after the application. Three or four days after the treatment the infiltration and tumefaction of the cervix were found diminished, a process which was gradually followed by the shrinking of the mass and infiltration of the broad ligaments. This action of radium was most probably due to destruction of the carcinoma cells and to increase in the formation of connective tissue which, by shrinking and cicatrization, had a tendency to interfere with the life of the carcinoma cells. Since June, 1915, 96 cases of carcinoma of the uterus had come under his observation in private and hospital practice, and of this number 56 were treated with radium only. All of the cases were examined microscopically and the clinical diagnosis of carcinoma was confirmed. With very few exceptions, all cases were benefited and improved in regard to the general and local symptoms. Some of the cases had improved to such an extent that a cure could be hoped for. Cases which did not show any improvement, even after prolonged treatments, had not been influenced even after prolonged treatment. Of 22 cases living to-day, 1 was well for four years, 1 for three years, and 2 for two years. The remaining cases had been under treatment for less than twelve months. Of 22 cases which had died, 2 had been well for three years, but died of intercurrent pneumonia. One, a woman of 39 years, died free of recurrence in one and a half years, the cause of death unknown.

Electric Conductivity Observations of Malignant and Benign Tumors: With a Further Note on Operations for Cancer of the Large Intestine.—Dr. GEORGE W. CRILE of Cleveland stated that regarding the practical application of the electrochemical theory, from one to two days before the operation large quantities of water were given by mouth, by rectum, subcutaneously, or by means of a Rehfuss tube. If the patient was greatly reduced, a transfusion of blood was given before the operation, and if required, transfusion also was given after the operation. If the myocardium was impaired, digitalis was given until the action of the heart was improved sufficiently for the safe performance of the operation. The operation was performed in two stages, allowing a sufficient period after the preliminary colostomy to insure the reaccumulation of the reserves of the patient. The operation was performed under nitrous oxide-oxygen analgesia plus local anesthesia. A wide incision was made to insure the minimum handling of tissue. After operation, hot packs were ap-

plied to the abdomen in order to increase the functional activity of the liver. In cases of cancer of the rectum, radium was employed both before and after the operation. In cases of cancer of the large intestine, radium was applied after the operation. If these procedures were carried out in detail, the patient left the operating room in approximately the same condition as he entered it and his convalescence was well secured. His associates and he had performed 175 operations for cancer of the large intestine. Of these, his personal series had been 73, of which 53 operations, including 24 colostomies, and 29 radical operations without a death, had been performed since the adoption of this general method based upon the above physical interpretation.

Cancer of the Pelvis of the Kidney.—Dr. ALEXIUS MCGLENNAN of Baltimore said that no definite relation could be found between the development of the papillary tumors and the presence of stone in the kidney. That leukoplakia might be the result of calculus irritation and in turn be the source of a squamous cell tumor was a possibility. Nephrectomy was required for the removal of these tumors. The ureter should be carefully investigated and as much of this organ as was indicated should be removed because of the danger of an implanted growth in its lumen. In many cases complete nephroureterectomy should be done. Some authorities believe the latter should be the operation of choice in all cases. The symptoms of papilloma of the renal pelvis were fairly typical. Hematuria was almost constant, and the quantity of blood lost might be sufficient to disable the patient. There was some blood in the urine almost all the time, and at intervals profuse hemorrhage occurred and might persist for days or weeks. The profuse bleeding was usually preceded by a colicky pain, and this intermittent hematuria was considered a characteristic symptom. The presence of transitional epithelium in the urine was a valuable corroborative symptom.

(To be continued.)

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, Held December 29, 1920.

THE PRESIDENT, DR. CHARLES H. CHETWOOD, IN THE CHAIR.

ON motion the time of the Executive Session was extended to include the program of the evening, which consisted in a "Symposium on Medical Legislation: Its Effect upon the Public and the Profession."

Amendments to Workmen's Compensation Law.—Dr. EDEN V. DELPHEY called attention to the fact that a part of the amendments to the Workmen's Compensation Law which he had presented at the last meeting, in behalf of the Committee on Compulsory Health Insurance and Workmen's Compensation, had not been acted upon. The amendments were approved by the Society together with the recommendation that they be brought before the Legislature.

Remarks of Retiring President.—Dr. CHARLES H. CHETWOOD said he would take this opportunity to thank the assembly for its kindly toleration as well as for its support during his term of office. The business of their meetings during the past year had been divided into scientific and executive functions. The scientific program had covered practically all branches of medicine and had called forth some noteworthy contributions, which had been well discussed. As to the Executive Sessions, this had been a year which would always be distinguished because of the ratification of the new Constitution and By-Laws. In this action they had taken what might be termed a conservative-progressive attitude. During the year Dr. Chetwood said he had conferred with the executive officers and committees of the Society on many occasions and all were deserving of honorable mention for the way in which they had performed their several duties. The coming year, he prophesied, would be one of fruitful attainment for the Society. In laying down the duties of presiding officer he assured the members that he always stood ready to give his services to the Society in any way that they might desire.

The Health Center Bill of 1920.—Dr. E. LIVINGSTON HUNT gave a résumé of the Sage-Machold bill and of the arguments for and against it. He said it was impossible to do the bill justice in the ten minutes allotted to him, but as the bill was dead it probably did not warrant that more than that time should be devoted to its analysis and summary. It was called an act to amend the Public Health Law so as to provide for the residents of rural districts, industrial workers, and others not able to secure proper medical service, medical treatment, hospital facilities, and nursing care, and in general to improve the health of the community. Briefly the bill proposed to establish Health Centers in the counties and cities desiring them. A board of supervisors might establish a health center which should follow a general plan. This included hospitals, laboratories, x-ray plants, district nursing, child welfare work, etc. The entire plan was to be under the supervision of the State Commissioner of Health and the expense was to be shared by the county or city and the State. No community was obliged to adopt the plan; it could be adopted in part, if desired, and it could be rescinded. In fostering the proposed law the State Department of Health presented a constructive plan to meet certain conditions believed to exist. It was claimed that rural districts had a much smaller number of physicians than formerly, that young men were not settling in the country in sufficient numbers to replace the older ones lost by retirement or death, and that in consequence mortality was greater in rural than in urban localities. It was further claimed that the establishment of these health centers would encourage physicians to settle in rural districts, with consequent adequate and more efficient medical care for the people, the advantage of group practice for the physician, and the advance of the medical art. The scheme had both its merits and its disadvantages. All the work was to be inspected and standardized by the State Department of Health, and costs paid on the written approval of the State Commissioner of Health. The arrangement, it was claimed, would not affect in any way the relations of physician and patient. This was very briefly the bill of 1920 which no longer existed, but it was said that there would be another bill similar in substance to this bill but differing in detail. In counties the supervisors would appoint the Board of Managers of the Health Center and in cities the Board of Managers would be appointed by the Mayor. It was required that the Board of Managers should consist of eight members, including the judge of the county, the health officer, two physicians duly licensed, and one woman. In considering the arguments for and against the bill, there were three particular questions that came up: (1) Would this legislation affect the community favorably or adversely? (2) Would it affect the medical profession favorably or adversely? (3) Assuming that there was a conflict between the interests of the community and the medical profession, what were we as medical men to do about it? From the standpoint of benefit to the community it was claimed that the establishment of these health centers would encourage physicians to settle in rural districts, with consequent adequate and more efficient medical care for the people, and that the physician would have the advantage of group practice, which would tend to advance the medical art. We also had from the standpoint of benefit to the community the fact that some legislation of this sort would be enacted to meet existing conditions and the demands of the people and of the State Board of Health. On the other side, it was claimed that the bill gave too much power to the laity and too little to the medical profession. It was claimed that it gave too much power to boards of supervisors and boards of health and to the State Health Department. This part of it might be all right with the present Health Commissioner, but how about a different health commissioner? It was claimed by some that it was a step toward centralized government and paternalism, which was the tendency of the times. There was a question whether it was not akin to government ownership of the railroads; and whether it was not interfering with personal liberty. Was it not a step toward State medicine; or if it was not State medicine was it not county medicine? Again it was pointed out that it might be

unfair to certain physicians. If one physician in a community was connected with a Health Center Clinic, why not another? Might it not be that the fact that one physician was assigned to the clinic and another was not would give to the man connected with the clinic a distinction and prestige over the other physicians in the community which was perhaps not deserved? Furthermore such a plan put a larger number of physicians on a salary and thus did away to a certain extent with individual initiative. A plan backed by the State would not command the best medical service. The State never had commanded the best medical service and never would. Finally, such a plan would involve an additional burden to the tax-payer.

The Need of Public Health Centers.—Dr. EDEN V. DELPHEY read this paper, in which he said that from time to time various and sundry amateur and professional uplifters had endeavored to prescribe for the political, industrial, and bodily ills of mankind, and not infrequently their prescriptions were based either upon an inaccurate and incomplete investigation of all the facts in the case with a resulting inaccurate diagnosis of the underlying pathological condition, or upon an incomplete appreciation of the collateral effects not only upon those whom they wished to assist but also upon those whom they wished to assist them. In endeavoring to arrive at a proper conclusion as to the desirability of any proposition for the betterment of mankind, it was absolutely necessary to consider very carefully and weigh all the facts in the case, their relation to each other and to the surrounding elements of society, the nature and variety of the employment of the persons, the income, the mode of living, sanitation, environment, cost of food and clothing, medical attendance, drugs and medicines, the amount spent for these and other luxuries, for extravagances, for dissipation—mild, such as movies, and more serious, as for alcoholics, and for irregularities such as gambling or immoralities. Until such a complete survey had been made, it would be absolutely impossible to determine the need of the proposed measure. In making such a survey it was imperative that the surveyors should be thoroughly competent for the purpose and that they should have the inclination, training, and capability for the work, and not as was the case a few years ago when it was proposed to utilize fourth year high school students in making a sanitary survey of the West Side. In medical matters it was necessary that the surveyor should be a broad-minded, ripened, and experienced physician in order that he might be capable of determining and weighing all the facts and of ascertaining whether or not the person was really in need of medical care and whether he would accept it, or whether he preferred to depend on home treatment, quack medicines, "new thought," or "Christian science." In promoting the propaganda for health centers these conditions did not seem to have been fulfilled. Moreover, the propagandists did not seem to appreciate the fact that prevention was better than cure; that their utopian schemes were not calculated to prevent the incidence of disease which they wanted to relieve after it had occurred. The researches of the Committee had shown that while the number of physicians in rural districts was less than formerly, this change was due to the rural physicians moving to the cities and towns because there they could more easily earn a reasonable living without such an immense expenditure of energy and vitality; and because there were fewer recent graduates going to the rural districts. These results were due to the more strenuous life of the medical practitioner in the rural districts; the question of fees and collections; and to the fact that the true physician went to see a sick person whether that person could pay or not. The lessened number was also due to the law of supply and demand and whether the person demanding was willing to pay a reasonable price for the supply. The spreading abroad of the fact of the lessened number of physicians in the rural districts was due to the desire of the amateur and professional uplifters to arouse the enthusiasm and support of those who had been deemed to be "amiable weaklings in business matters, easily gulled by piteous tales and flattering remarks about the magnanimity of the profession," and thus to inveigle them into supporting an impracticable and dangerous scheme. If the obstacles

to the successful practice of medicine were increased by such schemes as compulsory health insurance, health centers, and State medicine, the quality of the men who would choose the medical profession would be materially reduced and when that happened the whole people would suffer from their inefficiency. In the replies received to their circular letter the Committee had found that on the average there were $2\frac{1}{2}$ hospitals in each county and that these had the confidence and support of the people; that the people in the rural districts got to their physicians more easily, and the physicians to their patients more easily than formerly, except when confronted by the deep snows of winter, on account of automobiles and the State roads throughout the State. The majority of cases did not need the so-called advantages of "group medicine" nor of hospital treatment. Moreover, even if it were necessary to have all the highly qualified specialists specified in the propaganda for health centers, where would they be able to get real and not pseudo-specialists? Would they be made over night as it was reported some of the specialists in this city were? The highest degree of civilization was not indicated by the city having the greatest number of hospitals, almshouses, and insane asylums; not the one having the greatest number, but the one having the least need of them. The purpose of the State Department of Health was prevention; it could best accomplish the purposes of its creation by performing and adhering to these duties. Of late years there had been too great a tendency to "put it up to the government" and too little to the person himself—to the socialization of everything. Every attempt at nationalization, including our own during the world war, had resulted in inefficiency and decreased production. Was it not about time to call a halt to all these socialistic schemes? Was not the greatest efficiency through self interest? Were not these simply the desires of someone to "put over" schemes for "fat jobs" or were they merely the maundering expression of the weak and incompetent to get something directly or indirectly for nothing? The State Department had been holding itinerant clinics in various parts of the State, and the newspaper report of the one held at Goshen stated: "In the majority of cases the diagnoses of the local physicians were confirmed" (*New York Times*, Sept. 12, 1920). Dr. Delphely most emphatically registered his protest against the idea that the country physicians were the ignoramuses which so many of the city residents were so fond of assuming. On the contrary they were at least equal to, if not more competent than the average city physician. In concluding Dr. Delphely emphasized the great and crying need of further means of educating the public in matters pertaining to sanitation and the prevention of disease. There was no need of health centers.

"Better keep them all well than cure them when sick,

For the results of experience are thrilling.

To cure up the sick is good, but it's better

To prevent the people from illing.

Better stop the cause and source of infection

Than add more men to death's rally;

Better put a strong fence at the top of the cliff

Than an ambulance down in the valley."

The State Board of Health.—Dr. HERMAN M. BIGGS, State Health Commissioner, spoke of the health center from the standpoint of the State Board of Health. He first expressed his approval of the very excellent résumé Dr. Hunt had given of the Sage-Machold bill and the impartial way in which he had construed the bill. He said he thought there was a great deal of misconception in the profession in regard to a measure of this sort, what it was and what it would do. The way in which this bill came to be drafted was about as follows: When the Public Health Council was organized in 1914 it was granted the power to determine the qualifications of sanitary supervisors and other public health officers. One of its first duties was to establish minimum requirements, and it decided upon certain minimum educational requirements and a six weeks' course in public health. Through the Public Health Council such courses were established at the University and Bellevue Hospital Medical College and at the medical schools at Albany, Syracuse and Buffalo. Since that time more than 600 of the little over 1,000

health officers in the State had taken these courses. They found when it came to the enforcements of these regulations the first stumbling block was that in many communities there was only one physician and he was the health officer. It was found furthermore that these health officers were far beyond the age limit. The Public Health Council had placed the age limit at 65 years, and those over 65 years of age were ineligible. Then in 1916 came the poliomyelitis epidemic, and after that the war and the influenza epidemic. Owing to these, the demands that came to the Department of Health from all quarters for medical and nursing assistance were so numerous and so urgent that, first in 1916 and then in 1918, the Governor authorized the expenditure of \$50,000 for the purpose of providing medical service and nursing care in the various municipalities where they were not available. Then they made a further study of the situation and found that the drift from the country to the city affected not only the rural population in general but the medical population to even a greater extent. In many localities where there had been two or three physicians the younger men went into military service and did not return to where they had lived before. They had become acquainted with another kind of life and liked the advantages it offered in the way of association with their confrères so they became unwilling to go back to the country and they went to the cities. It was then found that the demand for medical service was more insistent and widespread than ever, and they made a census of the medical practitioners in twenty rural counties in the State, of which that in Livingston County was perhaps typical. In Livingston County there were 54 physicians in practice and of these only five had entered the practise of medicine or entered the county within five years; and of those who had entered the county some had been in practice elsewhere for many years. The average years of practice of the 54 physicians was 28 years. On an average the physicians of that county were over 50 years of age. When one took into consideration that, according to the data of the American Medical Association, the average life time of the physicians of the country was 59 years it meant that a large number of physicians in this county would die within the next eight or ten years. Then a survey was made of all the rural communities and they found that the duration of practice of over 25 per cent. of the physicians was over 25 years, and that less than 3 per cent. had entered practice in the last five years. Sixty-eight municipalities had appealed to the State Department of Health to provide medical care, because they had—no inadequate medical care, but no medical care at all. In this State the population of the rural counties had increased four or five per cent. while the number of physicians in practice had decreased about 15 per cent., and these physicians for the most part had been in practice over fifteen years. In other words, with the advance in the requirements of medical education there had been a decrease in the number of physicians entering practice in rural communities. A man who had spent seven or eight years preparing to practise medicine would not willingly go into a rural community where he was absolutely cut off from association with his medical confrères and had absolutely no laboratory facilities of any kind. It was not that he did not make a living in a rural district, for as a matter of fact he did relatively far better in the country than in the city, but a man properly trained and having had a hospital service would not go back to the practice of medicine as it was twenty-five or thirty years ago, and that was what the practice of medicine in a rural community meant. The practice of modern medicine presupposed laboratory facilities. There were twenty-seven counties in the State where there were no laboratory facilities, and in others there were only those furnished by the Public Health Laboratories, whose work was confined mostly to diphtheria and tuberculosis, and more recently Wassermann tests, etc., were being made. It was the discovery of this situation that made them think seriously of what could be done. Then there was not only the lack of physicians, but nurses were not to be had. They had increased the number of public health nurses from 75 to nearly 1,100 but they had had the greatest difficulty in getting

them. For private work it was almost impossible to obtain nursing service. Then the present cost of private nursing service was entirely out of the reach of most people in rural communities. The inability to employ private nurses, the lack of domestic help, and the distance of the doctor had made the demand for hospitals greater. It was this situation which had brought them to the health center idea. The Sage-Machold bill was drafted and submitted to the Public Health Council which modified it and then presented it. It was not primarily public health legislation. Dr. Biggs declared he did not regard it as such and never had regarded it as such, although there was a part of it which might be considered public health legislation, namely, that part referring to the creation of health districts, the provision that compensation should be provided by the State, and certain other details of administration. In reference to the provision for compensation of health officers, health officers were now getting \$50, \$100, 150, and \$200 a year and the only reason they were getting that was because the Public Health Council had introduced into the public health law a provision that the minimum compensation should be not less than 10 cents per capita. An attempt had been made to repeal that law but it was not successful, and now under the bill the State was to pay 10 cents per capita and the municipality 10 cents, and the officer would thus receive 20 cents per capita. In so far as that was concerned the bill was a public health measure. In other respects the bill could not be considered a public health measure, but an attempt to provide medical service in the State where it was now wanted. Dr. Biggs stated that personally he was not interested in the bill except as he was interested in a general way in public welfare, but there were two points which he wished to emphasize strongly. The medical profession had been very unfortunate in the general attitude it had taken. He could remember that seven years ago he had spoken in this hall in a discussion on the reporting and supervision of venereal diseases, and a paper was read opposing the supervision of venereal diseases. A committee was formed which went to the Mayor and asked him to rescind the action of the Health Department, when all that the Board of Health asked at that time was that venereal diseases being treated in clinics and hospitals be reported, giving the initials of the patient, and also offering laboratory facilities for aid in the diagnosis of venereal diseases. Nothing could have been sharper than the general attitude of the medical profession in its demand to have that order rescinded. The same thing happened in connection with tuberculosis some years ago, in 1898 and 1899, when physicians were sent to Albany to prevent the enactment of legislation giving health authorities power to deal with tuberculous persons. This general attitude of the medical profession was probably due to the kind of work they did. The physician was so absorbed in his work for his own patients that he did not get a broad comprehension of the situation in the State. Consequently his attitude was one of obstruction. The speaker said he did not pretend that this bill was model legislation, but it was the best they were able to devise at this time. No action of a negative kind was going to change the situation; if the medical profession and the State Health Department did not change the situation somebody else would take action. Dr. Biggs pointed out that the farmer and the Republican vote controlled the legislature and it would make no difference to them whether the medical profession wanted it or not, and he advised the medical profession that if they came to the Legislature they should come not to obstruct but to offer something constructive. As a rule the medical profession did not show very great interest in legislation, even when vital interests were involved. As an illustration Dr. Biggs described the difficulties he had encountered when he undertook to oppose the Chiropractor bill last spring. At that time, he stated, not a single member of the medical profession was present at the hearing to oppose this bill. In closing he urged that the Comitia Minora or some committee of the Society should propose some constructive legislation or criticism, and assured them that if they came simply with opposition it would not much longer be effective.

Impending Public Health Legislation.—Dr. HENRY

LYLE WINTER spoke on this subject. He said that he had come this evening on the invitation of the President more for the purpose of learning than in the hope that he could say anything of particular interest except on one or two minor points. The officers and standing committees of the State Society were not conversant with the attitude of the members of the various county societies, and for that reason he was glad of an opportunity to learn the attitude of this Society. He thought there ought to be some method established in the various county societies which would assist the chairmen of the standing committees in the State Society by giving them some sort of information as to the views of the members of the county societies on matters of importance to the profession. It would be a good plan if the county societies and others would send full reports to the State *Journal* of their action on public health matters, those reports to be sufficiently enlarged upon to convey the attitude of the society so that others throughout the State might be informed. This would help the Council and committees of the State Society in any action they might take. The interests of the profession were so different in different parts of the State that something of this kind was needed. Dr. Winter said there were three subjects upon which he wished to speak: (1) Annual reregistration. (2) The Health Center Bill. (3) The Chiropractor bill. Health insurance had been pretty thoroughly discussed. It would probably come up this year, but they all knew where they stood on that question, and there was not the slightest possibility of such a bill going through the Legislature. The Annual Reregistration bill was a very good illustration of the necessity of the State Society committee members being familiar with the desires of the county society members. He found several years ago that there was a great difference of opinion as to the desirability of the reregistration bill between counties up-State and the New York County Society. He did not know whether they wanted registration yet. It was going to come up this year again. However, he was not talking in favor of it tonight, though he was in favor of it. Dentists and veterinarians had found a similar law very effective in driving out of business fraudulent dental offices and unlicensed veterinarians. There were two objections advanced against this bill. One was that it took away the life-long privilege to practise medicine and made it an annual one. The second was that it charged the medical profession a fee for the protection of the public. The way in which this bill worked was that every registered dentist received a list of dentists registered in the State. If in his neighborhood there was a dentist practising whose name was not on the list, the registered dentist wrote calling attention to the fact that such a name was not listed. The authorities then inquired into the matter and if it was found that the unlisted dentist was practising illegally the Attorney General obtained evidence and prosecuted him. In that way the dentist was protected without any effort on his part and without the aid of the local district attorney. When it came to the health center bill, a statement had been made as the necessity for providing some kind of further care for the sick. If the sick needed further care no one ought to be more anxious to give it than medical men. Dr. Winter said he had gone over some parts of the State, not the extremely rural districts such as Livingston County but the more southern sections of the State, and the conditions were not apparently as bad as it would appear. He had met in consultation a number of men in the more southern parts of the State, many of them county doctors, and he had found the country doctor was a pretty good all-around man. He followed up his cases well, and ordinarily made a very good diagnosis. He was generally very willing to have a consultation if he could get it. The State *Journal* had published a questionnaire relative to the income of doctors throughout the State and it might be noted that in this questionnaire many men were engaged as part time practitioners, which meant that they were specially interested in some particular line of work and that they were more competent in that line to make a diagnosis than the ordinary man. This meant that there were reasonably good consultants to be obtained in the rural districts.

He had found part time specialists in communities of five or six thousand people, communities which were not cities. Automobiles and good roads made it possible to move patients much greater distances than could be done a few years ago. It was very much easier for the rural resident to get in touch with good medical advice than it used to be. Of course if the rural patient lived a considerable distance from a doctor he did not receive as many calls as though he was nearer, but he got along reasonably well as was shown by the fact that the death rate and the morbidity rate of the rural districts was not greater than that of the larger communities. The health center bill would perhaps do certain things to help those districts. The clinic at Goshen last August was an experiment as to the kind of work that would be of advantage in rural communities. Dr. Winter stated that he had attended that clinic, was courteously received, and went over the work that was going on rather more carefully than the ordinary casual visitor would have done. The members of the staff who came to do the work were all good men but they were not better men than those available in the community in which the clinic was held. That brought up the point that Dr. Hunt had made that when a man was selected by the State Health Department it gave him a certain prestige which he did not always deserve above his neighbor who was not so designated. There was some criticism by the local men as to the singling out of these men as a little above the ordinary practitioner. This clinic at Goshen was held for three days. The chemical laboratory equipment was good, but the x-ray equipment was not working. The laboratory examinations were made by a very efficient man. The work done could best be summed up by telling what was reported at the meeting of the Orange County Medical Society in the early part of this month. Three men reported that 90 patients were referred to the clinic with the result that out of the 90, seven received information that was helpful. One case that brought up the statement that Dr. Hunt made, that specialists could be made if they had a sufficiently powerful State organization behind them, was that of a patient suffering from the results of poliomyelitis. He was advised to go to Boston to have a tenotomy done, as though there was no one in New York who could do a tenotomy. So far as the Orange County clinic was concerned many of the men said it was of no service to them. Two men, however, who had sent patients there, had told Dr. Winter that they were satisfied with the returns they got. There was another point in reference to this clinic, that was that the men who attended received twenty-five dollars a day for their services; a good man could scarcely afford to be away from his work for three days for twenty-five dollars. This meant that the medical profession were bearing the expense of these clinics as they were of the clinics in the cities; they were giving time for inadequate compensation. That brought up the point as to how these clinics could be managed. Dr. Winter said it was his experience that the patient in the rural district was getting just as good care as the city patient and if the doctor had laboratory facilities he could make just as good a diagnosis as the city doctor. The difficulty was in following up the cases. There should be a differentiation between actual medical service and social service. To make it clear, if one had a case of epilepsy and treated it, giving bromides, etc., the patient would not get much benefit unless certain rules of hygiene and a régime were laid down. Seeing that this part of the treatment was carried out could be done by a visiting nurse. It was known that cardiac conditions following acute infections of the throat were very common and that over-activity must be avoided. That part of the care was something the nurse could look after. In other words the doctor was too much of a luxury and it cost too much to make a doctor to have him employ his time in doing what the nurse could do. There was here a place for a medico-social plan of supervision and control. If the country districts were given a laboratory and a laboratory technician and if there were public health nurses there would be no need of the State subsidizing the medical profession and it would not be necessary to fix the salaries of medical men. If the physician's salary was sub-

sidized it would keep the right kind of men out of the profession. The doctor would go into the country if he could follow up his work and know what he was doing. As to the chiropractor bill, Dr. Winter said he had one suggestion to make. If they would go ahead and amend the Medical Practice Act so that any man who wanted to could practise provided he passed the same examination as the regular practitioner that would meet the situation. That procedure had eliminated the osteopath. He would not have a specific act against the chiropractors, because if that were done every chiropractor would be licensed who now had his sign out, but an act compelling every one who wished to practise the healing art to pass the same examination would protect against practitioners of this type for all time. The State Society and this Society should get behind a bill of that kind and make it general and not simply against the chiropractor.

Dr. CHETWOOD said he wished to correct the statement that had been made that the Society had not sent representatives to oppose the chiropractor bill. Whenever the Comitia Minora had been notified of hearings they had sent representatives.

GEORGE W. WHITESIDE, Esq., stated that his purpose, in so far as he could do so, was to cover the ground so ably covered by the other speakers, but perhaps from a somewhat different angle. The question was apparently a rural question. We, however, would have to look at it from the viewpoint of the entire State and get away from sectionalism and the political idea. A great deal of poor legislation was enacted for the purpose of trucking to the farmer or laboring man. Legislation of that kind was class legislation, and we must get away from class legislation. The first thing about the health center bill was that it was largely designed to treat the question from the class point of view, though back of it were absolutely sincere motives. At the same time back of the bill was the idea of forcing on the medical profession a combination on their part. The weakness of the medical profession in legislative matters was its inability to function as a whole body. There was too much individual opinion. The practice of medicine had long been a matter of the practice of the individual. It was not like industry where there were combinations and the Government intervened because the combination became almost a superstate. That point had not been reached in medicine. We had not suffered from medical combinations and apparently at the present time such combinations did not exist. The great function of the organization of the State and county medical societies was to permit the expression of judgment of a great profession and to blot out little individual differences. In the health center bill it was proposed that a certain part of the community should be recipients of a certain form of medical assistance not of their own choosing and not precipitated by them, but coming from a governmental source. It might be wise if such a bill came up to show in some way a united front. There were now in operation in large centers group systems of medicine. Whether these could be adapted to the needs of the public he could not say. It would seem that there would be no question of supplying doctors to the up state population if the population was there and doubtless the rural districts would soon be served. It was probable that progress in the development of aeroplane transportation or some other method would provide emergency medical service, and then the health centers now proposed would be obsolete. There had been enough said to awaken the profession to the need of united effort on their part. Very slight reference had been made to the chiropractor bill; he would like to mention that when the matter was before the Governor for consideration there was a train load of physicians who went to Albany. He was along and presented the legal arguments which seemed to be well received. This County Society had registered very effectively. As to the salary plan in connection with the health centers, he thought the last thing the physician wanted was a wage plan in the practice of medicine. They might find it necessary in medicine as it had been found in law to make a change from conditions under which one man did all the work incident to the practice of law to a combination or organization whereby the lawyer em-

employed others to do a great deal of the detail work. Such organizations had been found necessary to meet the demands of a great commercial center. It might be that such organizations might be possible in medicine in which a man might graduate from the position of employee to that of partner. While he scarcely thought this would come, he felt that the medical profession in a few years would be undergoing a radical change from what it was a few years ago. We were becoming accustomed to revolutionary changes, peacefully brought about. Mr. Whiteside suggested that the exercise of police power over the medical profession would have to be watched. The medical profession would have to organize not simply to bring obstructive measures to meet the police powers where they were detrimental to the profession, but for beneficial legislation that would call upon the State to exercise its police powers in behalf of the great public and also not to the detriment of the medical profession.

Dr. DANIEL S. DOUGHERTY defended the Society against the charge of having been neglectful of its duties in regard to legislative matters. He stated that during the past five years no bill affecting the medical profession had gone before the Legislature without the cognizance of the Society. He also explained that Dr. Biggs has misunderstood the purpose of the committee which he said had opposed the reporting of venereal diseases. The purpose of that committee was to oppose the segregation of venereal patients in a hospital under the Board of Health because they did not want these cases taken from the City Hospitals where they offered the most wonderful opportunity in the United States for the study of syphilography. The City Hospitals did not want to lose this department.

Dr. FREDERIC T. SONDERN explained that the reason no representative was present at the hearing on the chiropractor bill to which Dr. Biggs had referred was because Dr. Kevin, who was chairman of the legislative committee, had received reliable information stating that there was no chance of the bill passing, and that it would not be necessary to have representatives there.

Dr. J. MILTON MABBOTT stated that the County Society had also been informed that the chiropractor bill would not be reported out of committee and they were practically promised that it would not be voted on by the Legislature. Dr. Mabbott also objected to the statement that the medical profession never did anything but oppose. He did not see why they should not oppose when they were opposed. He expressed the opinion that the bill which made the osteopath a legal practitioner of medicine was a kind of compromise. It was passed with the consent of the medical societies. It permitted a few men to practise osteopathy in order to keep out hordes because the police power of the State did not prevent them from coming in. The osteopath might manipulate the spine for diphtheria and he knew nothing about antitoxin, yet the people of the great State of New York stood for that sort of medical practice.

Dr. L. W. ZWISCHN also objected to having the medical profession accused of being always obstructionists. It seemed to him that as medical men were legalized to practise medicine and licensed they were entitled to the protection of the State instead of being treated as had too often been the case like a body of criminals. Laws were introduced which were against medical men after the State had given them the privilege to practise and such laws must be opposed. It was not a question whether there were good points or bad points in the health center bill; it was an entering wedge for State medicine. If State medicine was good let us have it but not a wedge. It was no argument in favor of such a bill to say it was going to be passed; they were in duty bound to oppose whatever was against the public welfare. This was only sectional legislation. Were they to pass a law simply for Livingston County? Dr. Winter's suggestion for a general medical practice law to cover all practitioners of medicine met with his approval.

Dr. HENRY S. STARK declared that the health center was simply health insurance in disguise. The financing of health insurance meant the saddling of millions of dollars on the tax-payer and the same was true of the health center idea. It would put untold power into the hands of the State Health Commissioner, which

would not be so objectionable if that health commissioner were Dr. Biggs, but the situation would be serious if the health commissioner was a political doctor, which Dr. Biggs was not. The country physician had certain disadvantages. He was oppressed in that he could not rise to eminence. He grew old in service, as Dr. Biggs had pointed out, but there was a great difference in country practice today from what it once was. In years gone by the patient had to travel long distances to be operated upon; now in every town and in second and third rate cities one found not only good hospitals but good specialists. New York was losing ground as a medical center, and when consultants were wanted they were being sought in other cities. This health center plan was obnoxious not only to the physician but to the population of the rural district. He hoped the Society would go against it.

Dr. HUNT said he had been interested in what he had heard this evening. It was the same thing he had heard all through the State from New York to Buffalo. He thought the keynote was the need of constructive action. If this matter was referred to a small committee of representatives of the Health Department and of the medical profession it might be worked out. There was a great deal to be said *pro* and *con* and it was desirable to steer a "middle of the road" course.

Dr. DELPHEY said a man's point of view depended a great deal upon his position. If he occupied a salaried position he looked at things differently from the man who was dealing with the public. He began to see that because for the last few months he had held a salaried position, but he was still on the side of the medical profession and always would be. He had with him an article which stated that the average physician was 30 years of age before he was able to make a living and it cost \$20,000 from the time a man left high school until he was able to earn his own living in medicine. This represented an investment which should bring in some return and the doctor should not have to fight against measures that if put into effect would reduce his earnings. It was a case of supply and demand and the willingness of the persons needing the supply to pay an adequate sum to supply the demand. Dr. Delphey said he had spent the summer in the northern part of the State and related some personal experiences showing that transportation facilities were such that they enabled a physician to cover a good deal of ground and to do a good deal of work. The objection to reporting tuberculosis and venereal diseases, as he recollected it, was based on the question as to whether it was right for the physician to report what was opprobrious in a patient and whether the reporting of those cases would be a violation of the confidential relationship between physician and patient. Later that difficulty was overcome by reporting cases by initial. It was said that the profession was against everything, but it must be remembered that nearly everything had been against the profession. Dr. Delphey said he had sent out a questionnaire to all the delegates to the State Society outside of New York, and found that there were on an average $2\frac{1}{2}$ hospitals to each county, that three-fourths of the counties had laboratory facilities, and the others reported that they could easily send their specimens to laboratories by parcel post and get reports in a short time. It had been said that this legislation was inevitable and bound to come. They must take the stand that it must *not* pass.

Dr. BIGGS, after expressing his thanks for the confidence shown in the present Commissioner of Health, said one thing was very clear, that was that what they had attempted to do and what the Council thought ought to be done was exactly what the Society was asking for. It was perfectly evident that they could not get doctors in the rural districts unless it was made more attractive for them. As soon as it was better worth while for them to go they would go. This was the reason they had provided that physicians in hospitals and dispensaries should be paid and that a State subsidy should be provided. He believed the physicians in hospitals and dispensaries should be paid. There was no reason why doctors should serve without compensation any more than lawyers or any other class of men should serve without pay. The purpose of this legislation was primarily to make an arrange-

ment whereby physicians should be compensated more adequately. A local community could not do it, so a State grant was provided. He did not regard that as subsidizing the doctors. It was subsidizing the local hospitals so that the doctors serving in those hospitals would be adequately paid. The work the doctor did for the free patient was paid for and the work he did for his own patients was paid for, and he no longer treated the poor patient without compensation. It was simply enabling legislation in that it enabled a community to provide care for its people. He had always believed that there were two things the government owed to its people, one was an elementary education and the other was provision for the preservation of health and the prevention of disease if they could not provide these things for themselves. The State did provide for education and for the care of the sick. The only difference between this plan and Bellevue Hospital and Dispensary was that this plan provided compensation for the physicians who were doing the medical work and Bellevue did not.

Dr. WINTER recalled that Mr. Whiteside had said that the health center bill was not interesting to those who lived in New York City, and begged that they should not believe it. It was of interest to those who lived in New York as well as to those who resided in rural districts. Those living in the rural districts needed the support of the medical profession of New York County.

Mr. WHITESIDE said he merely wished to convey the idea that the up-State men were able to take care of themselves, and to pass a health center bill if they decided they wanted to do so.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, Held November 10, 1920.

THE PRESIDENT, DR. HERMAN B. ALLYN, IN THE CHAIR.

Symposium: The Doctor and the Drug Addict.

Hospital Experiences with the Drug Addict.—Dr. JOSEPH McIVER of Philadelphia read this paper saying that when the Harrison Antinarcotic Law went into effect a great many drug users applied for admission to the Philadelphia General Hospital. The methods of treatment most generally used were the gradual withdrawal and the Lambert method. In most cases the immediate withdrawal of the drug was not a difficult matter. It was not very difficult to render a drug addict free from symptoms of drug starvation. Nowhere outside of a well regulated institution could a drug addict be kept under the absolute control necessary for treatment. After dismissal at the end of the thirty-day period of treatment it was found that many of the patients returned for another treatment. Experience led to the belief that these people did not desire a cure. Nearly all of the patients had been living in the lowest walks of life and many had had long criminal records. They must have been very weak misfits in life.

Dr. JOSEPH C. DOANE of Philadelphia said that he had been very much interested in hearing Dr. McIver's paper because at the particular time when these experiences were happening Dr. McIver and he had been working together and had then been hopeful of solving the problem in rather short order so far as the Philadelphia Hospital was concerned. Of course their experiences there and his experiences since had been with the second class of drug users, for they recognized that there were two different classes. The members of the criminal class were the ones who found their way into the city hospital, and those in the class with more mental stability were treated in more select institutions or sanatoriums. In the Philadelphia Hospital they had treated in the neighborhood of 3,500 cases; he thought somewhere between 3,400 and 3,500 cases had relapsed since that treatment. Hospital physicians who met this class of patients soon learned the frivolous and playful ways of the drug addict. The average physician who endeavored to treat a drug addict was a great deal more trustful of his patients than he should be. The private physician who endeavored to treat a patient by with-

drawal while the patient was about his work was either a super-physician or a Simple Simon, or he was illegally evading the law, because Dr. Doane did not believe it could be done successfully.

The Psychology of Drug Addiction.—Dr. JOHN H. W. RHEIN of Philadelphia read this paper, saying that any effort to correct the evils of drug addiction must be based upon a thorough understanding of the psychological factors underlying the cause. He did not believe that mental deficiency was a cause of drug addiction, nor did he believe that the proportion of mental defectives was very high among drug addicts. He believed that improper prescribing of opium, morphine, or heroine by physicians, while responsible in some degree, was only incidental in drug addiction. He meant by this that the cause of development of the habit was inherent in the individual. The drug addict was a psychopath before he acquired the habit. He was a person who could not face, unassisted, painful situations, he resented suffering physical, mental, or moral; he had not adjusted himself to his emotional reactions. The most common symptom which required relief was a feeling of inadequacy, inability to cope with difficulties. These conditions called for an easy and rapid method of relief which was found in the use of drugs. It was simple enough to cure the victim of his craving temporarily, but the difficulty was in preventing a return to the habit. To cure a drug addict meant to reconstruct and reeducate his personality so that he could adapt himself to his emotional reactions.

The Scope of Therapeutics in the Relief of Narcotism.—Dr. ALEXANDER LAMBERT of New York City read this paper in which he said that the real therapeutic care of the patients was only begun when, successfully unpoisoned from his particular narcotic, he was being built up and regenerated in body and mind. Treatment must vary not only with the kind of narcotic taken, but, to a certain degree, with the amount and length of time it had been indulged in; also, with the cause which prompted the choice of narcotic. Some plan of unpoisoning a patient was an absolute essential. The principles of the belladonna treatment were the reduction of the narcotic in a few days during which there was given hourly day and night a mixture of belladonna, hyoscyamine, and xanthoxylon up to the physiological limit of belladonna with vigorous catharsis during the treatment. After four or five days the patient no longer craved the drug. The eserine and pilocarpine method he had found very useful in heroine addicts. Ambulatory self-education in the majority of patients was a dishonest and useless method doomed to certain failure. It was the method under which the trafficking and disreputable physician cloaked his practice. Its hopelessness and uselessness should be universally appreciated and condemned. The great public health problems of narcotism were today centered around the cocaine and heroine addicts who constituted nearly four-fifths of the addicts. This was the group whose personalities were not adequate, the result being that they offered a grave social problem. In treating the narcotic patient it must always be remembered that the morbid process was a functional poisoning resulting in perversion of the functions. To be successful one must recognize these various perversions and nervous inhibitions.

Dr. HOBART A. HARE of Philadelphia said that the Society was exceedingly fortunate to have gotten Dr. Lambert to read his paper because in the majority of instances, papers of this kind were read by neurologists or psychologists who did not look at patients in the way the humble general practitioners were prone to observe them. It had also been fortunate because all the profession knew that Dr. Lambert had been peculiarly and particularly interested in this class of patients and because he had devised methods of treatment which were to a large extent his own and which had given large bodies of people much benefit. He had frequently used the hyoscyne treatment and he believed it was the most valuable in the case of the morphine habitué. He knew of nothing which approximated it. In his experience the patient could be made perfectly comfortable. In his comparatively limited experience in these cases there were two classes: first, the fundamentally rotten by inheritance,

and, second, those men and women, like anyone of us, who through illness had gotten to be dependent upon morphine, codeine, or possibly even heroine. These people were easily cured. They separated themselves from the true morphine habitué, who said, "Doctor, for God's sake save me!" and did not mean it. These people said: "Doctor, I am not going to take any more of that narcotic," and they meant it. There was a difference in the morale and courage of the two classes. Twenty years ago he did not have much faith in the cure of any case of morphinism. Increasing experience had taught him that there were many persons, men and women, men who had had prolonged bladder trouble, or women who had had prolonged pelvic trouble and had gradually slipped into the habit of using these drugs. With a little care and help they could be made to emerge from their difficult position. He said he would like to utter a protest against part of the campaign which was being carried on against narcotic drugs. He thought we had all come to the conclusion that a large number of people were being deprived of relief from hypnotics by the crusade which was being made to save a whole lot of "rotters," whose death would be a relief both to themselves and to their relatives. Recently he had received a letter from the Treasury Department in reference to a bill to be introduced into Congress to wipe heroine off the map, and to forbid its importation into the United States. He had written back that there was a danger of depriving the medical profession in its struggle with misery and disease of a valuable drug. For every individual saved from the heroine habit there would be thousands of honest souls deprived of it. In some cases with a cough, heroine acted without producing disagreeable side symptoms that the other derivatives of opium would cause. Heroine would do it without any of the nausea and depression that morphine produced. He used very little in the way of narcotic drugs, but if Uncle Sam passed a law forbidding the importation of heroine he would see that he was stocked up with enough heroine to last his lifetime, not for himself but for his patients. Many physicians of his acquaintance considered heroine one of their most useful drugs. The very fact that it was abused by the degenerate was a sign that it had power for good when prescribed by the physician for the patient who really needed it. In postoperative conditions it was a very valuable nervous sedative.

Dr. JAMES M. ANDERS of Philadelphia said that to his mind the subject of the therapeutic treatment of drug addiction was an important one. Practically all of the advances made in our knowledge of this subject, in the last decade at least, had come from Dr. Lambert. It seemed to him that opium was often used, as Dr. Lambert intimated, for the purpose of fortifying the personality when about to face some painful or unusual situation. He had known a physician, a prominent member of the medical profession, who invariably, before addressing a large body, which he had been in the habit of doing, would resort to a dose of heroine. He knew of other instances in which this had been done. He had also resorted to hyoscyne as a method of treatment in these cases, but had not found it quite so satisfactory as Dr. Hare seemed to have done and for the reason that it did, very often at least, seem to upset the patient mentally and to a disturbing degree. The withdrawal phenomena had been produced in normal animals by the injection of the serum of the blood of a tolerant person or animal. If this were true, then it seemed to him that active elimination of the drug by means of vigorous purgation must constitute an important element of the treatment. He would have liked to have heard more about the particular physiological effect of these remedies, as to the basis for the use, for example, of belladonna. We knew that the chief physiological action of belladonna was to depress the sensory filaments and he was inclined, or rather tempted, to ask Dr. Lambert whether the use of belladonna was based upon this physiological effect of the drug. When about ten years ago Dr. Lambert published his special method of treatment of these cases, the speaker had thought it rather heroic, and he had not accepted it immediately; but about five years ago he had had

under his care a lady of high social position, who was an alcoholic addict and he had made very little headway and finally decided to send her for treatment to New York City. She went and obtained a cure and about the same time he learned of a couple of morphine habitués who had been confirmed cases, who had also been cured at the same place. He had looked into it and believed it to be the most effective method of which we had any knowledge.

Miss SARA GRAHAM MULHALL of New York City said that heroine had been only 9 years in this country and during that brief period of its existence it had reached the most tremendous magnitude in the habit of drug addiction. In New York State 95 per cent. of the addicts were heroine addicts. There was being manufactured and imported into this country more heroine than in any other country in the world. She wanted to impress her hearers that it was the most baneful drug that the medical profession had in its Pharmacopeia.

Dr. THOMAS S. BLAIR of Harrisburg said that there were literally thousands of doctors who had stopped the use of heroine. The year 1919 had shown a per capita usage of physicians in Pennsylvania dispensing heroine approaching about 16 grains a year—a little less than that. He thought he was justified in saying (although the 1920 report was not out) that the per capita would hardly go over two grains a year for 1920. Philadelphia used the larger proportion in the State of Pennsylvania, closely followed by Lancaster, Oil City, and Reading. The city of Pittsburgh used very little. They did not have the trouble with heroine addiction in Pennsylvania that they had in New York City. Three heroine addicts in Philadelphia were using today more of the drug than all the public hospitals of Philadelphia used in 1919. Consequently he was justified in saying that the professional usage of heroine in the State of Pennsylvania was not 1 per cent. of the total use of the drug. There were two things he could say from official records: Cocaine was going out with the dentists, who were not using it, but were using procain; heroine was going out with the doctors.

Experiences in the Control of Drug Addiction in New York State.—Miss SARA GRAHAM MULHALL, First Deputy Commissioner, Department of Narcotic Drug Control, State of New York, New York City, read this paper saying that when she took office in April, 1919, prescriptions for 40 to 90 grains of morphine or heroine were frequent; now it was exceptional to find prescriptions for more than 10 grains of morphine; cocaine had been restricted to a few grains per month and heroine had been practically eliminated. A clinic and a hospital had been established for handling drug addicts but experience had proved that both these had resulted in failure. The hospital had provided for a six-weeks course of treatment; about one-third of the addicts of New York had passed through but the majority had relapsed. In spite of the failure of the clinic and the short-term hospital, they had served a useful purpose in pointing the way to the only possible solution of drug addiction, that was, the Colony Plan for the rehabilitation of the addict physically, mentally, and morally.

Present and Contemplated State Legislation, Relative to Drug Addiction.—Dr. THOMAS S. BLAIR of Harrisburg, Chief of the Bureau of Drug Control, State of Pennsylvania, read this paper in which he said that it was evident that largely unnecessary supplies of narcotics were coming into the country. The 1919 report of the Bureau of Drug Control of Pennsylvania had shown that the per capita coming into this State through legitimate channels, figuring all educts on the basis of opium, had been 24 grains a year. The average consumption in public hospitals had been only 3 grains per year. Thus it was seen that legislation was needed to curb this menace; this should be national in scope. Any State laws should be cooperative in nature. From the point of view of the Internal Revenue office the Harrison Act was a very good piece of legislation, but, from the point of view of the physician, druggist, dentist, and veterinarian and those concerned in its enforcement it was insufficient. It entailed a great degree of annoyance and book-keeping upon professional persons. If the distribution of these

drugs was placed in the hands of the U. S. Public Health Service, a large amount of this would be unnecessary. The narcotic law of Pennsylvania needed revision in such a way as to increase the police power. A large tract of land had been purchased by the State to be used in the establishment of an institution for the treatment of drug addicts, but that was as far as the matter had gone. A survey of what had been done in this direction by the various States in the way of institution treatment of drug and alcohol addicts showed that in practically every case such efforts had resulted in failure. The reason for this had been chiefly that the patients, on discharge, reverted to their old habits. Therefore, there was little encouragement to open such an establishment.

Dr. ALEXANDER LAMBERT of New York City said that one thing which struck him was that each one was talking about the group with which he was most familiar and had had most to do with. He thought that there was no question that Dr. Doane and Dr. McIver were correct as to the ordinary hospital rounder of hardened habit. One dealt there with the low grade in which life was not worth living without some form of drug to help their labor and their joys; without it they insisted that life was not worth while. It was almost impossible to do anything with that group. The other group, the morphine habitués suffering pain, were anxious to get off and they stayed off. They were not generally known as such and they were only too anxious to be rid of their addiction. There must be a different kind of cough in Philadelphia—the one spoken of by Dr. Hare. He had not yet seen it in New York and he thought it would be worth investigating. He thought that with greater investigation on Dr. Hare's part he would come to the same conclusion that the rest of us had who had suffered from the waste of time struggling with the heroine habit. Heroine was an unmitigated curse. One could do just as much without it; and the patient would get over his cough in the end just as well. What was the physiological action of belladonna? So far as he could watch it, it was a cutting off of the exaggerated action of the extended vagus in general. It was a curious fact that when one was giving belladonna in the early stages the pulse became slower and slower; that, one would say, was not cutting off the vagal endings of the heart. But there was some other action there that slowed the vagus. The diarrhea of sudden cutting off was prevented. That was his own theory and, like all theories, was subject to change without notice on the accumulation of new facts.

Books Received.

The MEDICAL RECORD is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.

HOOKWORM AND MALARIA RESEARCH IN MALAYA, JAVA, AND THE FIJI ISLANDS. Report of Uncinariasis Commission to the Orient. 191 pages with illustrations. Published by the Rockefeller Foundation International Health Board.

THE ROCKEFELLER FOUNDATION INTERNATIONAL HEALTH BOARD, Sixth Annual Report. 210 pages with illustrations.

THE EYESIGHT OF SCHOOL CHILDREN, Bulletin 1919, No. 65. By J. H. BERKOWITZ. 128 pages with illustrations. Washington Government Printing Office.

NATIONAL HEALTH INSURANCE AND THE MEDICAL PROFESSION. By FREDERICK L. HOFFMAN, M.D. 122 pages.

CORNELL UNIVERSITY MEDICAL BULLETIN, Vol. X, No. 1, July, 1920. Illustrated. Published by Cornell University.

PROGRAM OF THE CENTENARY CELEBRATION IN HONOR OF THE BIRTHDAY OF ELISHA KENT KANE under the auspices of Kane Lodge.

THE ORGANIC EFFECTS OF REPEATED BODILY ROTATION. By COLEMAN R. GRIFFITH. 125 pages.

Miscellany.

The Strange Existence of the Abbé de Choisy.—This distinguished ecclesiastic who was at one time Dean of the French Academy is now believed to have been a badly disequibrated individual. He was born in Paris in 1644 and died in 1724. He was brought up by his mother with extreme care in the aim of making him a courtier. For some reason which does not appear she dressed him as a girl during his early childhood. He decided to enter the Church at the age of 18, and was promptly appointed Abbot to a priory in Bourgogne; but he soon left his charge and claims to have devoted five months to the assumption of female rôles in a Bordeaux theatre without any recognition of his sex. His mother died when he was 22 and he gave his portion of the estate to his brothers, although retaining the jewels which appeared to be of the kind worn by women, such as ear-rings.

He must, however, have had an independent fortune, for he is spoken of as very wealthy. He bought a house in Paris in a rather plebeian neighborhood, so that he could dress as he pleased. He secured an extensive female wardrobe and went by the name of Mme. de Sancy, and he gave various grand entertainments during which no one suspected his sex. There were two sisters who lived adjoining him and he fell in love with one and married her, the girl being dressed as a boy and called M. de Maulny. But a plain citizen having fallen in love with the young lady de Choisy gave her up.

The King finally got wind of the abbé's strange life and ordered him to leave his house for his home in Luxembourg. He later appeared at Bourges as a countess. His chief end in life seemed to have been to fall in love with some young girl and give her a boy's name. When the latter had an offer of marriage, de Choisy never seems to have objected. After a serious illness he decided to resume his existence as a churchman and led a most exemplary life full of honors, one, as stated, being Dean of the Academy. His personality is a most puzzling one for while a transvestite, there seems to have been no real homosexuality. He fell in love with young women in a normal fashion although he liked the suggestion of masculinity about them. He revealed himself to some of the young women and in the case of one Rosalie she bore a child which de Choisy adopted. There is therefore no doubt that sexually he was normal and he had no friendships or companions among men. The transvestitism was due to mixed factors apparently. He became accustomed to female apparel at an early age and seems to have greatly enjoyed deceiving people as to his sex. He enjoyed wearing beautiful clothes and many jewels and could do this best as a woman. That he could change this penchant almost instantly and never return to it showed the absence of a feminine psyche. In his old age, after his retirement from all public activities, he sometimes wore female articles of clothing, but it is suggested by the author of this biographical sketch that this was done in penance for the errors of his youth.—*Le Progrès Médical*, December 11, 1920, xlviii, 50.

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Original Articles.

THE CONVALESCENT TREATMENT OF HEART DISEASE BY EXERCISE APPLIED THROUGH NATURAL WORK AND PLAY METHODS.

By FREDERIC BRUSH, M.D.,

WHITE PLAINS, N. Y.

MEDICAL DIRECTOR, THE BURKE FOUNDATION.

(Study made through the F. K. Sturgis Research Fund.)

THIS paper reports upon an experience with 2,500 cases of valvular heart disease treated alongside of other patients in a Free Convalescent Institution of 300 beds from April 1, 1915, to July 1, 1920. Records of 1,000 of these cases, in two groups representative of the earlier and later methods, are especially studied.

A brief description of the institutional plant is essential for fair interpretation of the procedures and results. The sixty-acre grounds rise 100 ft. (to altitude of 300 ft. above sea level) from front to rear and contain forest, lawn, meadow, and farm gardens. The widely extended two- and three-story buildings are upon a terrace in the center. Hard surfaced, highly crowned roads and walks, usable in all seasons, total two miles in length and are mainly in grades of from 2 to 7 per cent. Outdoor games equipment comprises one regulation baseball diamond and one with 60-ft. bases and a special catcher's cage for cardiac boys; four short golf courses, one long course, three tennis courts, hand, basket, volley, and tether ball, Badminton, Rugby and soccer goals; six croquet courts, lawn bowls, quoits, discus, 5 to 12-lb. shot put and 10-lb. hammer throw. Swings, settees, and hammocks are widely placed to give destination to and rest after walks. Concrete dance and play terraces serve important ends.

Indoors are all feasible games, especially those inducing mild exercise, as pool and billiards, ring-toss, music and dance facilities in each section, with central assembly hall, extensive occupation-therapy rooms, etc.

ADMISSION STANDARDS FOR HEART DISEASE.—Patients are selected by our City Admission Office from proposals now made mainly through the Special Cardiac Clinics. Improving results are constantly following these more careful selection methods. Heart patients are limited to 80 beds (for medical and administrative reasons). The type of heart patient chosen for this treatment is indicated by the question: Has the proposed applicant sufficient heart and general reserve to be repairable, rehabilitable, up to full or handicapped wage-earning,

homekeeping, schooling, in a few weeks' term of rest-work-play-exercise treatment in the country?

The ideal person for this treatment is under 45 years of age, has suffered but one or two heart failures requiring bed care, has recently been well diagnosed, rested, and graduated into moderate physical exercise equivalent to walking 20 minutes on the level or climbing slowly two flights of stairs having a 20-ft. rise with slight if any dyspnea or discomfort, and who is temperamentally qualified for this reconstructive plan. A few others outside of this classification are occasionally entered, as for beginning heart overstrain and "potential" heart disease (prevention). The economic and social bearings are carefully estimated in each case. The special card of entrance, record and "follow" gives condensed details of the admission procedure and is depicted below.

ASSOCIATION OF CARDIAC CLINICS

From Clinic of		Hospital	
Name	Age	M. S. W.	
Recommended for Admission to			
He	was patient in	from (Name of Home)	192 to 192
Complete diagnosis		(Hosp., Disp. or at Home)	
Complications			
This patient is in Class (as checked below) and able to exercise			
I. Organic (sympts. of insufficiency—never evident)		IV. "Possible" Heart disease	
II. Organic (sympts. of insufficiency—past, not present)		Doubtful murmurs: mainly functional, possibly organic	
III. Organic (sympts. of insufficiency—present)		V. Potential (predisposing history)	
(Signed)		(Physician of Clinic)	

Fill in this side and return card to Clinic on discharge

Name			
Admitted	192	Discharged	192
Weight on adm.		On disch.	gain lbs.
Co-operation		(Good, Fair, Poor)	
Progress		(Notes)	
(Complications, etc.)			
Advised on leaving			
(over)		(Signature)	

Routine at the Institution.—The physically and

nervously trying admission day (in process from early morning until 3 p. m.) gives a valuable test of the patient's reserve and adaptability, and upon arrival in the country after a 25-mile motor-bus ride they are inspected by the Resident Physician, with card-history in hand, and a few notes made for the house-card, especially for those showing unusual exhaustion or poor physical or mental condition, and directions given as to certain placement in relation to stairs and associates, immediate bed-rest, watchfulness, etc. In cottage quarters coffee and crackers are served and a brief group talk given by the head nurse, encouraging to full co-operation and to early abeyance of the very prevalent doubts and fears, as of stair climbing and other exercise. Reclining or bed-rest follows. Wheel chairs are generally refused new patients, who must walk to the dining room, 200 yds. After supper many will be found strolling about the slopes, watching the games, dances, etc. The contagion of normality is already at work.

The average day of a typically progressing male patient in the third week may well be sketched: Rise at 6.30, no bathing requirements; sit outdoors or walk, breakfast at 7.30; make bed and tidy room; morning papers, smoke (no restrictions upon this), brag and argue world problems, wash and repair own clothing, go to store, library, or barber shop; play games outdoors and in; obligatory medicine ball, etc.; take supervised walks on the grades; glass of milk at 10, prescribed occupation 10.20 to 11.30; rest, dinner at 12.30; "rest-hour" 1 to 2, flat on bed with no talk (longer for weaker ones); play in or watch outdoor sports and tournaments, walk to village a mile away or do a few hours of work on farm or buildings (for a half-wage); supper at 5, rest, walk, or games, read or write letters, dance; bed and lights out at 9. No special night supervision of cardiacs has ever been indicated.

The above in general applies fairly also to women and girls, excepting that they play games less and dance, sing, and laugh more. Boys' exercising is more largely recreational and theirs is the only group of the four which does not require much forcing in this. Disinclination after early middle age to other than wage-work exercise (on account of mental and physical inertia) handicaps convalescent upbuilding and is constantly sought to be overcome by more youthful leadership and example.

Medical Supervision.—The Resident Physician, with nurse, meets each patient alone on the morning after arrival and makes examination, of uncovered chest in most cases, sufficient to order in writing the occupational exercise to begin that day or a week or two later, designating its kind in general only, as "sitting," "light," "full outdoors," etc. Marked cases of malnutrition are given extra milk and olive oil. Overweight (to be noted later) is particularly discussed with the patient. Mental, racial, and habit peculiarities are met with adjustment-suggestions which impart new hope and a beginning-understanding of the effort-cooperation desired. Mental therapy and the suggestion therapy of environmental example are most important to this class. Patients are examined medically a week later, and less frequently as they show good progress, until the final conference for discharge.

Almost no drugs are used. The laxative habit is insistently broken up; practically no special dieting is afforded. Many of the cardiacs have become border-psychopaths. Too much treatment and too many restrictions have played no small part in furthering this mental condition, and this anti-drug and anti-treatment method is of great complementing value in overcoming this abnormal outlook. "Go to bed and skip one meal" is the usual advice for the many minor complaints. It is generally not followed fully and thus it becomes a test and a correction of attitude. Hydro and like physical therapies are avoided.

Digitalis in small dosage has been tried with the weaker hearts and mainly discarded because of inability to appraise advantages from its use in comparison with control cases receiving no drug. Digitalis has been most used in auricular fibrillation, but others of this class have done equally well without it. Insomnia is not treated with drugs and is little complained of after the second week.

FORMS AND APPLICATION OF EXERCISE.—As best fitting our diverse age and diagnosis grouping, it was decided at our opening in April, 1915, to begin a broad experiment in the exercise treatment of selected patients with chronic valvular heart disease, using as the essential means only work, play, and what have been termed "normal life methods"—adapted to an institutional regime. The various gymnastic exercises are not considered as unfeasible nor unsuccessful in the convalescent treatment of heart disease and they may be added here, with the younger patients.

Nearly all of our heart patients come with marked disinclination to exercise, amounting frequently to fear or obsession. This attitude follows the customary composite of physical prohibitions (don'ts and can'ts) as fostered by physicians, hospitals, schools, and parents. Hence our attractive and agreeable forms of exercise prove of distinctive value in overcoming this inertia.

These heart patients are directed to begin at once to play croquet, short-golf, quoits, soccer practice, coasting and snow sports in season, volley ball, tether ball, short trial dancing, group games upon the green, and ball-play (light practice). After a few days of cooperation they will be found indulging more actively and, if young, to have entered upon light tennis and modified baseball and soccer. Certain of these games merit description.

Golf for eight months is the best adapted of all games and most generally used. The courses are laid close to the cottage steps, upon slopes varying from 2 per cent. to steep banks of 20 per cent. grade, and arranged up and down to induce much grade walking (without consciousness of a set task). Holes are from 10 to 50 yds. in length and the stroke is at most but "short approaching." A staff links of full-shot holes is also used somewhat by advanced patients, by invitation. Nearly all classes enjoy this unique modification of the game (called "short-golf") though it is new to most of them. Weekly prize tournaments with mixed sex and age groupings help to maintain interest.

Croquet is frequently set upon gentle slopes. The bending and posturing in this, as in quoits (much played), and the "weights," induce appropriate heart exercise. Boys and a few men play hand-

ball moderately, but cardiacs, with a few exceptions, are barred from the cottage competitions in this sport.

Tennis amounts merely to mild practice exercise and is considerably played by girls and young women. *Badminton* is increasingly used.

Dancing (outdoors in summer) ranks high as physical and mental therapy. The majority come firmly instructed and opinionated *not to dance*, but it is insistently prescribed. The middle and older ages often join or practice it in their cottages. The dance period is one hour three or more times a week, and is supervised. It is easy dancing, with many rests, and often interspersed with other entertainment. Contra-dances are encouraged. Some patients, after attaining good cardiac reserve strength, have given fancy dances of considerable activity and duration. Only about a dozen instances can be recalled in which patients (young women always) have left the floor in distress and the weakness was but temporary in each case and partly hysterical. A *dancing class* for boys and girls is conducted during the winter, instructed by older cardiac patients.

Ball play comes naturally to all and may be most readily utilized. Footballs kept outside are bound to be kicked—and kicked back. The exercise limits itself and is excellent. Hollow rubber, golf, and soft playground balls are freely issued and their bouncing, batting, toss-catch, and chasing (both sexes) afford no small amount of muscle and nerve training.

Baseball is veritably "in the blood" of the American male. "What! Can I play ball again?" is the query. Eyes brighten and fingers work in the palms. "Yes," is the answer, "you are to play ball. Practise lightly at first, then get written baseball permit from the physician and begin cautiously 'in the field', or at first base, have a runner when you bat, or stop after making one base. Do not pitch nor catch (exceptions made). Drop out and give others a chance. Be a 'fan' and noisy." This game for cardiacs is to be understood as a modified one as it is played in the convalescent group and not as swift, tense, first-class baseball. Much of it is casual, about the lawns. It comprises short runs and quick, brief uses of every part of the body, aggregate long rests, arguments, badinage, thrills, the inspiration of audience. A six-innings' limit to set games is often made.

A *field-day* program in which heart patients compete for prizes with others illustrates the extent to which vigorous brief exertions are encouraged; for men, 50-yd. dash, throwing baseball, 10-lb. shot-put, 10-lb. hammer throw, discus, potato race, etc., with like suitable, easier contests for women and girls. Various lawn and cottage group games are, of course, constantly improvised; while the romping, wrestling, tree-climbing exercises of the children are perhaps best of all.

Stair-climbing (from one to three flights) several times daily has proven not only safe but a beneficial form of graduated exercise, patients being instructed as to the rests, at first, on landings, etc. Stair-fear is almost an educated obsession, and to be measurably overcome. The experiment has been repeatedly made of moving a patient, who thought stairs were detrimental, to a ground floor

room and later back again without appreciable effect upon progress.

Certain unclassifiable exercises require mention only, such as the activities of cottage care, singing, music, and entertainment, personal hygiene and upkeep and improvised play and work (not inconsiderable).

Walking, though of high intrinsic value, has proven a partial disappointment because it has not been done enough. Evidently it will be necessary to give more supervision of groups and individuals to gain the maximum of benefit therefrom. All are told to walk increasingly on the graded fields and paths to the point of moderate, transient dyspnea, outside road hikes are conducted with much benefit. A standard question of the examiner has come to be: "Can you take the 'gate-walk' ($\frac{1}{4}$ mile of 4 to 6 per cent. grade) with fair speed and without shortness of breath, pain, or other discomfort?" An affirmative answer is given considerable weight in prescribing more exercise or as evidence of fitness for discharge.

Occupational Exercise.—After from one to ten days of observation and lighter routine activity, work-therapy of about $1\frac{1}{2}$ hours a day is begun. It consists of the usual basketry, cement, painting, carpentry, repairing, sewing, art-work, etc., in the shops, while outside and about the buildings grounds-cleaning, grading, planting and upkeep, forestry, athletic field care, haymaking, gardening and vegetable preparation, path building, snow shoveling, etc., afford wide variety in strengthening and heartening occupations. Watchfulness by overseers discovers those few who early tire or misfit and readjusts them as to time and placing, after a medical conference if thought necessary. There are many atypical positions of exercise value, such as mail handling, policing and leadership, errands, office and various other assistantships, which are preferably given to those needing encouragement and holding to the persistent cooperation required (personal influence therapy).

A *cycle of work-cure*, as accomplished in about 15 per cent. of our cases, is as follows: (1) one hour plus daily in sitting shop or other light work; (2) outdoor occupation or leadership up to two hours plus daily; (3) engagement as "patient-assistant" for from three to six hours daily on a handicapped wage; (4) full employment about the institution (or in neighboring places) with discharge to help-quarters, but retention of medical oversight. Return to former city employment (modified) or to new placement also completes the cycle appropriately. This is ideal grading through work from semi-invalidism into normal (cardiac) life, and in its consummation mental and play-therapy have ever a large part.

CRITERIA FOR DETERMINING THE KIND AND AMOUNT OF EXERCISE.—To test the cardiac reserve power by observation of the patient in physical work and play, and to increase that power by gradually augmented work and play exercise have been the plans from the beginning, and their safety and value were early in evidence. No use has here been made of the technical tests of cardiac efficiency and reserve. The reaction to exercise in heart disease has been determinable in our experience only by trial. Special advices of sending physicians have

in the past proven often of negative value; and even now, under fairly complete cooperation and organization, patients are frequently referred with various unfortunate prohibitions, such as to exercise "little" or "none." The difficulty of overcoming the ingrained inertia in such cases may be inferred.

Rapid or irregular pulse, cyanosis, dyspnea while sitting or in moderate room-movements, pronounced anemia, subacute rheumatic or other infection foci, signs of lung congestion, or cardiac asthma, and general muscular and nerve weakness with malnutrition, determine the prescription for postponed or lighter exercises and careful checking of progress.

No instance of definite relapse with decompensation attributable to the exercises has been recorded. A considerable number complain at first that this or that game, work, or stairs are "too much for them" (causing fatigue, dyspnea, heart-pain, faintness, etc.). They are studied and usually put back with encouragement to the same (or slightly modified) activities, and succeed therein. The psychoneurotic element has grown large in so many of them that insistence upon a regime is essential to their restoration.

Little significance is given to the *different valvular lesions*, excepting to aortic insufficiency, which seems thus far to require slower gradation in exercise and to have presented somewhat less successful end-results. Fibrillation has not been present in a sufficient number to justify broad judgment thereon.

Rarely a slight heart overstrain is noted—and almost invariably in male youths of "nervous" type. Attendants are instructed to watch for persisting dyspnea, unusual pallor, spot-congestion of cheeks, and marked tiredness or languor—and to take pulse at times. Youths go through the early periods of ball or other play or work with pulse up to 115 (or briefly much higher) but of good quality and this is not considered prohibitive. The characteristic facies (anxiety-pallor) is the most important of these observation tests. To those showing some heart overtaxing the first advice is: "Lie down a bit nearby." To bed for a few hours with ice application and a mild opiate follow, if necessary. Watchfulness for 48 hours assures absence of delayed fatigue effects, and steady improvement for weeks after, with gradation into wage-work, answer, in part, the criticism that we have no measure of the possible or probable later unfavorable results of this, as compared with the prolonged rest-treatment.

Prolongation of the physical effort evidently carries the main factor of danger. Brief exertion with frequent pauses acts favorably, which suggests conditions to be sought in regular employment. Continued hand lawn-mowing, tamping, carrying weights, or wheeling loads to distances have proven too trying in many cases, or until later in convalescence. "Pitching" in baseball needs time-limiting and watching; circling the bases (120 yds.) proved definite overdoing, while the 50 and 75 yd. dashes are taken successfully. Two cardiacs playing handball may show overstrain while four together do not (more rests); the "gate-walk" taken steadily may overtire, while with two brief pauses it can be accomplished comfortably against the wind. Two or three men alternate successfully

upon our lawn-mowers. Many patients think (told?) that they can not do bending or stooping exercises and occupations, but they can.

It is interesting to note that there is a general belief among those attending these patients that *mental and emotional stresses* have been causative factors in several of the overstrains and serious relapses. A careful search would probably have revealed obscure reinfections in some of these cases, yet the question seems deserving of further study. For example, a high-strung boy, progressing well in exercise, collapsed into a three-day bed care requirement (moderate insufficiency—pain, tachycardia, dyspnea, etc.) while much excited over being "tied" in a 5-lb. shot-put contest before an audience, though engaged in only two puts at the last with long rests and a history of having done much more with the shot on previous occasions. Probably the mental and nerve stresses upon two only in hand-ball, as against four with their word play and lack of personal contest feeling, differently affect heart action. A woman decompensated badly from an apparently excellent condition in part-wage work the day following serious (to her) accusations, investigations, etc. Umpiring a much disputed ball game set back badly a youth who had gained, before and after, in playing baseball. Instances are recalled of the lesser degree relapses immediately after quarrels, domestic upsets, "bad news," etc. No evidences of infection or of physical overstrain were determined in these persons, who were notably of hypersensitive organization. Heart weakening reported in a number of cases in the first week of return to the city may be in part due to other than physical stresses.

Relapses with insufficiency requiring return to hospital care, as recorded in tables appended, have in no instance been credited, after reasonably painstaking investigation, to overstrain from the exercises. Delayed fatigue effects, though not noted, may have been factors, the only measure of these being the observed "general condition" of the patients. Notably nearly all of these "breaks" came "out of a clear sky," no immediate causes being discovered. Exceptions were with the mental stresses, as noted above, and in cardiac asthma and bronchitis, in which the deterioration was measurable. This is in line with others' experience and is significant in suggesting *more courageous persistence in appropriate exercise* (work and play and gymnastics) and caution in accepting the conventionally ascribed causes of acute heart failure.

RESULTS, DISCHARGE, AND FOLLOW UP.—The successful country convalescent exercise treatment may be typified in a young man who arrives weak, anemic, depressed, and fearful of exertion, who grades through light occupation-therapy and sports to from three to five hours of subnormal work and play per day from the third to the sixth week, who then enters short-hour physical wage-work or increases play and occupation until he comes in on the sixth to eighth week clear eyed, well conditioned, undyspneic, with ambitious request to be allowed to go back to his regular work or to seek new and better fitted employment (provided for by special cardiac-placement agencies). Follow care is then given, for years after even, by heart clinics, social service departments, employment bureau, etc.; and

he may be sent back to the country institution at times when evidently overtiring, for *preventive recuperation of from two to four weeks*.

Tests of Good Progress.—These are ability to exercise increasingly without signs of heart and general overstrain, desire to exercise and to broaden routine toward normality, improvement of anemia, musculature, posture, and facies (the latter of much significance) and improved heart condition and functioning, as estimated also by standard physical examination. (Heart examinations are made as infrequently as possible for mental attitude reasons.)

Weight gain of moderate degree is in the main desirable as confirming good condition, but large gains are generally incompatible with the exercise strengthening method. *Weight loss* has been studied here and found (with few exceptions, such as with infections) to have been salutary, many heart patients being overweight from prescribed under exercise and invalid forced feeding.

Those exercising most (the cooperators, the "triers," as we have come to call them) *get best results*. Many of these have greater cardiac reserve power to begin with, no doubt. The slow gains and partial failures occur with those who through fear, obstinacy, or constitutional unfitness persist in the attitude of physical inertia with its usual accompanying border-neurasthenia. Many young men with only mild heart defects have become athletically feminized. The unresponsive are held to a fair trial only and discharged as unsuited to the methods.

More women than men are found in this latter classification, women having an average narrower background of inherent and habituated physical play and work to build upon, less of inspiring forward-look to ambitious occupations, and somewhat more persistence in the temperamental depressions and obstacles. The treatment is measurably *less successful with women*, but this may be offset in reconstructive values by the fact of their considerably lower physical requirements for after life. Girls up to fourteen or fifteen are only a little less responsive than boys.

THE INCIDENCE OF INFECTIONS AND THE DEATHS DURING RESIDENCE.—That the exercises, coupled with the other upbuilding elements of country convalescence, develop augmented resistance to the various infections is a rather general belief which is supported by a special study made of the 400 cases (men, women, and children) under treatment from May, 1919, to July, 1920 (see tables), carrying through the winter season of the second severe influenza epidemic and passed by these patients in an institutional atmosphere with hundreds of others variously ill. Their records show no incidence of influenza, pneumonia, pleurisy, acute or subacute rheumatism, acute endocarditis, or chorea. There are recorded but seven attacks of tonsillitis (follicular and all but one in children) and but fourteen of "colds" with moderate bronchitis, mostly in ages 16 to 35, considered to be worthy of reporting to the resident physician. Many transient "colds," recurrent pleuritic pains, etc., occurred, mainly during the winter months. Some nocturnal cough was noted, disappearing with the second week's improvement. But three patients out of the 2,500 are known to have had true anginal attacks here.

The six deaths within the institution among the 1,000 heart patients under special survey were all in men between the ages of 40 and 50 with aortic lesions, and occurred in the second or third week of residence. In five, acute heart failure came on rather rapidly and without discoverable inciting cause. All had been on light exercise only and were apparently improving slowly. The other man had been mainly resting for seventeen days because of poor compensation and brought on the fatal illness by a 24-hour trip to the city against the advice of physicians. A few others of the 12 sent back as uncompensated to hospitals are known to have died later in that illness.

TABULATIONS AND STATISTICS.—One thousand cases have been chosen for review as to progress in convalescence, and to some extent in after competitive life. The early group of 600 first treated comprised many faulty selections (uncompensated and otherwise unfitted); the latter 400 have come under improved organization, including selection, preparation, treatment, occupational and educational placement, and follow-care.

In 1917 a study was made of the first 600 cases under care during the two years preceding. Of these cases 130 were in boys from 10 to 16 years of age and 470 were in adults of both sexes and of various ages.

The boys were quartered on a large farm apart from adult patients but mixed with three-fourths non-cardiac boy convalescents. The supervision was never close, there was but little shop-occupation; mid-day rest hours, etc., were rarely kept, the equipment was essentially only the "old farm" on which they "ran free," yet it is noteworthy that the results with these 130 cardiac boys, and with the 305 who followed there, are felt to have been in a measure *better than those since obtained* under necessarily *more directive and repressive methods* in the main institution. It was there learned that a first problem is to get convalescent cardiacs, even boys, to exercise enough and that they will well-nigh *automatically grade into the higher exercise activities* safely and, if anything, too hesitantly.

Social Service Departments of hospitals and other sources of these patients generously assisted in completing a follow-through record involving personal investigation of the after lives of the 600 for from six months to two years.

"*Good convalescence*" in the following classification signifies such gains in heart functioning and in general physical and mental condition as to justify return to regular or specially adapted occupation, or to school (home keeping being classed as full occupation for women). "*Fair*" covers the cases making moderately good gains, leaving too soon for various reasons, but partially cooperative, retarded by complications (medical and social), and who were recommended for some further restorative effort, to handicapped occupation and to skilled follow-up. "*Failures*" include relapses, deaths, negative end-results (as in the too old, nephritic, or asthmatic), misfittings, such as homesickness and refusal to remain or harmonize, and are nearly all ascribed to faulty choice of applicants (medical, social, or temperamental). The pure failures under cooperative and full trial have been very rare indeed.

TABLE I—A SUMMARY OF EARLY RESULTS—1915 TO 1917

	Boys (10 to 16 years)	Adults (57% Males)
Number	130	470
Good convalescence	70%	55%
Fair convalescence	26%	27%
Good and fair	96%	82%
Failures	4%	18%
Average stay (of those who remained over 20 days, thus giving full trial)	44 days	46 days
Average stay of all	32 days	27 days
Average weight gain of full stayers	5½ lbs.	5½ lbs.
Steadily at school or work (2 years)	85%	34%
Part-time at school or work	7%	21%
Deaths since discharge	3%	10%
"Outlook" considered good, for fair health and productiveness	90%	70%
Readmissions to the Foundation (preventive, etc.)	6%	10%

The remaining percentages include those not traced, resting, sick, leading dependent lives, etc.

TABLE II—COMPRISES CHILDREN AND ADULTS—100 CONSECUTIVE CASES—BOYS AND GIRLS AND ADULT MEN AND WOMEN—TREATED 1919-'20

	Children (10-16 years, both sexes)	Adults (65% Men)
No. patients	159	241
Good convalescence	60%	46%
Fair convalescence	38%	48%
Good and fair	98%	94%
Failures	2%	6%
Deaths (3 adults, 7 10% of all)		13%
Average days stay (all above included)	30 days	24 days
Average weight gain (includes losers)	3 lbs.	3½ lbs.
Readmissions	4%	6%

TABLE III—AGE-GROUP COMPARISONS—100 CASES.

AGES	10-16	16-35	35 up
No. patients	159	118	123
Good convalescence	60%	55%	30%
Fair convalescence	39%	44%	59%
Good and fair	99%	99%	89%
Failures (4% of all classes)	1%	1%	11%
Deaths			3
Average weight gain	3 lbs.	2½ lbs.	3½ lbs.
Average days stay	30 days	25 days	21 days

TABLE IV—COMPARES DIFFERENT VALVULAR LESIONS

	Mitral	Aortic	Mitral & Aortic
No. patients	337	19	45
Good convalescence	67%	35%	55%
Fair convalescence	32%	54%	38%
Good and fair	99%	89%	93%
Failures	1%	11%	7%
Deaths		1	1
Average stay	25 days	21 days	29 days
Average gain	3¾ lbs.	2¼ lbs.	3¾ lbs.
No. lost weight	19	2	2

TABLE V—SUMMARIZES A GROUP OF CASES ADMITTED AS "ENDOCARDITIS," "MYOCARDITIS," "POSSIBLE" OR "POTENTIAL" HEART DISEASE, "TACHYCARDIA, ARRHYTHMIA, NEURO-CIRCULATORY ASTHENIA, ETC., IN WHICH NO VALVULAR LESION WAS DETERMINED.

Number of patients	99
Good convalescence	69%
Fair convalescence	69%
Good and fair	96%
Failures	4%
Deaths	
Average stay	20 days

Not enough time has elapsed to give adequate value to an after-life-follow-record of these 400 patients.

A TYPICAL REPORT ON PLACEMENT AND OCCU-

PATION AFTER DISCHARGE.—During twelve months of 1919-1920 sixty-nine of the Foundation's discharged heart patients (men), representing both good and fair convalescence, sought work through one special Bureau for Employment of the Handicapped in New York City. Of these, sixty-four were newly and well placed, one was returned to his former job and another to his western home, one was too young to obtain working papers, while two were considered too ill for placement when they came to make application. At the end of the year fifty-nine held their positions, the majority being in improved health and contentment, ten had been back in hospitals with heart attacks for short periods, fourteen others had heart treatments as out-patients, and one elderly man had died suddenly while at clerical work. Fifty-five were still co-operative with their Cardiac Clinics. This group was considerably below the average of discharged patients in physical and economic fitness, some of them not having previously worked for months or years.

Notes.—Although the average stay appears as about four weeks, it should be emphasized that the standard successful treatment period is from four to eight weeks, the lower average of total being brought about by the large percentage of atypical and short stay patients; for example, the 30 per cent. who left too soon for various good and poor reasons, and the many and most valuable preventive recuperations requiring but briefer residence.

It is repeatedly and quite properly questioned whether four to eight weeks of such régime can produce any considerable and lasting benefits to this class of patients with seriously damaged hearts. The affirmative answer is given measurably by results observed in this broad experiment, and confirmed by the large body of physicians, skilled welfare workers and others who have noted the physical and economic product of it during the past five years, and who press with increasing numbers of applicants for the treatment. Its practicability depends, however, upon cooperative organization extending from hospital entrance through convalescence on to life work and follow-up, and this short exercise treatment is to be properly regarded as but one link in this chain of reconstructive effort. And the shorter term carries many advantages. Institutional residence of more than a few weeks implies changed life (institutionalizing), a severance of those very ties to domestic, economic and civic environment (education, employment, home) which the whole reparative effort is trying to hold essentially intact.

The method of treatment at the Foundation, as described above, has proven in the main satisfactory. In a few border-line cases more precise tests of heart efficiency and reserve power are needed to aid in more accurately prescribing the exercises and in judging of fitness for return to certain modes of life and work. And the various work, play, and walking exercises fail in some measure of regular and effective application, as in the winter season, during periods of bad weather, and upon a considerable number of lethargic or uncooperative individuals. More exercise, and a more particular directing of the patients' active hours and exercises, is now being developed.

A CONCEPT OF X-RAY PATHOLOGY.

VI. ARTHROPATHY.

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In a normal joint four entities concern the roentgenologist; cartilage, synovia, ligament, and fluid. A joint may be considered a closed cavity between bones bounded by two tissues, cartilage and capsule. There is no bone tissue in the joint. Cartilage is normally radioparent, although past middle life and in certain conditions it may become slightly infiltrated with opaque calcium deposits making cartilage sufficiently radiolucent to a point where it may become visualized on an x-ray plate.

Before discussing the x-ray pathology of joints it is necessary to remark that the technology involved in producing a joint should be two-fold. First, the exposure should be such as to permit of the visualization of the bone surfaces just outside the joint in order to determine their relative relation. Secondly, an entirely different set of exposures should be made with the view of showing the soft parts that surround and involve a joint. In this second series of exposures all bone detail is, of course, lost; and it is desirable that it should be lost in order to make certain that the voltage used in connection with the current to produce the picture has been of a penetration adequately low to make for ready visualization of the soft parts. It is with an exposure made in accordance with the advice just given that the changes in cartilage, particularly those involving early infiltration of calcium salts into the cartilaginous fibers, the early villous proliferation of the synovia, and incipient clouding of the joint fluid, are recognized.

Cartilage.—Cartilage is potentially bone and is composed of cells and of a basement substance. The fundamental matrix appears homogeneous; but this homogeneity is apparent and not real. When the nutrition of cartilage is destroyed or if a joint is put to rest or out of function, the real fibrous nature of the matrix becomes evident. Deep in the cartilage the fibers are arranged at right angles to the surface, and, more superficially the fibers are arranged parallel to the surface. The fibers of cartilage thus described have sometimes been mistaken for flakes of fibrin in diseased joints. It seems probable that the frequency and importance of fibrin deposition in diseased joints has been somewhat exaggerated. Occasionally, there is seen a substance precipitated on the surface of the synovia that resembles fibrin, though it does not stain with the usual aniline dyes that color fibrin. In hemorrhagic exudate, fibrin is the natural constituent.

Cartilage draws its nutrition from the marrow which it immediately overlies, and probably, also, from the synovia (or periosteum) with which it is in contact. It has no blood vessels of its own. The rôle it plays in disease is much debated; but it seems reasonable to assume that its function is purely passive in any disease drama.

The joint cartilage forms an absolute barrier against the extension of disease from the bone into the joint, or from the joint into the bone,

so long as the nutrition in the cartilage is retained. If the nutrition of the cartilage is destroyed then it may become perforated and disease extend from the bone into the joint or vice versa. Until perforation occurs the only other means of extension must be at the cartilage periphery where the inner layer of the periosteum is connected with the inner layer of the capsule or synovia. Infections may find ingress and egress through this channel; malignant new growths do not appear to invade through this avenue. In general, it seems infallibly certain in x-ray pathology that in the cast of a pathologic process extending from one bone through a joint into another bone, that process is never one of malignant new growth.

Capsule.—This should be regarded as a continuation of the periosteum, and, like it, consists of an inner or cellular layer and an outer or fibrous layer. The inner or cellular layer is known as the synovia; the outer or fibrous layer is the ligament. They are not sharply differentiated; but the effect of disease upon them is so entirely different as to make them differentiated for the purpose of x-ray study. The ligament undergoes a purely passive rôle, the synovia an active rôle in disease. From the form of a ligament the x-rayist is able to infer increased fluid or increased tension in a joint cavity. This is particularly true in the case of the knee joint. The patellar ligament is normally revealed, with low voltage technique, as a convex arc, the convexity pointing posteriorly in a lateral exposure of the joint; and a concave arc when the entire joint is distended with effusion of whatever sort.

Synovia.—The inner layer of the capsule, or synovial membrane, forming the lining of the joint cavity, is a cellular tissue smooth for much of its extent but thrown into folds or villi called Haversian fringes at the recesses of the joints. When the synovia is inflamed its constituent round cells proliferate, oftentimes to great extent, the synovia undergoing a general villous growth. General villous proliferation of this character is to be regarded as a response to irritation and it may proceed as the result of disease in the membrane itself or because of an irritation in the joint cavity.

Ligament.—The passive fibrous capsular layer known as the ligament holds the ends of the bones together, checks motion and may be disregarded excepting for its mechanical changes in disease. When calcium deposit occurs in a ligament it is most usual to find an infiltration beginning at the point where the ligament originates from the fibrous layer of periosteum.

CLASSIFICATION OF ARTHROPATHIES.

Disease of the joints may be divided into: (I) The congenital arthropathies. (II) The static and the toxic degenerative arthropathies. (III) Arthropathies of circulatory origin. (IV) The inflammatory arthropathies (the arthritides). (V) The neuropathic arthropathies.—(Barker.)

Congenital Arthropathy.—Congenital arthropathy includes the absence of the joint, congenital dislocation, congenital forms of club-foot and flat-foot. Of these congenital dislocation of the hip requires particular mention. In this condition the

head of the femur may lie above or behind the acetabulum, the tip of the trochanter lying abnormally high. It is accompanied usually by a marked grade of lumbar lordosis. The x-ray is useful in showing the exact location of the head



FIG. 10.—Diagrammatic representation of Shenton arch formed by the obturator foramen and the neck of the femur. This arch can be seen as a continuous curve in any position that the hip is rayed.

of the femur. Through the use of the x-ray a distinction can be made between Heine-Medin disease (paralysis of the gluteal muscle causing a paralytic limb resembling congenital dislocation) and true congenital dislocation. In this connection it is useful to direct attention to the very valuable diagnostic line described by Shenton and commonly known as the "Shenton Line." It is an arch formed by the top of the obturator foramen and the inner side of the femoral neck, both connected by the visualization of a curve that normally exists but owing to bony interposition is not normally revealed. This line is the same in all positions of the joint, abduction and adduction alike. In discussing this topic Shenton says:

There are many lesions of the hip joint which will disturb this line. Congenital dislocation is a good example.

It is often said that the distortion of the rays makes appearances which resemble displacements in the hip region. To some people distortion may be deceptive, but no amount of distortion will affect this line. Anyone seeing a skiagram of a hip for the first time, and taking into consideration the intactness or otherwise of this line, could say with certainty whether displacement were present or not.

Another point is this, that radiograms of the hip region are very often most unsatisfactory on account of the thickness and density of the part. Few radiograms, however bad, will fail to show the femoral neck and the obturator foramen. Hence in this respect the diagnosis will be as correct with a very poor skiagram as with one in which there is the utmost detail.

Figure 10 is a diagrammatic representation of the normal Shenton arch, Figure 11 the broken Shenton arch in a case of congenital dislocation. These drawings are from actual radiographs and point to the great value of the Shenton line as a diagnostic in hip joint disarrangement.

The Static and Toxic Degenerative Arthropathies.—It is obvious that an important joint such as the hip joint depends for its maximum efficiency to some extent on the efficiency of regional joints such as the knee and ankle; and that any derangement in the regional joint, as in the knee or ankle, will be reflected on the hip joint which will suffer in function proportionally to the degree

of abnormality existing in the distal articulation. An extremity, therefore, may be considered a static unit; and any disturbance in one part of this unit will secondly affect the other parts. The secondary affections thus produced are called static arthropathies. These have been discussed at great length by Preiser, who asserts that most of the arthritis deformans or hypertrophic osteoarthritis may be regarded as static in origin.

Goldthwait's villous arthritis, common in the knee joint, appears to have a static origin. Of toxic degenerative disturbances there are two changes common to joints that need mention above others; these are ganglion carpi and lipoma arborescens.

Ganglion carpi is a villous mass appearing as a nodule on the dorsum of the carpus and apparently composed of a gelatinous disintegrated product derived from the connective tissue of the capsule of the wrist joint. It is usually radioparent to x-rays. Other tumors that appear in this region, most frequently neurofibroma, are radiolucent and sometimes radiopaque. They can thus be differentiated; it is sometimes possible to strike the ganglion carpi with the flat side of a book and immediately cause their disappearance much to the surprise of the one being examined.

Lipoma arborescens occurs usually in females, in middle life, and either at the medial or lateral malleolus. It is common in connection with various forms of chronic irritation of a joint. In the knee joint the fatty villi occupy the upper recess of the synovial sac in which region it most often produces a marked radiopacity readily detected by the soft ray technique previously discussed.

The sacroiliac joint is a locus critically considered as contributory to vague symptoms in that region supposedly arising from a subluxation. In testing for sacroiliac relaxation the leg of the patient is fully extended at the knee; one hand is placed over the patella, the other is used to lift the heel. If a subluxation of the sacroiliac joint exists, or if an arthritis involves this union, a pain irradiates from the back of the thigh owing to the slight displacement of the ilium on the sacrum.



FIG. 11.—Shenton arch broken by reason of posterior dislocation of the femur.

causing pressure on the lumbosacral because of the attachment of the ham-string muscles to the ischium.

From a study of the anatomy of the sacroiliac synchondrosis it is difficult to conceive how a luxa-

tion of this fibrous union can take place to any appreciable extent; and, if it does occur, it is not easy to see how it would appear on an x-ray plate. Baetjer very appropriately remarked the inadvisability of subscribing to the opinion that a subluxed sacroiliac synchondrosis, at least in its milder forms, caused definitely recognizable x-ray changes.

Arthropathies Following the Exanthemata.—Smallpox: There is a class of arthropathies that originate secondarily to the invasion of exanthems. This is true particularly in cases of smallpox in which the arthritis may occur during the desquamative stage and may proceed to suppuration. In some cases it appears to result from an invasion of the joint fluid by infectious toxins. These seem to enter the joint by continuity from the cellular layer of the periosteum into the cellular layer of the capsule or synovia. The irritation induces at first an increase in the volume and tension of the fluid; later, the cells of the synovia are stimulated to proliferate, throwing the membrane into villous projections that appear as radiolucent whorls under soft tube technique.

In the marrow the changes most characteristic of variola are produced. There is a central necrosis involving the blood-forming cells, a marginal infiltration of mononuclear elements and an abeyed production of leucocytes showing many disintegrated polynuclear forms. The bone nutrition is impaired and may go on to necrosis. Chiari describes the lesion as osteomyelitis variolosa; though the resemblance to other forms of osteomyelitis is nowhere observable. The arthritis incident to smallpox is usually polyarticular.

Measles.—Arthritis may follow the fever, or may originate during the height of the pyrexia. The arthritic changes are characteristically lymphoid in origin, invading the joint through the synovial layer. The changes are not unlike those produced in smallpox; a villous proliferative synovitis. There is sometimes a fibrous proliferation induced in the outer capsular layer or ligament. When the periosteum closely invaginates the articulation, and there is little joint-space, the fibrous proliferation may, rarely, occasion a fibrous ankylosis. Arthritis ankylosis following measles affected the jaw bone in a case reported by Osler.

Scarlet Fever.—Two forms of scarlet fever arthritis are recognized. The first is a suppurative form in which pus is poured into the joint, distending it and accompanied by highly toxic symptoms, usually ending fatally. Secondly, there is an arthritis very similar to a gonorrheal arthritis. This variety occurs most often during the second or third week of the exanthem. It attacks many joints, that is, polyarticular, and seems to choose the joints of the hands in preference to others. It may be accompanied by hemorrhage into the joint. In the second form, or scarlet fever arthritis without suppuration, the fluid volume in the joint increases sometimes to marked extent; the synovia is acutely inflamed but rarely undergoes sufficiently intense villous proliferation to be recognized under the x-ray; and there may rarely be observed a tendency to greater radiopacity of the ligament owing to the casual occurrence, in cases, of fibrous proliferation.

Rubella.—In German measles, arthritis may complicate; but it does not produce serious changes. The changes that are produced are usually too slight to be observed under x-ray.

While the exanthemata seldom, if ever, cause lesions that occasion x-ray inquiry, their study is valuable in order to gain a conception of the early changes incident to acute arthritis in which there is an increase of fluid in the joint. In diagram (Figure 12) the curve of a patellar ligament is represented in its normal contour, and in dotted line the contour it assumes when the tension or fluid of the joint is increased. *C* represents the femoral condyles superimposed; *T* is the tibial head; *P*, the patella; *QEFM* is the Quadriceps extensor femoris muscle; *PL*, the patellar ligament behind which is the infrapatellar pad. When distended owing to pathology the line *PL* assumes the contour indicated by the dotted line *S*. A synovitis with fluid increased can thus be recognized. For this study, it is preferable that the knee be flexed about 20 degrees, a lateral exposure made, and a soft tube technique used in which the bone detail is absolutely unstrived for, only the soft parts being revealed. A test for the value of a

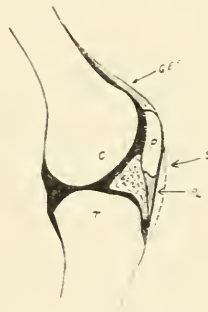


FIG. 12.—The patellar ligament shown normally convex in the absence of pathological volume of effusion. The assumed convexity under pathological conditions is indicated by the dotted line.

joint x-ray plate lies in the distinctness with which the soft parts are revealed. Strange as it may seem, the most excellent plates, invaluable for the study of the x-ray pathology of joints, are those that appear decidedly inferior from a photographic viewpoint. Yet, with soft tube technique, it has been possible to reveal the cartilaginous calcific infiltration invading semilunar cartilages when these bodies were the site of pathology following their mechanical displacement or traumatic injury.

In various bursal inflammations, such as housemaid's knee, while readily recognized by the surgeon, are also distinctly revealed by proper x-ray technology.

Arthropathies of Circulatory Origin.—In these conditions the most important clinical variety of circulatory origin arthropathies is the bleeder's joint. Blood may enter the joint cavity as a result of trauma; but true hemarthros occurs in patients of hemophilic diathesis. It is commonest in one or both of the knee joints and is manifested by an increasing development in the amount of joint effu-

sion. The blood is more radiolucent than ordinary serous effusion and the fibrin sometimes flakes and precipitates. The appearance on an x-ray plate is characteristic and is due to the markedly engorged blood fluid joint, radiolucency where radiopacity should exist, and radiopaque fibrinous flakes floating in the fluid. Hemarthros may go on to fibrous adhesions. These adhesions may calcify and ankylosis result.

Infectious Arthropathies.—Any classification of infectious arthritides is ventured with trepidation. In defense of a classification that will be submitted it is clearly defined at the outset that it serves only for the needs of the roentgenologist.

Classification of Infectious Arthritides.—(1) Acute: (a) Traumatic, (b) Infectious. (2) Chronic: (a) Atrophic, (b) Hypertrophic.

The acute arthritides include those of traumatic origin and those of infectious origin. The traumatic arthropathies are considered conjointly in cases of inflammation that arise as a result of sprains, contusions, abnormal bodies in the joint such as displaced fibro-cartilage, joint mice and hypertrophied fringes. The fundamental pathology characteristic of acute joint inflammation incident to any of the above causes is centered in the accumulation of fluid in the cavity. It is manifested on the x-ray plate by the bulging of the patellar ligament already discussed and diagrammatically represented above. The fluid that pours into the joint may be serous or hemorrhagic. If it is serous it is barely to be distinguished; but if it is hemorrhagic, flocculi of fibrin soon deposit and may be visualized on the plate. The synovia inflames and thickens; and with soft tube technique the thickening may be demonstrated. As the inflammation progresses, villous proliferation is stimulated in the synovia. This is especially true in those arthritides that are accompanied by abnormal joint bodies owing to additional irritation incident thereto. Usually the joint is "favored" and spared, mostly because of pain. This makes for partial rest and leads to a fibrillation of the articular cartilage, the parallel striæ in the superficies of the cartilage becoming at first radiolucent, and progressively radiopaque, depending on the amount of joint rest. When the superficial parallel fibers have attained radiopacity, the deep perpendicular fibers become radiolucent. When the deep perpendicular fibers become radiopaque the arthritis has practically reached a subacute or semichronic duration. In an acute arthritis free from suppuration there is no bone involvement. If the arthritis is the result of a fracture, a local bone necrosis may enter into the pathology of the joint; but otherwise the x-ray pathology of arthritis is confined internally to the joint-space. With the finest technique the changes recorded may sometimes be elicited; but the value, thus far, in x-raying acute arthritis is that of excluding fracture, the symptoms of which often simulate an acute arthropathy.

The question of the diagnosis of a torn semilunar cartilage from x-ray pathology is easily answered. If the cartilage has been impaired and by its pathology interferes with the mechanical perfection of the joint, owing to its disturbed nutrition and to the irritation mechanically incident, it

undergoes calcification in a degree commensurate with the age and extent of the pathology. In the early stages the calcification makes a radiopaque cartilage radiolucent; in later stages the radiolucent partially calcified cartilage becomes radiopaque through additional calcific infiltration; so that in both cases if the proper technology is used a mechanically non-functioning or pathologically affected semilunar cartilage casts shadows that characterize its dystrophy in terms of x-ray pathology. There are many conditions that are clinically diagnosed as impaired semilunar cartilages that fail to show x-ray pathology. Some of these cases are perhaps general semilunar dystrophies in which the changes have not proceeded to an extent to record x-ray evidence; but others are improperly clinically diagnosed instances. Recently, a number of cases of chronic villous arthritis erroneously diagnosed semilunar trouble have come to attention in certain localities.

Loose Bodies In Joints.—Knox gives the following description useful in considering the character of a loose body frequently found in joints:

1. Synovial fringes in which proliferation of cartilage cells has occurred, leading to the formation of a nodular mass, which is at first pedunculated, and is then cast off into the cavity of the joint by rupture of the pedicle. These bodies are usually composed mainly of hyaline cartilage, with bony material in the center of the larger ones. They may become ossified throughout. They vary in size from about $\frac{1}{4}$ inch diameter up to 1 inch; the larger ones are usually longer than they are broad. There may be only one loose body in the joint, or there may be several hundreds. It is not uncommon to find one body quite loose, and one or more still attached to the synovial membrane of the same joint. (Radiolucent.)

2. Osteophytic outgrowths from the edge of the articular cartilage may become detached, and so form a loose body in the joint. These bodies are irregular in shape, and usually consist of a layer of cartilage covering an osseous center. (Radiopaque.)

3. A portion of articular cartilage with a thin layer of bone may become separated from the femoral condyle, and form a loose body in the joint cavity. This occurs probably as a result of injury. (Radiolucent to Radiopaque.)

4. A blood-clot in the joint may become gradually smaller and firmer, and so form a loose body. This occurs as a result of injury. (Radiolucent.)

5. A portion of the synovial membrane may become thickened and indurated as a result of injury. This is nipped by the articular surfaces during the movements of the joint, and finally, as a result of the rupture of the pedicle, the body becomes loose. (Radiolucent.)

6. In tuberculous disease of a joint one or several loose bodies may be found. These are composed of tuberculous material in the thickened synovial membrane. (Rice bodies.) (Radiopaque.)

7. Around a foreign body, such as the end of a needle, fibrous tissue may be found. This and the preceding type of loose body are rare. (Radiopaque.)

8. Partial detachment of a semilunar cartilage gives rise to a body which hangs into the joint. As this is usually still attached to the bone, it cannot be said that it is a true loose body. It, however, gives rise to symptoms of a loose body in the joint. (Radiolucent to Radiopaque.)

9. An innocent tumor, such a lipoma, may form in the synovial membrane, become pedunculated, and so hang into the joint cavity. This is very rare. (Radiolucent.)

10. A metallic body, such as a nail, bullet, or needle, may in rare instances form a variety of loose body in the joint. These, however, are usually spoken of as "foreign" bodies. (Radiopaque.)

Gout.—In gout the incident arthritis is really a form of traumatic arthropathy arising from the urate deposits that grate on the bone surface.

Gout affects mostly the small joints, generally the metatarsophalangeal of the great toe. It is accompanied by chalky deposits in various parts of the body but particularly in the cartilage of the external ear. The x-ray pathology of gout is characteristic and rarely needs the corroborative evidence of identifying aural cartilage calcification; but in cases of uncertainty a lateral exposure of the head will reveal in the cartilage of the ear marked calcific infiltration. This, in connection with changes about the joints would make for an inference of gouty arthritis. Immediately beneath an articular cartilage near the epiphyseal line gouged-out bone areas are found. These are small, clear, spherical areas, vividly described by Hirsch as though they had been produced by the use of a conductor's punch.

The cartilage space may be diminished in gout so that the bone surfaces of a joint are more closely approximated. A joint evenly covered with cartilage presents a uniform curvature; but in gout when the cartilage is irregularly eroded the even curvature of the underlying bone may become distorted, the uric acid or urate deposit accumulating in and around the joint. The deposit is recognized by the fact that it is more radiopaque than soft tissue but less radiopaque than bone.

Acute Infectious Arthritis.—The chief infective agents are pyogenic organisms, gonococcus, the typhoid bacillus, and the pneumococcus. Poynton and Paine have described a *Diplobacillus rheumaticus* that was thought to stand in etiologic relation to rheumatism. The organism is not mentioned in the later editions of standard bacteriological treatises. Rosenow discusses an oxygen-sensitive streptococcus which is considered of etiologic relation to rheumatism. The disease may be confined to synovia or it may also involve the marrow. When the synovia is attacked it shows the usual x-ray signs of inflammation as previously described. An exudate pours into the joint and may be serous, fibrinous, or purulent.

Gonorrheal Arthritis.—The changes revealed by the x-ray in a gonorrheal joint may be classed into three stages of infection. In the first stage there is increased fluid and periarticular swelling, but there are no characteristic changes; in the second stage there is marked destruction in addition to the usual signs of infection including synovitis and fluid increase; in the third stage there is greatly marked bony production with bony ankylosis. The knee joint is the one most usually attacked, when the under surface of the patella and the anterior femoral aspect show signs of the invasion. The inflammation may heal completely or may go on to chronicity. Destruction usually involves the cartilage on the under surface of the patella, which sesamoid sinks in towards the condyles of the femur. Hypertrophic changes appear on the margins of the patella and on the adjacent areas of the femur. Another change somewhat characteristic of this form of arthritis is the occurrence of small localized areas of rarefaction in the bone at the junction of articular surfaces and cortex. The development of spurs tending to grow out along the plantar fascia from the os calcis is supposed by many to be the result of gonorrheal activity. They are also to be observed in cases of streptococcus in-

fection. It is doubtful if there is any real relation between these spurs and Neisserian infection.

Typhoid and Pneumococcal Arthritis.—Both these types of arthritis are difficult to differentiate from that produced by ordinary infectious organisms. In typhoid as in pneumococcal arthritis marked bone production is the rule. A characteristic of typhoid arthritis is the frequency with which dislocation of the hip accompanies the typhoid arthritis. In pneumonia the arthritis is a serious complication, recovery from which is slow and ankylosis is usual.

Pyogenic Arthritis.—This is usually due to the cocci. In the acute form it may be mono or poly-articular. There is first an effusion into the joint activity, then the synovial thickening and proliferation. These signs may disappear; or they may proceed for several weeks when a decalcification of the articular ends of the bones becomes manifest, accompanied by an erosion of the cartilage and a subsequent narrowing of the joint-space. Later in the infection, when repair set in, hypertrophic changes may make their appearance at the margin of the articular surface. Occasionally the joint cartilage may be entirely destroyed and an ankylosed union result.

Generally speaking the x-ray is of less positive value in the acute arthropathies than it is in the chronic arthropathies. It is seldom that an exact etiologic cause can be ascribed to a very acute arthritis; and the true nature of the pathology may become apparent only after the process is well established and goes on practically to chronicity. Of the chronic arthropathies two main types may be differentiated.

1. Those that are characterized by a proliferation of the synovia and marrow with attendant atrophy of bone and cartilage. This includes chronic gonorrheal and syphilitic arthritis, tuberculosis in the large number of heterogeneous conditions under various names depending upon the classification adopted by the person describing the arthritis.

2. Cases characterized by degeneration of the synovia and marrow and incident hypertrophy of bone and cartilage. Under this heading are grouped those cases heretofore described as osteoarthritis, hypertrophic arthritis and degenerative arthritis. It includes also such lesions as Heberden's nodes and allied conditions.

Joint Tuberculosis.—Joint tuberculosis may begin in the marrow or in the synovia. It appears to exert a marked affinity for epiphyseal and lymphoid tissues, and if unmixed with secondary infections is rarely attacks any other tissue but simply affects them by interfering with their nutrition. Joint tuberculosis has already been considered in another paragraph. Clinically it may be confused with Perthe's disease. Perthe's disease, which occurs in children, resembles tuberculosis clinically but gives a different x-ray pathology and a different prognosis. In the cases thus far reported the disease has affected only the hip joint. Many cases that have been supposed to be tuberculosis, followed by recovery, are now thought to have been Perthe's disease. In the joint in Perthe's disease there is a disturbance of the epiphysis involving the deposit of calcium and some thickening of the head, but

always a clean cut and clearly defined point. In tuberculosis, it will be recalled, there is a haziness of the part invaded. A joint which has been attacked by Perthe's disease may resume a normal appearance after five or six years. It occurs between the ages of six and twelve years and is confined to the epiphysis. Adults appear to be free from the affection.

Syphilitic Arthritis.—Joint syphilis is more frequent than is generally recognized. It may occur in the joints in two differentiated forms. The first form corresponds to the synovial form of joint tuberculosis, the second occurs under the affection known as Charcot's joint. In the synovial form there is synovial proliferation and increased fluid in the joint. In addition there is periarticular swelling and a periosteal reaction. Charcot's joint had best be considered under the neuropathic arthritides.

Atrophic Arthritis in General.—Atrophic arthritis is usually a middle age condition and is accompanied by atrophy in the soft tissues, limb deformity, absence of swelling and motion limitation due to fibrous changes. The x-ray pathology indicates atrophy of the soft tissues and bone absorption of cartilage, occasional destruction of cartilage, but no new bone formation. Atrophic arthritis may resemble the arthritis that accompanies an infectious type in its second stage from which it is often impossible to effect a differentiation.

Chronic Hypertrophic Arthritis.—This is a condition most generally asserted in people of middle and old age. It is most pronounced in those of fifty years and over. The x-ray pathology is characterized by very little atrophy, more condensation and exostosis. There is marked lippling; joint mice are characteristically present in some cases. When they are present the condition is distinctly hypertrophic. The head of the bone assumes a more or less mushroom shape.

General Conception of the Arthritides.—The entity arthritis of infectious type may involve three stages of x-ray pathology. First, a stage in which there is an acutely inflamed joint accompanied by an increase in the amount of fluid and by periarticular swelling. No bone destruction or atrophy is present in this stage. In the second stage the swelling has disappeared and atrophy begins, the disease has usually subsided and the fluid absorbed. The joint surfaces, owing to the destruction of cartilage, become more nearly approximated. In the third stage repair is inaugurated, atrophy disappears and there is a replacement of the destroyed bone and cartilage. A proliferation of new bone is observed sometimes in the formation of bony exostoses; and where the cartilages have been destroyed the entire joint may become ankylosed. The x-ray pathology of an arthritis of whatever origin could fall in one of these three stages. A valuable x-ray classification would be to describe an arthritic condition in terms of three varieties:

1. Subintensive arthritis manifested by swelling and synovial changes. This would include all of the arthritides discussed under the acute forms in the classification above given.
2. Atrophic arthritis manifested by changes in the bone density and by cartilage destruction.
3. Hypertrophic arthritis manifested by an in-

crease in the bone content on the joint appears by exostoses and other evidence of calcific proliferated changes.

Special Joint Conditions.—Chronic villous arthritis can be recognized by the x-ray in lateral views of the knee when in the posterior portion of the capsule there can be visualized a radiolucent mass, stringy, fan-shaped and radiating internally between the condyles of the femur and tibia. It may be of an infectious origin. It occasionally involves the knee, in which type it may appear as a form of static arthropathy. (Goldthwait.)

Heberden's Nodes.—Heberden's nodes are due to excrescences on the base of the terminal phalanges of the fingers. They may occur associated with hypertrophic arthropathies, or in gout, or may occur as an isolated phenomenon or associated with arthritis of the other joints.

Still's Disease.—Still's disease is a chronic arthritis of childhood, seldom recognized and without definite clinical or etiologic unity.

Neuropathic Arthritis.—Under this title the most important joint condition is that of Charcot. It occurs in tabes or syringomyelia and in other chronic diseases of the spinal cord or of the peripheral nerves. A tremendous swelling of the soft parts usually ushers in the affection. The articular surfaces of the joint are completely destroyed and the articulation entirely disorganizes. Large irregular masses of calcified material, radiopaque, become scattered throughout the joint. It is most common at the knee, hip, ankle, and spine. In ordinary infections the cartilage is first destroyed and then the bone. In Charcot the most distinctive sign aside from the destruction is the absence of atrophy and the presence of eburnation. The picture is diagnostic and quickly recognized.

PYURIA.

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PYURIA (pus in the urine) is a symptom, not a disease. Briefly defined, it is a manifestation of an inflammatory process somewhere in the body in close proximity to the urinary stream. This process may be localized or disseminated, involving one portion of the urinary tract or several. Discovery of the pus usually is made by the physician quite accidentally in urinalysis made in the course of a general examination for some complaint, for pyuria need not be accompanied by other symptoms.

The etiology depends largely upon the location and character of the inflammatory process. There may be an infection by bacteria of some part of the tract otherwise normal, or this infection may be superimposed upon calculus, foreign body, tumor, stricture, etc. It is therefore of prime importance to localize the source of the pus before a diagnosis can be attempted. We must not confuse pus in the urine with cloudiness. The latter may be due to the presence of urates, phosphates, bacteria or chyle in large quantities. All of these can be determined quickly by simple analytic tests, which

need not be described here. The thing to remember is that these substances are frequently found in the urine and that they must not be mistaken for pus.

Having determined that we are dealing with pus, the problem of locating its source is by no means a simple one, because one or several portions of the urinary tract may be involved. In the male the pus may have its origin in the urinary tract (kidney, ureter, bladder), in the genital tract (prostate, seminal vesicles, posterior urethra), in the common urogenital tract (penile urethra), or in any combination of these.

In the Female: Pyuria in the female invariably is urinary in origin, except when the urine voided by the patient has become polluted with pus derived from the genital tract through the existence of a fistulous opening, through uncleanness, or through carelessness in obtaining the specimen. But if the vulva and the external urinary meatus have been cleansed carefully, any pus found in the voided urine obviously emanates from the urinary tract.

The diagnosis as to the origin of the pus is made by first eliminating the urethra as the point of origin, thereby bringing the investigation within the sphere of the urinary tract proper. The urethra in the female is eliminated from consideration by means of several irrigation tests, the simplest and most practical of which is the following: The urethra having been cleansed through a fine recurrent catheter and the washings collected in a clean glass vessel, a sterile catheter of fine caliber is inserted into the full bladder and some of the urine withdrawn. If this urine is clear and the collected washings contain pus, no further proof is required to show that the pus originated in the urethra. If the washings are clear and the catheter drawn urine is cloudy (with pus), it is evident that the pus does not originate in the urethra. The importance of this test, and others having the same end in view, is that urethral pus in the female often acts as a misleading element in the diagnosis of pyuria. One is apt to forget the fact that the female urethra is subject to infection and inflammation in the same manner and under the same conditions as its prototype in the male sex.

In the Male: Because of the more intimate relationship existing between the genital and urinary tracts in the male, the problem of locating the origin of the pus is much more complicated. We have to determine whether the pus is derived from the urinary tract proper, from the genital tract proper, or from the common urogenital tract.

As in the female, we first must eliminate the urethra as the pus focus, this being the most common source of pyuria in the male, due to the frequency of acute and chronic gonococcal infection. The existence of a more or less profuse discharge at the meatus at once suggests the probability of the urethral origin of the pus. It is essential, however, in the interest of a correct diagnosis, to determine in which portion of the urethral canal the pus originates. With this end in view, various "tests" have been devised, all of them being possessed of some distinct merit. For lack of space, they need not be described in detail at pres-

ent; the reader can find them described fully in previous publications.* They are designated as follows: Thompson two-class test, Smith irrigation test, Goldenberg-Jadassohn irrigation test, Kollmann five-glass test, Jadassohn expression urine test, Young seven-glass test, Wolbarst five-glass catheter test, Kromayer methylene blue test, and Lohstein ferrocyanide test.

With the aid of one or more of these tests, particularly the Smith and the author's tests the exact origin of the pus in the male urethra can be determined and suitable therapy instituted. The methods of employing these tests have been gone into in detail in the publications above referred to. If, however, these tests show that neither the urethra nor the adnexa is the source of the pyuria, it becomes quite evident that it must have had its origin somewhere in the urinary tract proper, that is, the bladder, ureters or kidneys.

The urethra having been eliminated, the problem is the same in both sexes, and similar methods of investigation are applicable. It is in the investigation of the urinary tract proper that the cystoscope and the ureteral catheter prove their estimable value. A diagnosis in pyuria of urinary origin, made without the cystoscope, would be equivalent in value to a diagnosis of optic atrophy made without the ophthalmoscope.

In the bladder, the principal causative factors in the production of pyuria are cystitis (acute and chronic), stone, tumor, foreign body, tuberculosis, obstruction to the urinary flow and retention. In each of these conditions the cystoscope is the diagnostic medium par excellence. With its aid the bladder condition readily can be seen and studied, and a diagnosis made with considerable accuracy. It goes without saying, of course, that the cystoscopist not only should see well, but should know what he sees and give his findings their proper interpretation; otherwise, the cystoscopic picture loses much of its proper value as a diagnostic aid. To the trained eye a gross error in the diagnosis of pyuria of vesical origin is practically impossible. One may err in calling a bladder tumor benign when it really is malignant, or vice versa, but he cannot fail to see the tumor. The same is true of other vesical lesions predisposing to pyuria.

When, however, the question of determining whether the pus originates in the bladder primarily or at some point higher up in the urinary tract is to be decided, several other measures are available. A "snap" opinion may be expressed, for example, as the result of irrigating the bladder through a soft catheter. If the washings come out clear after but one or two irrigations, the fact is strongly suggestive of a renal or ureteral pyuria being present; if, however, it requires much washing for the return flow to become clear, the probability is that we are dealing with a vesical pyuria.

Some observers attach importance to the behavior of the pus in a vessel into which the urine has been voided. They believe when the pus settles quickly to the bottom of the vessel, the pyuria is renal in origin; if it remains suspended and

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mixed with the urine for some time, the pus is vesical in character. To quote Keyes: "The (kidney) pus sinks to the bottom of the glass and lies flat and solid like a bed of sand, while the supernatant fluid remains hazy with bacteria." * * * * * "Bladder pus never settles in this way. However intense the cystitis, however deep the layer of pus at the bottom of the glass, it is always capped by a fluffy, rolling muco-cloud (like the thunder head on the horizon of a summer sunset) if the pus comes from any part of the urinary tract except the kidneys."

Microscopic examination of the centrifugated urine is said by some expert microscopists to give a definite and positive clue to the renal origin of pus, but this view is not generally accepted as absolutely proved beyond doubt. It is often impossible even for the most expert to differentiate satisfactorily between pelvic epithelium and some of the forms derived from the deeper strata of the lower portion of the urinary tract.

Another fact worth remembering in this connection is that kidney pus usually is found in acid urine, while pus found in alkaline urine generally is of vesical or prostatic origin. It is equally important to remember that too much reliance is not to be placed on this distinction, since there are many exceptions to this rule.

The method par excellence, and the one that should be employed in every possible case, is ureteral catheterization. A final, definite decision as to the origin of the pus cannot be made without this invaluable procedure. It need not be emphasized that every precaution must be taken thoroughly to empty the bladder of any contained pus before the catheters are introduced into the ureters; otherwise some of this pus may be carried into the ureters and a possible erroneous diagnosis (to say the least) may result.

The ureteral catheter is the court of last resort in the diagnosis of pyuria originating in the urinary tract, and when carried out under strictly aseptic conditions by skillful hands, the resulting findings are beyond question.

In any given case of pyuria which has been traced by exclusion to the upper urinary tract, if the urine obtained through ureteral catheterization is free from pus, microscopically as well as macroscopically, the source of the pus positively is not in the kidney. Several separate examinations may be necessary in certain doubtful cases before the kidney can be absolved absolutely, because it is barely possible that there may be a momentary cessation of purulent secretions in such a given case. Repeated examinations of the catheterized urine, invariably giving the same negative result, must be considered conclusive, and the origin of the pus must be sought elsewhere.

It may be observed, in closing, that this paper deals exclusively with the subject of pyuria considered as a symptom, and does not take into account other symptoms that might be of assistance in locating the source and determining the character of the pyuria. It is the intent of the writer to point out the fact, so often overlooked, that pus in the voided urine can be made to tell its own story and that a diagnosis, correct almost to the last de-

gree, can be made by a conscientious study of the urine and the passages with which it comes into contact. In making this diagnosis, however, the urinary tests above referred to, in association with the cystoscope and ureteral catheterization, are absolutely indispensable. Without them pyuria inevitably must remain an unsolved enigma.

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THE CAUSE OF DEATH FROM NITROUS OXIDE-OXYGEN ANESTHESIA.

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THAT nitrous oxide-oxygen anesthesia is not the safe anesthesia which its advocates originally claimed but, on the contrary, is one which has developed a large mortality, is a fact which is well known by all anesthetists who have kept in touch with its use. Comparatively few reports of deaths have gotten into the literature, but that the number is comparatively great is beyond dispute. The largest number of deaths reported by any one observer were those reported by myself in 1916 (*MEDICAL RECORD*, July 29, 1916). That report showed that in Columbus the nitrous oxide-oxygen death rate had been practically 1 per cent. in administrations for major operations. Since my paper was published another death has been unearthed which occurred during the period covered. Following that report the administration of the agent for major operations practically ceased in Columbus, but a few months ago for some reason it was used in another case, with prompt death on the table, death in that case taking place, as in the others, suddenly and without the slightest warning.

In the Anesthesia Supplement of the *American Journal of Surgery*, of July, 1917, Dr. Dennis E. Jackson, of St. Louis (Associate Professor of Pharmacology in Washington University Medical School), presents an exhaustive paper reporting experimental investigations into the pharmacology of nitrous oxide. He does not, however, go into any details as to its lethal effects, but simply says: "I have observed that *dogs* under nitrous-oxide-oxygen anesthesia may not well withstand extensive operations, particularly if the abdomen is opened and the viscera manipulated in any way." Publication of this article led to some correspondence with the author, in which he enlarges as follows upon the actual causes of death during the administration of nitrous oxide-oxygen:

It is extremely probable, however, that nitrous oxide does not directly poison the heart itself. Its action here is solely an indirect one, for the gas is apparently entirely indifferent to the heart. The action on the heart is indirect, first by limiting the supply of oxygen, and probably secondarily by hampering the excretion of the CO. These two factors, or at least the first, are apparently always present before the heart is in any way disturbed. A further action (indirect) which the gas has on the heart seems to be a result of medullary stimulation of the cardio-inhibitory center. There is some evidence that the N₂O stimulates the medulla at first (like ammonia). In a heart that was especially susceptible to inhibitory influences (vagi), this might set up irregularities which could pass over into partial or complete heart block, or possibly into ventricular fibrilla-

tion. The asphyxia which would certainly be present would cause some sympathetic stimulation (asphyxia of the cord), which would tend to cause the heart to become more irritable and therefore more likely to become irregular. If this factor predominated one might very well expect the possibility of sudden death from ventricular fibrillation after the manner which Levy has described for sudden death under chloroform. I had one or two animals in which I suspected at the time that this had actually occurred, as a slow sporadic gasping respiration continued for a while. But if the condition actually existed in the heart the later developments do not always bear it out, for I got one or two of these animals to recover by artificial respiration and massage of the heart. Recovery of the heart after ventricular fibrillation has begun is an exceedingly rare thing.

On the other hand, the marked slowness of the heart which occurs readily in dogs may be due to strong vagus inhibition. Asphyxia (of the medulla) causes a rise in blood pressure, and if the rise is considerable the intracranial pressure mechanically stimulates the vagus inhibitory center. This would slow the heart. But asphyxia of the heart itself is almost undoubtedly the contributing factor, for the heart may be slow when the pressure is low. And I believe that the statements of anesthetists that no asphyxia was present when death suddenly occurred should be taken with a good big grain of salt. For the essential features of asphyxia exist out in the tissue cells, and no one knows what effect either the presence of nitrous oxide or the absence of the normal percentage of nitrogen from the blood and lymph, or the inhibition of the normal elimination of CO₂ into the lymph, or the absorption of the oxygen by the cells from the blood (through the lymph) may have on the metabolism of the body in general (or of the heart or respiratory center in particular) when these are all present at once, as is the case in nitrous oxide anesthesia. Furthermore, I suspect that death may occur under nitrous oxide from depression of the respiratory center, due to the depressing (later) effects of the gas, coupled with the excess of CO₂ and lack of oxygen which are fairly sure to exist.

Thus it seems possible that death under nitrous oxide (at least in dogs) may occur from one or more of three causes, viz., central respiratory depression, excessive cardiac inhibition (as explained by Embley for chloroform), or ventricular fibrillation. It is possible that in all cases each of these conditions tends to be present, but one or the other predominates. And the character of the death and its attendant symptoms should vary according to its cause. It is probable that this variation explains the discrepancies in the literature regarding the nature and cause of death under gas.

While these statements by Dr. Jackson are exceedingly enlightening, it is to be hoped that he or some other equally competent experimenter will make a special study of the cause or causes of death to determine just what particular factor may be regarded as chiefly at fault, so that anesthetists, if possible, may guard against this source of danger, or may abandon the use of this anesthetic if its dangers cannot be overcome.

UNILATERAL AUDITORY HALLUCINOSIS.

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KRAEPELIN and others have referred to the fact that sometimes in dementia precox the hallucinations are unilateral. I have had an opportunity of observing a large number of cases of dementia precox on the first day that the psychoses caused sufficient disorder of conduct to suggest to their associates that the patients be submitted to a psychiatric examination. While psychiatrist at the United States Naval Training Station at Great Lakes, when it was the largest naval training station in the history of the world, cases of suspected

mental disorder would be brought to me, sometimes within one-half hour and always within a few hours of the first signs of mental disorder. Because of the tremendous pressure of military work in times of war, it was not possible to prepare careful charts and tables of unusual signs and symptoms. Therefore, I cannot submit statistics, but must rely upon my general impression, both confirmed and re-confirmed by newer cases.

It was almost the rule to find in these patients who had hallucinations for the first time that the so called "voices" were heard only in one ear. Later while I was psychiatrist on the U. S. S. *Leviathan*, an armed U. S. Naval Transport, which had a ship's company of over 2,000 men, several cases of dementia precox developed in the crew. Also among the 10,000 troops each trip being transported to France, quite a few cases of dementia precox developed aboard ship. These men were brought to the sick-bay for examination and treatment because the Commissioned Officers, Petty Officers, and non-Commissioned Officers noticed that their conduct was unusual. Here again I made the same observations made ashore, i. e. that almost always in the cases which I diagnosed as dementia precox, if there were auditory hallucinations, the patients commented on the fact that it was a novel experience to hear voices when no one was around, and, on questioning, I usually ascertained the fact that voices seemed to be localized in only one ear. Before and after the armistice it was my duty to bring home on the U. S. S. *Leviathan*, which was now partially a hospital ship, but largely a transport, about 300 A. E. F. neuropsychiatric cases a trip, altogether between 2,000 and 3,000 such cases returning on board ship on my wards. In the re-examination and review of the diagnoses for the purpose of treatment and special custody in the strange environment of a submarine-hunted ship in war time, I found many cases of dementia precox whose psychoses were of extremely short duration. In these I found that the auditory hallucinations began only on one side. In many cases the hallucinations became bilateral, but remained localized, good voices being heard in one ear, and bad voices in the other. In civil practice subsequent to the war, this condition was found in several patients, but had to be brought out by questioning them as they seldom spontaneously mentioned that voices were seemingly heard only in one ear.

I have come to the conclusion that the usual course of these misunderstood pseudo-exteriorizations of new or strange thoughts is somewhat as follows: At first the hallucinations are localized only in one ear; later, they may be localized in both ears, or the good voices are identified as coming from one side and the bad voices from the other. The patient may hear contradictory voices in the opposite ears, on one side saying, "Do this thing," and the other side saying, "Do not." The patient may imagine that he hears the voice of one individual speaking in one ear and the voice of another individual speaking in the opposite ear; he may hear male voices in one ear and female voices in the opposite ear, or blessings in one ear and curses in the other ear. Another form of localization is found in patients who are of foreign birth or foreign stock, and who consequently speak a

foreign language, claiming that in one ear they hear voices talking to them in English, in the other ear voices talking to them in their mother language. Later this localization fades as the case becomes chronic and not acute; still later it is frequent to have the patient state that "voices do not bother me any more"; later yet, that he hears voices only at rare intervals, and eventually that he does not hear them at all. Exceptions to this are found in cases which remain acute for long periods of time. The word acute is often given a double meaning in medicine. Sometimes acute means severe in contrast to mild; at other times acute means recent in contrast to chronic. I have in mind a case whose condition remains acute after a lapse of several years, because it is impossible for him to adjust himself comfortably, due to the persistence of factors which led to or which aggravated his mental trouble.

CASE.—The patient is a white male, age 30, who has been deformed since infancy. He has scoliosis. As a child his brothers made fun of his deformity. Disappointments have been his rewards in life. Even when they took him out on their pleasure trips, as to a party, they would laugh him out of the games, or might even leave him on the porch if they were going into the house of a neighbor.

His father is an alcoholic, although he came from an extremely religious stock. His mother has remarried and made a home for the patient, but the step-father is also alcoholic. The mother herself, is extremely unstable emotionally, and does not show very good judgment in handling the affairs of daily life. The patient had a fairly good education and worked at an instrument in a telegraph office. His contact with girls and women had been extremely limited. When he would make ordinary advances to girls whom he met, such as asking them to dinner or to the theater, he would be told to run along, as they did not care to go out with a hunchback. Three times in his life he had intercourse with women. Twice with common prostitutes for money, and once with a mistress of a fellow employee. He felt that he never could get acquainted with nice women. He reached the time in life when most men were establishing their own homes. He never could remember having been in a natural home because of his father's drunkenness and later divorce. He sat beside a rather attractive young woman who worked in the same telegraph office. For about two years he came in daily contact with this young lady. He spoke to her only once. He began to desire her tremendously. He realized that she was unobtainable. The thought was unbearable to him. He began to complain of failing vision, and as an explanation for that said his mother must be putting olive oil into his tea to affect his eyesight. He quit work, stayed around home, and one time tried to reconcile his divorced parents, even though his mother was legally married to his step-father. He was committed to the Hospital for the Insane. Here hallucinations developed. For the first time he heard Helen speak to him. He said that he heard her voice in his left ear. She stated that she loved him, that she would come out to see him, that she was an orphan, and when the patient was told to commune with her and ask what she thought of his physical condition, he put his hand to his left ear, shut his eyes, and in a few minutes looked up and said, "She says, 'You have the most beautiful brown eyes I have ever seen.'" The examiner's attention was immediately drawn to his eyes and truly they are handsome. The hallucinations continue but are not so constant as they were earlier in the psychoses. They continue localized on one side. It is impossible for this man by sublimation or otherwise to overcome his realization that his deformity will prevent the fulfillment of his desires, i.e. he will never be able to have a family or home of his own.

Unilateral localization of auditory hallucinations has not been observed by me in other types of

mental diseases which have hallucinations, such as acute alcoholic hallucinosis, deliria with fever, etc., unless there is organic disease of one ear or greater organic disease of one ear than the other.

CONCLUSIONS

(1) Unilateral localization of auditory hallucinations is frequently found in early or acute cases of dementia precox and is not found in other conditions unless there is some organic disease of the nervous system or of the auditory apparatus.

(2) Hallucinations are usually first localized on one side, then become bilateral, with different characteristics on the two sides, subsequently become bilateral with similar characteristics on both sides, and finally, either cease to bother the patient or cease to exist when, through apathy, he no longer feels the need of rationalization of strange or new thoughts by exteriorization.

(3) The continuance of unilateral auditory hallucinosis in the case of dementia precox where there is no organic disorder of the apparatus of hearing suggests that the case remains acute and the patient continues in the acute conflict stage without comfortable adjustment.

A CASE OF INTESTINAL INTOXICATION (HERTER'S INTESTINAL INFANTILISM).*

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A FEMALE child, 1 year old, was brought for advice because of its smallness of size and constipation. The family history was negative. It was a premature infant, born at 7 months. Weight at birth 3½ lbs. It was breast fed for four months, when nursing was discontinued because the mother again became pregnant. Child refused to take the bottle and it was fed from a cup.

Present Illness: Mother dates the entire trouble back to the time the child was placed on modified milk when four months old. Since then the child has gained comparatively little in weight and height. At the end of the eighth month it weighed 8 lbs. and was but slightly if at all shorter than at present. From the eighth month up to date it has gained 4 lbs. 5 ozs.

Child usually has two to three bowel movements a day; these are slate colored, voluminous and pasty, the amount being out of all proportion to the food intake of the child. Every third to fourth day the child becomes constipated and must be given an enema or laxative before its bowels will move. These attacks of constipation are associated with abdominal distention and the passage of large amounts of gas per rectum. The stool has an extremely bad odor. Urine is passed frequently. Appetite is good—in fact, excessive.

Physical Examination: Child, small, 25¼ inches tall. Weight, 12 lbs. 5 ozs. (normal height and weight being 28¼ inches and 20½ lbs. respectively). Well nourished, normal intelligence, and active. Head circumference, 16.5 inches (normal, 17.6). Anterior fontanel closed. Eyes: Slight slant. Dentition: No teeth erupted. Chest circumference, 17 inches (normal, 17.4). No external signs of rickets. Examination of the heart and lungs gives negative results. Abdomen shows slight distention, otherwise negative. Extremities are well developed in proportion to the size of the child; cold to the touch. Child is able to stand, but as yet does not walk. Wassermann negative in both mother and child.

Differential Diagnosis.—There was no doubt

*Read before the Society of Alumni of Lebanon Hospital, May, 1920.

†French's *Differential Diagnosis*, 3rd Edition, 1917.

that we had to do here with a case of Dwarfism. For convenience of dealing with this subject and for the purpose of diagnosis, dwarfism may be divided into two classes: namely, dwarfism the result of deformity, and dwarfism without deformity. Generally speaking, well-proportioned dwarfs owe their defective stature to a generalized delay or arrest of development, and are therefore in a state of infantilism, whereas deformed dwarfs are stunted in growth only, though the reduction in height may be due rather to the warping or collapse of the body framework than to actual curtailment of height.

1. Dwarfism, the result of deformity, will be considered briefly. This kind of dwarfism is due mainly or solely to shortness of the legs. In most cases the primary fault lies in the skeleton, but occasionally the dwarfism has its source in deficiency of the brain, and still more rarely is brought about by a local defect of development implicating the lower extremity.

A. Skeletal dwarfism is occasioned by: (1) Rickets; (2) achondroplasia; (3) osteogenesis imperfecta; (4) anosteoplasia, and (5) osteomalacia. All of these with the exception of rickets may be readily discarded without consideration.

Rickets may be excluded because of the absence of the following diagnostic points. (1) Sweating of the head; (2) extreme restlessness at night; (3) beading of the ribs; (4) craniotabes; (5) disproportion in the size of the head to the rest of the body; (6) the fact that that outside of the chief complaints of smallness in size and constipation, the child has been uncommonly healthy; (7) in this case we have an early closure of the anterior fontanel; (8) the marked strength and lack of easy fatigability; (9) there is an absence of all the external signs of rickets; (10) the impulse of growth is the last to disappear; a child may be greatly emaciated and underweight, but its growth in height is little interfered with if at all; (11) the child is able to walk. We failed to have x-ray pictures taken of the long bones in this case, so we cannot say definitely that some signs of rickets are not present; for occasionally one finds signs of rickets in the x-ray pictures of the long bones which are not detectable externally. From the above facts we think that rickets can safely be excluded.

B. Cerebral dwarfism: Under this head we have but to consider the microcephaly. The microcephalic dwarf is characterized not only by the relative smallness of his head (circumference never exceeding 17 inches) but also by his sloping forehead, projecting nose, and receding chin, giving him a ferret or rat-like physiognomy. He is usually quick of movement, and restless, and is either imbecile or idiotic, according to the degree of his microcephaly. Outside of the smallness of the head and the closure of the anterior fontanel there is no feature in common between the case in question and microcephaly.

II. Dwarfism the result of defective general development, infantilism.

Forms of Infantilism: Infantilism may be widespread among whole races or nations (racial in-

fantilism), or may select certain individuals or families, and occur epidemically or sporadically as morbid infantilism among people of ordinary development. Morbid infantilism is of two sorts, namely, symptomatic, the result of causes, and essential or cryptogenetic.

Symptomatic infantilism, the form that we think this case belongs to, is seldom or never of extreme degree, has no uniform type of physiognomy, and, being an acquired condition, is never transmitted. It is best classified according to the nature of the causes by which it is produced.

First we have those forms due to intoxication with the poisons of wine, tobacco, lead, syphilis, rheumatism, scarlet or other fevers. All of these we may readily exclude, for the history obtained shows nothing in their favor.

Second, thymic infantilism, may be excluded because of the absence of its most characteristic symptoms of fatness with anemia and liability to syncopal attacks which often end in death.

Third, deficiency of hormones which ordinarily stimulate development. There are two forms: (1) thyroid, and (2) pituitary. The thyroid form may be excluded, for its signs are unmistakable. The low temperature, the facial expression, the torpor, and the fatty tumors are enough to differentiate cretinism from the case in question. In the pituitary type there is fatness with conspicuous genital backwardness as well as general defect of development. Polyuria or glycosuria is often present; drowsiness, nutritional changes in the skin and its appendages, sickness, headache, and other symptoms of a cerebral tumor are present. All of which are here missing.

Mongolism presents characteristic symptoms not present in the case in point. We have not the oblique-set eyes of the Chinaman, the lax ligaments, the double-jointed thumbs, the marked backwardness in mental and physical development.

Cardiac and anangioplastic infantilism may be excluded because of the absence of any cardiac or arterial system defect.

Renal infantilism is excluded because of the absence of polyuria, albuminuria, or other symptoms of Bright's disease.

There are but two forms of infantilism left for discussion. These are: pancreatic infantilism and Still's or Herter's intestinal infantilism. The clinical picture in both bear a marked resemblance to one another, and one is oft hard put to differentiate between them. The stools two to three a day are large, voluminous, generally pale or slate colored; periods of constipation occur frequently, the large amount passed is out of proportion to the intake of food. The odor is extremely foul. There is an arrested development, the child stops growing and gaining in weight. The mental development is fair. Abdominal distention with moderate anemia and fatigue. Appetite and thirst are excessive. Hands and feet are usually cold.

Added to the above, there is a definite laboratory picture that goes with that type of infantilism known as Herter's intestinal infantilism. The urinary output is increased and shows an increase in ethereal sulphates, a pronounced indi-

canuria, excessive phenol and aromatic oxyacids. The feces should show gram positive organism, especially the *Bacillus bifidus* of Tissier, *acidophilus*, and *infantis*, as also an excess of fat, fatty acids, and soaps. The calcium and magnesium output is greatly increased. These necessary laboratory data, in order to make a definite diagnosis, we were unable to obtain because of the mother's refusal to send the child into the hospital for observation.

Treatment.—It is believed, as was expressed by Holt, Courtney, and Fales,* in an article in 1917, that greatly retarded growth, amounting to a condition of infantilism results occasionally from prolonged derangements of the digestive functions as well as a consequence of organic changes in these organs. These changes have generally been found to be connected with metabolic disturbances of the calcium, magnesium and phosphorus balance.

Knowing the demonstrated effect of cod-liver oil in increasing the retention of these inorganic salts, particularly in rickets, it was determined to try its effect upon the patient in question, a diagnosis of intestinal infantilism having been tentatively made.

Being unable to obtain the mother's permission for hospital observation, we decided to treat it as best possible in the dispensary.

Our treatment of this case can be briefly stated. The child was allowed to continue on a general diet of milk, cereals, farinaceous foods, with the addition of an egg, zwiebach, potato, cracker, and broth. The juices of stewed fruits also being allowed.

Therapeutically, the child was placed upon emulsion of cod-liver oil and phosphorus, thyroid extract also being given. The thyroid was given on the basis that there might be some thyroid deficiency.

Under this treatment the child immediately began to gain in weight, the gain being at the rate of about five ounces per week. The growth in height was less noticeable. The stool began to assume a normal color, the quantity to diminish, the putrefactive odor to disappear. The regular periods of constipation present heretofore, became a thing of the past, the child having three bowel movements daily. The appetite was unimpaired and if at all changed was increased.

By the end of the fifth week's treatment, the first lower incisor erupted, three weeks later the second lower incisor followed, and a week thereafter the first upper incisor erupted.

At the end of one month's treatment the thyroid extract was discontinued and the child was allowed to continue upon the emulsion of cod-liver oil and phosphorus. On stoppage of the thyroid the child showed a marked increase in the number of ounces gained per week. Whereas it had heretofore ranged from three to six ounces per week, it now jumped to from six to nine ounces per week, showing that the thyroid had no doubt markedly increased the metabolic processes of the child.

The data up to the present time show that

*Holt, L. E., Courtney, A. M., and Fales, H. L.: *Am. J. of Dis. of Children*, vol. 14:222, September, 1917.

during the period of 7½ months that the child has been treated, she has gained 7 lbs. 12 ozs. in weight, 4½ in. in height, the circumference of the head has increased 1¼ inches, the chest circumference 2 in., six teeth have erupted, the stools are of normal color, consistency, and odor and constipation entirely disappeared.

We have long known the ability of cod-liver oil and phosphorus to increase the retention of calcium and phosphorus by the organism; but as to how this is brought about has not yet been clearly shown. It no doubt must create conditions which allow the calcium intake to more easily become incorporated into the organism.

The administration of cod-liver oil we hoped would influence the salt retention in this case; for although laboratory data were unavailable upon this point, we nevertheless had very little doubt that the child's condition of infantilism was due to a lack of ability upon the part of the organism to retain the calcium and phosphorus brought to the child in its food. That our contention was justified can best be judged from the following table of the patient's progress throughout the time it was under treatment.

Progress of child from beginning to end of period of observation.

Weeks treated.	Weight.	Height.	Head Circum.	Chest Circum.	Teeth Erupted.
Admission	12-5	251 2"	161 2"	17"	None.
1st. Week	12-11	251 2 1/2"	161 2 1/2"	17 1/2"	None.
2nd. Week	13-2	251 2 1/2"	161 2 1/2"	17 1 1/2"	None.
3rd. Week	13-8	253 1/4"	165 5"	17 1 1/2"	1st. lower incisor.
5th. Week	14-4	261 4"	165 8"	17 1 1/2"	
7th. Week	14-15	263 4"	163 4"	17 1 1/2"	2nd. lower incisor.
8th. Week	15-9	27"	163 4"	17 3/4"	1st. upper incisor.
10th. Week	16-6	27 1/2"	167 3/8"	18"	2nd. upper incisor.
12th. Week	17-8	27 1/2"	17"	18 1/4"	3rd. upper incisor.
16th. Week	17-6	27 3/4"	17 1/4"	18 1/2"	4th. upper incisor.
18th. Week	17-6	28 1/4"	17 1/2"	18 3/8"	
20th. Week	17-14	28 1/2"	17 5/8"	18 3/4"	
27th. Week	18-8	28 3/4"	17 3/4"	19"	
29th. Week	20-1	29 3/4"	17 3/4"	19"	

Dr. S. A. Blauner, whom I want to thank at this point for his great help and timely suggestions and for assigning me to this case, thinks that children of this type if allowed to go untreated, eventually develop into that type of intestinal infantilism so ably described by Herter in 1903 and which today bears his name.

9 WEST 117TH STREET.

A CASE OF ACUTE ARTICULAR RHEUMATISM COMPLICATING ACUTE OTITIS MEDIA.

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The occurrence of metastatic infection of the joints simulating rheumatism and following acute purulent otitis media is not uncommon. The latter condition is due to a real bacteremia following severe cases of middle-ear disease usually complicated by mastoiditis or lateral sinus thrombosis. Cases of this kind are frequently reported in the literature and they are described in the text-books. The oc-

currence of what appears to be clinically acute articular rheumatism following infection of the middle ear has been described only once by Oppenheimer,* quoting two cases reported by Wolf. Wolf himself, however, refers to his cases as being acute articular rheumatism complicated by otitis media, a statement with which Oppenheimer disagrees, believing the two diseases to have occurred in the reverse order.

The case I have to report is definitely one of acute articular rheumatism following acute purulent otitis media. It is therefore of interest both on account of its rarity and because it may be so easily confused with the bacteremic condition mentioned above.

History.—J. P., male, nine years old, was admitted to Lebanon Hospital, April 21, 1920, complaining of discharge from the left ear and pain in the right ankle. *Past History*: Had all the diseases of childhood with good recovery. Tonsils and adenoids removed two years ago. *Family History*: Irrelevant. *Present History*: Ten days before admission he was put to bed with a temperature of 102° F., complaining of headache, running nose, and slight, dry cough. Two days later he complained of pain in his left ear. That night there was a spontaneous discharge of pus from that ear. His fever, however, persisted, ranging between 101 and 104 until the day of admission. The discharge from his ear, meanwhile, became scanty, and on the eighth day of his illness an otologist was summoned, who enlarged the opening in the ear-drum, attributing his fever to insufficient drainage. Following this there was no noticeable increase in the discharge. On the ninth day the patient complained of pain in his back, which was followed the next day by pain and disability in the right ankle. *Physical Examination*: April 21, 1920. *General Appearance*: Fairly well nourished, but is pale and looks sick. Head: No tenderness anywhere. Eyes, including fundi, normal. Nasal mucous membrane congested. Right ear normal. Left ear: slight amount of mucus-pus present. Drum red, but not bulging. Small opening present in the lower posterior quadrant. Mastoid normal. Tongue coated. Teeth poor and many carious. Tonsils absent. Pharynx congested. Neck, heart, lungs, and abdomen: negative. Extremities: Right ankle warmer than the left and tender. No redness or swelling present. Spine normal. Reflexes normal. Blood examination: Hgb., 68 per cent.; W. B. C., 18,000. Poly., 78 per cent.; lymph., 22 per cent. Widal: negative. Blood Cultures: April 21 and 24, both negative. Urine normal.

Subsequent History: For seven days following admission he had pain, tenderness, and disability in almost all the large joints and in some of the small joints of the hands. He had swelling only in the left wrist. His left ear was normal on the fourteenth day of his illness. On the seventeenth day examination of the heart revealed a faint systolic murmur at the apex transmitted somewhat to the left and accompanied by a markedly accentuated second pulmonic sound. His fever continued to fluctuate between 101 in the morning and 104 in the afternoon until the sixteenth day, when it began to decline, reaching normal on the nineteenth day. With the decline in temperature the symptoms cleared up and his general appearance improved markedly.

Comment: The treatment of this case has an important bearing both on the diagnosis and the course of the disease. When first seen on admission the boy gave one the impression of being extremely sick, so much so that I felt almost certain that he was suffering from some form of sepsis. He was treated expectantly, therefore, until the report of the blood culture was available. Then, in the absence of chills and with a negative blood culture and no relief of symptoms, I came to the conclusion that it was a case of what, clinically, had

all the appearances of acute articular rheumatism as it occurs in childhood. He was then given salicylates, and in less than 24 hours there was a decided relief of all symptoms, with a marked improvement of his general condition.

This case also has a bearing on the moot question of the etiology of acute articular rheumatism. In spite of the many reports of bacteriological findings in this disease we are still in doubt as to any definite etiological microorganism. May it not be, therefore, that acute articular rheumatism is not a definite pathological entity, being rather a symptom-complex secondary to some focus of infection? Thus may be explained the well known connection between infected tonsils and acute articular rheumatism. Other obscure cases may be secondary to infections of the nasopharynx and ear, as in my case, or to infected nasal sinuses and teeth. Only further bacteriological and pathological investigation offers any hope of solving this problem.

628 EAST 163RD STREET.

Medicolegal Notes.

Misbranding Drugs Alleged to Have No Curative Value.—In a prosecution for shipping in interstate commerce misbranded drugs under the Federal Food and Drug Act of June 30, 1906, the Circuit Court of Appeals, Ninth Circuit, approved instructions which stated: "It is not proper in such a case as this to try rival well-established schools of medicine, and if you find that the defendant has only used in its several preparations homeopathic remedies for the alleviation of ailments, then your verdict should be not guilty, and you will not be called upon to consider any other question in the case. If you find, however, as a fact, that some or all of the preparations put upon the market by the defendant do not, in fact, contain remedial agents used in any school of medicine for the relief of the ailments for which it is put upon the market, then you will be called upon to consider the second question in the case, and that is: Did the defendant honestly believe that such remedy would have a curative effect upon the ailments for which it is offered to the public? The law requires that the Government must prove beyond a reasonable doubt, not only that the statements upon the labels are false, but also that the statements are fraudulent." It was objected for the defendant that the court allowed a medical witness for the prosecution to testify that the preparations which had been analyzed by a chemist and shown to the witness were absolutely worthless and had no food, curative, or medical value. It was held that the testimony was clearly admissible. In the case of *Seven Cases of Eckman's Alternative v. U. S.*, 239 U. S. 510, 36 S. C. 190, the United States Supreme Court held that the law does not reach one who puts inert matter or a worthless composition in the channels of trade, labeled as a cure for disease when he knows it is not.—*Kar-Ku Chemical Co. v. United States*, 264 Fed. 921.

Provision as to Sound Health on Date of Policy Does Not Refer to Chronic Disease.—The New York Appellate Division holds that a provision in a life policy that no obligation is assumed by the company unless the insured is in sound health at the date of the policy, and also an incontestability clause, where the company has had a medical examination merely means that he has not become ill between the time of making his application and the time of the issuance of the policy. It has no application to such chronic diseases as the insured may have had at the time of his application and medical examination. Any other interpretation would make the incontestability clause meaningless. This rule has been applied even to contracts that did not contain an incontestability clause. And this condition (sound health at the time of issuance of policy) may be waived by the delivery of the policy and the acceptance of the premium by the company's agent with the knowledge of assured's illness.—*Chenery v. Metropolitan Life Ins. Co.*, 182 N. Y. Supp. 555.

*Oppenheimer: N. Y. Med. Journal, January 9, 1915.

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PEDIGREE OF EPIDEMIC ENCEPHALITIS.

As our knowledge of this affection slowly accumulates, including the inquest into the remote past, our conception of the pedigree becomes variously modified. At present, according to Lhermitte writing in the *Gazette des Hôpitaux* for Jan. 8, 1921, xciv, 3, the case of Albrecht von Hildesheim, 1695, since it was sporadic, should hardly be counted and the epidemic which was first recorded was that of Tübingen in 1712. The author then waives all alleged epidemic incidence until the time of Gayet in 1875 when this author described the pathogeny of the syndrome and showed that it must originate in inflammatory lesions grouped about the third ventricle and the aqueduct of Sylvius. Lhermitte now insists that most of the cases described by Wernicke in 1881 under the name of polienccephalitis superior hemorrhagica were examples of lethargic encephalitis. In 1887 Gerlier's disease was described and in the author's opinion must have been a variation of the same malady. Next in chronological order comes the malady, "nona," 1889-90, which showed such an extraordinary polymorphism that the profession was divided in opinion as to its nature, some even holding that it was a massed psychogenic affection. The author cites seven medical men who described nona and showed clearly that it was not a legendary affection, but it remained obscure until studied in the light of our recent knowledge, when it is recognizable as epidemic encephalitis.

Passing by certain Italian cases in the interim, probably because of their sporadic incidence, the author comes to the outbreak of 1916. But while this appeared in the same general area as older episodes the outbreak of the malady in regions outside of Central Europe and especially in remote Australia gave it a new status. There it was a frankly mysterious affection and one *sui generis* from the start. But its first appearance in England passed for botulism. Reports of the disease in such scattered parts of the world lent some plausibility to the spoiled food theory—an accident coming in the wake of the war. One cannot but admit that true botulism appeared in the same manner in widely scattered foci. Already there were marked local distinctions in the pathology. Thus the Austrian cases appeared to show menin-

geal involvement, which was notably absent in the French cases. The broad distinction between the lethargic and myoclonic forms became apparent and in Germany the latter may have predominated from the start with unusual clinical expressions—for example in Munich there was a pseudotabes. Italy, which had been visited by "nona," showed notable immunity in the present outbreaks, and when the epidemic appeared in 1919 the early cases were lethargic followed by the opposed type. When the disease reappeared in Austria it had assumed the myoclonic type. This sequence was certainly the rule but the author quite ignores the claim of Cruchet of Bordeaux that he recognized the myoclonic form at a period long antedating the appearance in France of the lethargic cases. In summing up, the author states that between the epidemic episodes sporadic cases have always been in evidence and cites a long list of authors who have described these cases, including such authorities as Thomsen and Oppenheimer.

APICAL RESPIRATORY INSUFFICIENCY AND THE DIAGNOSIS OF PULMONARY TUBERCULOSIS IN ADULTS.

As Sergent of Paris has recently remarked, there exists quite a large category of pseudo-phthisical subjects. He calls these by the apt term of cases of respiratory insufficiency. The diagnosis is especially necessary when respiratory insufficiency—instead of being complete—is exclusively confined to the apices. In these circumstances, the localization of the physical signs becoming added to some somatic characters and a few general symptoms, should the examination be insufficiently methodical, there may result a mistaken diagnosis. Cases of this kind are fairly frequent in practice and it is therefore essential to insist upon the symptomatic characters which specify this syndrome.

The syndrome is invariably bilateral and purely functional, which differentiates it from respiratory insufficiencies, the result of lesions and which are usually confined to one lung. The condition is particularly met with in adults, a fact which distinguishes it from total respiratory insufficiency encountered in children and which, for that matter, sometimes complicates it. The physical syndrome is the consequence of a decreased ventilation of the apices and makes itself manifest essentially by a decrease of sonority, vocal vibrations, vesicular murmur, amplitude of the respiratory movements, the absence of adventitious sounds, rough breathing, and souffle. Besides these signs, the various means of exploration concur in showing that the apices, although in a state of functional respiratory insufficiency, preserve the possibility of becoming momentarily sufficient, and this is precisely because no lesion exists that can hinder their ventilation and expansion.

The measures of functional capacity—spirometry, plessimetry—estimate the degree of the insufficiency. To this functional disturbance more or less accentuated general symptoms become added which are just the ones that lead *a priori* to a suspicion that

the condition may be tuberculosis, because of the insufficiency of weight and musculature, general hypotony, anemia and anhematosis, all of which attain a much more accentuated degree when total respiratory insufficiency complicates the insufficiency at first confined to the apices. The majority of these patients are young, but the syndrome may sometimes be met with in subjects over forty years of age. Almost all have had adenoids in the past and have been operated on some time previously, or else the nasal fossæ are impermeable so that they have lost the habit of breathing normally and no longer ventilate the lungs properly. Now, if this insufficient ventilation is at first confined to the apices it is because the apex is the region of the lung which in normal condition is the least ventilated.

The primary cause of this diminished ventilation of the apices, according to Sergent, should be looked for in insufficiency of movement of the diaphragm. In cases of injury of the base of the thorax—especially those of warfare—one can very distinctly see with the radioscopic screen that the apex—considering only intact apices—has a lesser transparency and expansion although preserving the possibility of offering the characters of a well ventilated apex when the patient is made to cough. On the other hand, in patients with nasal obstruction the diaphragm moves poorly. Therefore the mechanism of the syndrome of respiratory insufficiency of the apices, which is above all met with in subjects offering inadequate nasal respiration, is clearly explained, and it can readily be conceived why, if the diaphragmatic disturbance becomes extreme, total pulmonary insufficiency becomes installed, overshadowing the apical insufficiency which becomes only a localization.

The diagnosis of this syndrome is fairly easy when it is well known. Its bilaterality prevents confusion with insufficiencies due to apical lesions and bilateral apical sclerosis is practically the only morbid process for which it might be mistaken. But the physical signs and radiographic findings are very different in the latter process.

The absence of adventitious sounds and the perfect regularity of the respiratory sounds in both apices will prevent any diagnostic mistake. The prognosis depends upon the treatment employed. If this condition is allowed to continue it will inevitably react upon the general health because the somatic characters of the process are rather the effect than the cause of the functional disturbance. The treatment consists of respiratory reeducation and gymnastics methodically and progressively carried out.

ISOHEMAGGLUTINATION.

THE practice of "matching" the bloods of donor and recipient made the transfusion of blood a safe procedure. The demonstration of the fact that isohemolysis does not occur in the absence of isohemagglutination greatly simplified the methods adopted for testing bloods for incompatibility. Then came the investigations of Landsteiner, Jansky, and Moss which showed that all individuals could be divided into

four groups depending upon the way their bloods reacted. Transfusion performed between members of the same group was shown to be free from the danger of undesirable sequelæ due to the agglutination of the donor's corpuscles. This work made it possible to determine the group of a large number of individuals who might be called upon to act as donors and further simplified the procedure which was necessary when a transfusion became essential. Since this operation is generally an emergency measure the greatest possible simplification is desirable. But unfortunately Jansky and Moss adopted nomenclatures that were somewhat different in that the group I of one classification was the group IV of the other and vice versa. This difference introduced an element of confusion into the subject that was apparent during the war to some extent, for persons tested were informed of the group to which they belonged without being told of the classification. The danger naturally consists in a failure to retest donors in the hurry preceding a transfusion and introducing an incompatible blood into the veins of the patient.

The reason for this confusion is found in the fact that Jansky's paper appeared in a journal which is unfamiliar in this country, and although it appeared three years before the one by Moss, it was but little known. Moss's work gained immediate attention and his classification was used very generally in America and to some extent in France and England. A certain number of scientists followed the older nomenclature and insisted that on historical grounds it should be universally adopted. After some controversy the matter was referred to representative committees of the American Association of Immunologists, the Society of American Bacteriologists and the Association of Pathologists and Bacteriologists. They have investigated the subject and have recently presented their report (*Jour. Amer. Med. Assn.*, 1921, lxxvi, 130). They recommend: "As further confusion and the possibility of accident may be avoided by the universal use of one classification, it is recommended unanimously on the basis of priority that the Jansky classification be adopted." The subject is one of some importance and should receive all possible publicity so that the change may be made as promptly and as generally as possible. The societies named stand at the head of the profession in this country and it may be accepted that whatever they recommend is worthy of acceptance. In this particular instance the reason for their recommendation is obvious and compelling. So let all concerned remember that *group one* is the group of so-called universal donors.

LOVE AS A CAUSE OF DISEASE SYNDROMES.

NICLOT, writing in *Le Progrès Médical* for November 6, 1920, xlviii, 45, gives a résumé of some of the pathological effects of the love passion and classifies them. He begins with an ode by Sappho which expresses paroxysmal passion. The effect of the smile of the beloved is to cause the heart of the lover to palpitate, he or she becomes voiceless, can no longer see, the ears ring, one becomes

covered with cold sweat, trembles from head to foot, and feels about to die. This syndrome was followed more or less closely by the successors of Sappho with now and then some addition; thus one of Theocritus's heroines becomes cataleptic. Several poets mention a deep reddening of the entire surface, a blush as if from deep shame. So much for critical paroxysms.

Niclot next takes up "consumptive" love. The victim of the passion is believed to be under the influence of the evil eye of some offended deity. Certain love philters could produce the same effects. The subject is obsessed with love or, as we say today, bewitched. Being in this condition the victims are ripe for great crimes. This kind of love may be instantaneous in its inception but requires much time to wear off. It is the ordinary love-sickness. The liver was believed to be the organ which bore the brunt of the disease although the poets mentioned only the heart. Some of the more analytical spoke of love as magnified and illogical desire, more or less morbid. The highest morbidity was seen of course in incestuous loves. This passion could naturally be conceived of only as the work of offended deities or magic.

The physical consequences of this life in the victim are dwelt upon. He may according to Theocritus, fast for days until he becomes skin and bone; this of course when his passion meets with insuperable obstacles. "Love, thou hast drank the last of my blood like the leeches of the swamps," exclaims one. Seneca gives a detailed account of the syndromes as follows: emaciation, progressive breaking down of forces, refusal of food, insomnia, tears, pallor, photophobia, and instability in purpose and desire. Another states that love as far as the mental state went was a form of drunkenness. Falling of the hair is mentioned by Theocritus. Erasistratus gives an account of the consequences of masked or hidden love. These comprised languishing eyes, with anomalies of the voice and complexion, tears, etc. When a patient presented these symptoms, especially if he or she were a youth, the medical man should suspect a secret love passion. The source of the latter might be found by the reaction which took place on the entrance into the room of the object of the passion. This consisted of a change of color, trembling, palpitating and sweating. The astute physician by placing his hand over the subject's heart could feel its agitation when the object of love entered the room. Plutarch mentions the behavior of Antiochus as comprising all of the Sappho syndrome. He was cured by the only method—that of procuring for him the desired woman, who chanced to be the wife of a fellow monarch. In later years the pulse was deemed a sufficient guide for the medical man, the other symptoms having been regarded as largely secondary to the disturbance of the heart.

APPENDICULAR ASTHMA.

GUTMANN, writing in the *Presse Médicale* for November 3, 1920, xxviii, 80, describes an asthma motivated by chronic appendicitis. He relates a

case in point in which a young woman appeared with the complaint of asthmatic attacks dependent apparently on indigestion. The radioscopic examination showed a fixed cecum, and induced tenderness was obtained over the area. Operation revealed chronic appendicitis with posterior adhesions. The asthmatic attacks did not reappear. During the war the author saw several similar cases in soldiers. Another case is given in great detail. The patient was a young woman with frequently repeated crises of asthma, preceded, however, by vague colicky pains. No evidence of anaphylaxis could be found. An attack of influenza did not alter the course of the disease. Drug treatment gave hardly any relief and the one or more daily attacks could not be permanently influenced. The personal history made it likely that the patient had had an acute appendicitis some time before the first asthmatic crisis, but the evidences of chronic appendicitis were dubious until an x-ray picture was taken and showed the cecum in the pelvis. Having located the exact position of the appendix, not only was a tender pressure point found, but it was possible by palpating the tender point to bring on a crisis of asthma at will. A much inflamed appendix was removed and the asthma ceased. The author believes that fixation of the cecum may have importance in causing reflex manifestations when there is chronic inflammation of the appendix. In regard to producing asthmatic crises at will by "pushing a button" it must be remembered that the bell does not ring unless the battery is charged, and that vagotonia may take the place of the "charged battery" in the simile.

THE MEDICAL STUDENT SINCE THE WAR.

THE opening of a restaurant for the University medical students of Paris moves the editor of *Le Bulletin Médical* for December 8-11, xxiv, 59, to discuss the alleged loss of gaiety of student life since the war. The restaurant, besides making an economic appeal, is believed to favor fellowship. While it is to be doubted that youth can change its nature as a result of unusual experience, something is to be said on the other side. The student has lived much in the past few years and has aged physically and morally. He has from another viewpoint lost several years of his life. Some of the younger students did not pass through this ordeal, but it is conceivable that they would be influenced by the behavior of their older comrades. Unless the student of today has a home with his parents he is at a great disadvantage. Even the "hall room" or its French prototype is now quite beyond his means. The ordinary restaurant prices are also beyond his purse, else the new refectory established through the influence of the Faculty would not have been heard of. Text-books are 100 per cent. dearer and scarce at that. The bourgeois parents, who for three centuries "have furnished France with brain cells," hesitate today to finance their son through his medical undergraduate course. It means an expense of 10,000 to 12,000 francs annually for five or six years, and this applies not only to the medical but to the law, teaching, and art professions. And suppose there is not only one but two, three, or more boys to provide for. Perhaps

only the profiteer and other new rich will have sons who are professional men. The laboratories are in peril, for the disinterested student who loves science for its own sake is too poor to spend his time without material compensation. For the same reason there is a great shortage of teachers.

HOW TO TELL WHETHER A YOUNG CHILD SQUINTS.

CANTONNET states that at first thought nothing seems more evident than a squint (*Le Progrès Médical*, November 27, 1920, xlviii, 48). But in the case of an alleged squinting infant, some one will assure the practitioner that the child squints constantly, some other relative is equally certain that the squint is only occasional, and finally there will be some one else who will testify that no squint is ever present. When the child is old enough to recognize diplopia as a subjective experience we have a check on the objective finds; but before this period we must rely on some objective test to check up the seeming squint, which may of course be of the alternating or transitory type. The practitioner sits facing the infant with the light on the latter's face and "blinds" each eye in succession. An ordinary visiting card makes a satisfactory blind. One eye being covered the infant is made to gaze at the examiner and after two or three seconds the card is quickly shifted to the other eye, and again the child is asked or made to gaze directly in the examiner's face. If there is no squint the eyes remain fixed as the card is moved from side to side. Both are directed at a fixed point and good binocular vision is assured. The shutting off of vision by the card does not affect this fixation. But even if the squint is latent or slight it will be unmasked by this maneuver. The presence of the card may be followed by fixation on the part of one eye while the other diverges or converges. If the eye shifts toward the nose, then the examiner quickly transfers the card to the other eye; whereupon the first eye redresses itself while the second in turn converges. In another maneuver the child is made to look at a lighted candle at a distance of 80 cm., the observer's eyes being in the same line with the light and the eyes of the subject. Bright points are now visible on the corneæ of the latter, and according to the position we are able to tell whether binocular vision is normal and the kind and degree of squint, if abnormal.

News of the Week.

Measure for Immediate Relief of Disabled Soldiers and Sailors.—An amendment to the Sundry Civil bill appropriating \$30,000,000 for the immediate relief of wounded and disabled American soldiers was introduced into the United States Senate on February 3 by Senator Robinson of Arkansas. He charges Congress and the Government with continued failure to provide proper hospitalization for disabled veterans of the world war and fears the present session of Congress will pass without due provision for this urgent need. Under the Robinson amendment \$15,000,000 would be available immediately and \$15,000,000 on July 1, 1921. Senator Smoot states that the Committee on Appropriations is able to report \$12,500,000 for the relief of sick and disabled soldiers, but Sena-

tor Robinson claims that the Public Health Service estimates that \$30,000,000 is urgently needed immediately for hospital care of disabled war veterans.

Bills Relating to Mental Defectives.—Bills designed to perfect the law concerning the care and treatment of mentally defective children have been introduced into the New York State Legislature by Nathan Straus, Jr. Under the laws proposed examination of a mentally defective child may be made either by two qualified physicians or by a competent physician and a psychologist. One of these measures provides that a magistrate may commit a child either before or after trial to a hospital or "other suitable place" for a period not exceeding ten days for observation and examination as to mentality. The bills have the support of the Department of Public Welfare of New York City.

Cut Alcohol in Patent Medicines.—Prohibition officers are preparing to take the first step to stop the manufacture of intoxicating beverages masquerading as patent medicines. Where such beverages are found to violate the Volstead act permits for the manufacturers to withdraw alcohol from bonded warehouses will be withdrawn. A number of preparations which have appeared on the market since national prohibition came to pass have been analyzed by officials and found to be intoxicating beverages within the meaning of the law. Many others are being examined.

Encephalitis Lethargica in Boston.—During the month of January, according to Health Commissioner Woodward, sleeping sickness has caused five deaths and thirteen other persons have been prostrated by it in the city of Boston.

Automobile Accidents Increase in New York.—Automobile accidents during the month of January, 1921, were 90 per cent. more frequent than during January, 1920. The National Highways Protective Society reports that 55 persons were killed by automobiles, 10 by trolley cars, and two by wagons. In the State, including the city, there were 88 deaths by automobiles. The great increase in the number of accidents in January, 1921, as compared to those in January, 1920, is to a considerable extent accounted for by the fact that during January, 1920, the roads were practically impassable owing to heavy snow storms.

New Jersey Passes Maternity Bill.—The New Jersey House of Representatives has passed the Whitney bill providing for a commission to consider legislation restricting the employment of women for periods before and after childbirth and of legislation providing for maternity benefits.

Typhus Suspects on Italian Liner.—Four typhus suspects were discovered aboard the Italian liner *President Wilson*, which arrived in the Port of New York on February 1. These patients were removed to the Long Island College Hospital, but later sent back to the vessel. In view of the gravity of the discovery Health Commissioner Copeland stated that the Health Department would not permit any of the 1,400 steerage passengers on the *President Wilson* to land until all danger was passed. A follow-up of the cabin passengers

who were allowed to land has led to the discovery that one of these has typhus fever and in being treated in Willard Parker Hospital.

City-Owned Hospital for Bronx.—At a public hearing held in City Hall on January 21, 1921, the Board of Estimate and Apportionment recommended the application of the Bronx County Medical Society to erect a city-owned hospital for the Borough of the Bronx. The board referred the selection of site and manner of financing the proposed hospital to the Committee of Finance and Budget.

Fewer Physicians Prescribing Whiskey.—According to a statement issued by Wayne B. Wheeler, general counsel of the Anti-Saloon League, only 22 per cent. of the physicians of this country are holding permits to prescribe whiskey, while 78 per cent. hold no permits. There are, according to Mr. Wheeler, twenty-four States in which physicians hold no permits to prescribe liquor and druggists cannot fill prescriptions for whiskey or brandy. These States are Alabama, Arizona, Arkansas, Delaware, Florida, Georgia, Idaho, Indiana, Kansas, Maine, Mississippi, Montana, Nebraska, Nevada, New Mexico, North Carolina, North Dakota, Oklahoma, South Carolina, Oregon, Tennessee, Utah, Washington, and West Virginia. It is of little use for a physician to take the trouble to secure a permit which limits the dose to a pint of whiskey in ten days.

Asks Daylight Saving to Ward Off Disease.—The Health Commissioner of New York City appeared before the New York State Legislature on February 2 to urge the retention of the Daylight Saving law. He contended that there never was a time in the history of the United States when the lives of the people were endangered as they are to-day when they are threatened by the plagues that are rampant in Europe and are living in more over-crowded conditions than ever before. He believes the additional hour of sunlight and daylight conferred by the Daylight Saving law is most important at this time to the health of city dwellers and more particularly of the tenement house mothers and babies.

Dies at Age of 111 Years.—Joseph Mantell died in Toronto on February 1 at the age of 111 years. He was born in England and came to Canada eighty-two years ago.

Dr. Wilder G. Penfield of Princeton, N. J., has received a Beit scholarship. He will make researches in the pathological development of medical science in England during the coming year.

Dr. Samuel N. Clark, for seven years psychiatrist to the Illinois State Psychopathic Institute, has been appointed psychiatrist to the Norbury Sanatorium, Jacksonville, Ill.

Positions Open to Physicians.—The Civil Service Commission of the State of New York announces the following vacancies in the following positions for which no written examinations will be required, but candidates will be rated on training, experience, and qualifications: (1) Supervisor of Child Hygiene, State Department of Health, at a salary of \$3,000. The duties of the position require a thorough knowledge of and training in children's diseases. (2) Assistant Medical Officer,

Office of Health Officer, Port of New York, at a salary of \$1,800. The appointee must reside at City Island and give part of his time to the inspection of vessels from foreign ports and the inspection of passengers. (3) Assistant Resident Physician, New York Training School for Girls, Hudson, N. Y., at a salary of \$1,680 and maintenance. Applicants must be licensed physicians graduated from a registered medical school, but need not be residents of New York State. Applications will be received at the Civil Service Commission, Albany, N. Y., up to February 19, 1921.

The Medical Society of the State of New York will hold its annual meeting in the Borough of Brooklyn, May 2, 3, 4, and 5, 1921. In connection with this meeting a public health exhibition will be held in the Twenty-third Regiment Armory. In addition to the regular exhibits there will be a section devoted to the public (which will be admitted free) wherein the various health and labor-saving devices commonly used will be presented. The committee in charge of the exhibit plans to secure the cooperation of the dentist and the pharmacist, and in a series of educational exhibits and addresses to cover the public health question in its broadest sense.

Vacancies for Biologists and Psychologists.—The United States Civil Service Commission announces an open competitive examination for biologist to fill two vacancies in the Hygienic Laboratory, Public Health Service, Washington, D. C., at \$2,500 to \$3,000 a year, and vacancies in positions requiring similar qualifications. Applicants must have received the degree of Ph.D. from a university of recognized standing and must have had thorough training in biology, bacteriology, chemistry, and physiology. An open competitive examination for psychologist to fill vacancies in the Public Health Service throughout the United States, at \$1,600 with maintenance, or \$2,200 without maintenance, is also announced. Applicants must have graduated from a college or university of recognized standing, with major work in social science or psychology, and must have had three months' experience in work involving normal psychology. Applicants for these positions should apply for Form 1312, stating the title of the examination desired, to the United States Civil Service Commission, Washington, D. C. All applications must be filed with the Civil Service Commission before March 15, 1921.

Smuggled Cocaine Seized.—In examining baggage belonging to the steerage passengers on the Fabre liner *Patria*, Thomas E. Rush, Surveyor of the Port, found 300 bottles of cocaine valued at \$10,000 concealed in a false-bottomed trunk. According to figures given out by Dr. Carleton Simon there were more than 280 arrests in the anti-drug crusade during the month of January.

Red Cross Relief Plan for New York.—The Red Cross Disaster Relief Committee, in cooperation with the New York Police and Fire departments, has worked out plans which will make it possible to get a large quantity of first aid supplies quickly to any point within the metropolitan area where a disaster may occur. First aid boxes have been placed at the headquarters of eighteen in-

spection districts of the city, and arrangements have been made for the Police and Fire departments to notify the committee immediately of any occurrence demanding their attention. A complete survey has been made by the committee of the resources that would be available for relief in the various communities that compose the metropolitan district. In the event of disaster the mayors of cities, presidents of villages, and police and fire officials will notify the committee immediately. The Fire Department of this city has established a special fire alarm telegraph call for the Red Cross unity.

Obituary Notes.—Dr. GEORGE T. STEVENS, formerly professor of physiology and diseases of the eye in Union College, and a practising physician in New York City since 1881, died at his home on January 30, at the age of eighty-eight years. He was a graduate of Castleton Medical College in 1857, a member of the Loyal Legion, and many scientific societies. He devised a number of surgical instruments for use in the treatment of diseases of the eye that have become standard. He was awarded a prize by the Royal Academy of Belgium, in 1883, for a treatise on nervous affections.

Dr. LOUIS C. PURMAN, a graduate of Howard University School of Medicine, 1884, died at his home in Washington on January 26.

Dr. HENRY HARRINGTON JANEWAY of New York and Riverdale, a graduate of the College of Physicians and Surgeons, in 1898, died at his home in Riverdale, on February 1, at the age of forty-eight years. He was a member of the American Medical Association, the American Association for Cancer Research and the New York Academy of Medicine. He was attending surgeon at the Memorial Hospital.

LIEUTENANT E. S. TAYLOR, a naval officer, was shot and instantly killed by a sentry at the naval operating base at Norfolk, Va., on January 30. Lieut. Taylor was twenty-eight years of age and a native of Greenville, N. C.

Dr. CHESTER C. BECKLY of Lancaster, Mass., a graduate of the University of Vermont Medical College, in 1898, died after a week's illness, on February 4, at the age of forty-six years. He was a Major in the Medical Corps of the army during the war, serving in camps in this country and at the front in France.

Correspondence.

THYROID PREPARATIONS.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—Having been using thyroid in the treatment of myxedema and allied conditions constantly since 1893, and having had several individuals under my observation continuously during all that time, and many for several consecutive years, I have reached certain conclusions regarding the effects of the various preparations of thyroid which should be made known to the profession.

During 1893 Dr. George W. Cray obtained the fresh thyroid glands of sheep and prepared a glycerine extract from them, which he kept on ice, and furnished my patients. The dose of this was arbitrarily fixed by us at 10 minims, which had to be

varied in different cases from 10 up to 35 minims t.i.d. Later on tablets and capsules were put on the market by different druggists and these were all tried on patients and found to be of very uncertain strength and to have various effects. Finally I settled upon the Burroughs & Welcome preparations as the most reliable and uniform in strength and have so stated in my books and articles, but these were not always satisfactory—the thyroid extract which was prepared from lambs or from sheep in the springtime was always much stronger than that obtained in the winter. And some preparations—though carefully kept cool—appeared to deteriorate more easily than others and to have certain unfortunate results. Thus severe nausea, very rapid pulse, mental depression, peculiar eruptions, sometimes purulent, sometimes like psoriasis, and even febrile states would develop from time to time in patients who were taking the tablets regularly—with no apparent reason, and without relation to their myxedema. That these effects were due to the thyroid preparation was proven by the fact that each of these symptoms would in turn disappear when the medication was stopped for a time. Several very intelligent patients who could watch these effects closely soon became accustomed to get a new supply of the tablets as soon as an unfortunate set of symptoms developed, insisting on a fresh preparation, or trying for a time some other extract in place of the tablets they had been using. Eventually all came back, however, to these tablets as being more free from impurities and as giving better results. During the past year, however, a preparation made at the Cornell University Medical College laboratory, has been available; which is named 5 per cent sheep thyroid nucleoprotein tablets; and which I have found to be free from every unfavorable result in use. The exact strength of this as expressed in grains of thyroid extract of Burroughs & Welcome is uncertain; but I find that 1 tablet produces the same result as a 1 grain tablet of the latter preparation. For many years I have been accustomed to prescribe thyroid in small doses frequently repeated— $\frac{1}{2}$ grain or 1 grain every hour or two hours—being better borne than a large dose three times a day. Nature furnishes thyroid steadily to the blood and her method should be followed. I have tried all the so-called substitutes for thyroid—iodothyrene and many other forms, and believe that no preparation is as satisfactory as the one to be obtained from the Cornell Laboratory—and for this reason I wish to make the facts known.

There is no remedy which is more generally useful in conditions of malnutrition, of anemia, of neurasthenia, of general feebleness, or after recovery from serious diseases which impair the vitality, than thyroid. In advancing years, at the menopause, and in old age it is known that the glandular activity diminishes, and experience has convinced me that a small amount of thyroid two or three times a day is of great service. I also believe that it acts in a way to protect the system from the inroad of infectious diseases. It is to me very remarkable that my myxedematous patients have so uniformly escaped infectious colds, catarrhal conditions, and the grippe during all these years. This also is true of patients who have exophthalmic goiter.

For all these reasons it seems important that as the use of thyroid becomes generally appreciated a good reliable preparation should be prescribed.

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NEW YORK.

[It is but just to state that various other preparations than those mentioned by Dr. Starr are now made and have been found reliable by many clinicians.—ED.]

THE NARCOTIC LAW AND A PERSONAL EXPERIENCE.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—About two weeks ago I was attacked with synovitis of the right shoulder joint and severe neuritis of the shoulder and upper arm. I did all I could to get relief through my own treatment and with the aid of two best consultants. Finally, I thought it would be useful, with the action of a curative local agent, to paint the very painful region with laudanum. I could not write on account of the pain in my arm, so I requested my druggist of many years to fill out printed applications and allow my acting nurse to sign them for me. This he declined to do, as he said he had not the right without the doctor's order who was in attendance upon me. I had no attending doctor; only an attending consultant, who was out of town, and had no printed forms. It was necessary for me, therefore, to send for a doctor in general practice, who might have the printed forms, to come and see me and then be willing to do as I requested. Fortunately for me, I found my pain had lessened somewhat and I did not do the only effective thing that remained to me.

Now then, conclusion: I am an old practitioner and believe my character and reputation are unblemished and yet I can not have, in dire emergency of extreme pain, a local anodyne, which is a narcotic, to relieve me locally. What is to become of a great and noble profession when limited, controlled in its very essence, by wrong, one-sided laws, the outcome of ignorance and fanaticism beyond thought?

Alas, the shame, the pity, and the crying outrage of it all!

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OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, Jan. 14 1921

The Employment of Morphine in Labor.—To ease or minimize the pains of labor by such means as neither to injure the mother nor child is a main object in the conduct of obstetrical cases. The accomplishment of this aim has been attempted in various ways. At a meeting of the Section of Obstetrics and Gynecology of the Royal Society of Medicine held in the house of the Society on January 6 last, Dr. Louise McLroy read a brief communication on the use of morphine in labor. Dr. Louise McLroy was in the Balkans and Near East almost throughout the entire war, first with the Scottish Women's Medical Expedition and afterward for some time holding responsible posts in several hospitals. The communication was

based upon the results of the administration of morphine in obstetrical cases occurring in the officers' wives' section of the 82d General Hospital B. Section, Constantinople. Many Turkish, Greek, and Russian women were also admitted for treatment. Most of the cases were first cases, they were not selected, but morphine was given in complicated cases, as, for example, malpresentations and albuminuria. No vaginal examinations were made except in cases where complications were suspected. No douching of the vagina was carried out. Morphine was administered hypodermically. The initial dose was 1 1/6 grain and repeated doses of from 1 1/6 to 1/4 grain were given at varying intervals throughout labor according to the condition of the patient and her capacity for bearing pain. No excitement nor mental confusion was observed, the patients slept at intervals and awakened refreshed. After some experience of the effect of the drug, it was given with the primary object, not of allaying pain, but of shortening labor. Thirst was increased, restlessness was diminished, the third stage was unaffected, and no risks were apparent with regard to the child. No post-partum hemorrhage was observed, less fatigue and absence of shock caused a favorable convalescence after labor. Moreover, the constant attendance of the medical practitioner was not required, as in the administration of scopolamine-morphine. Dr. McLroy, as the outcome of her experience, concluded that the results of the administration of morphine in labor were satisfactory and made of this drug a useful remedy in the management of labor. It helped to bring labor nearer to normal physiological conditions. Dr. Herbert Williamson did not agree with Dr. McLroy with respect to the absence of effect of the drug on the child. According to his experience, if the drug were given two or three hours before the birth of the child, the latter was born in the condition known as oligo-orthopnea. If left alone, it generally came round all right. Dr. McLroy's patients were mostly neurotic women of Eastern or Russian origin, and it could not be too strongly insisted upon that the repeated administration of powerful drugs as a routine measure was neither necessary nor advisable in ordinary healthy women. Dr. Laphorn Smith, from a large experience in attending Russian women, agreed with Dr. McLroy as to their nervousness, and for many years in such cases and in all cases of primiparae, it was his practice to prescribe a mixture with 30 grains of sodium bromide and 1/4 grain of morphine to the dose, to be given as soon as labor began and repeated hourly for four hours. Nurses had called his attention to the excellent condition of patients after labor in these cases. He laid especial stress upon the importance of not making vaginal examinations during labor except with gloved hands.

The Cost of Health Services.—There has been in England and Wales recently a great deal of criticism leveled at the Ministry of Health on account of the cost of their undertakings and proposed schemes. Dr. Addison, the Minister of Health, speaking at a political meeting the other night, said that he had appointed a number of

gentlemen to obtain the true facts of the situation. All the new health services put together, including construction of roads and houses, extensions of hospitals, sanatoriums, services of child welfare, diagnosis and treatment of venereal disease, provision of plant for removal of house refuse and other items amounted to under five pennies in the pound. As to the cost to the Exchequer, the total in the Budget for maternity and child welfare services for England and Wales was £1,000,000, or one-fifth of a penny in the pound. The physical condition of the next generation was fairly indicated in the health of infancy, and in 1920, after this service began to take effect, the infant death rate fell to 77, the lowest previously having been 93 in 1917. It would be false economy to stop that expenditure and he was not going to do it. There can be little doubt that money expended on health services is money well spent, and the reduction of the infant death rate is convincing evidence that the money spent in that direction was the best investment possible.

Alcohol and Industrial Efficiency.—The question of the effect that alcohol exerts on the capacity for work, whether it be what is generally termed brain work or manual work, is of the first interest. It is especially so at the present time when the world, or at any rate a part of it, is settling down to industrial competition, and America has prohibition in force. In Great Britain, the hours during which alcoholic beverages can be obtained are limited and yet a very considerable amount of alcohol is consumed. True it is that inebriating drinks of every description are dearer by far than formerly and less heady, but taking all these facts into consideration a great deal of alcohol is imbibed. Medical men in this country are asking whether the British workmen, in these circumstances, can hope to compete successfully with the American workmen, who presumably do not indulge in alcohol for the reason they are unable to obtain it. Even granting that they can obtain a certain amount, they cannot procure it at the cost and with the facility allowed to their brethren here. At a meeting of the Society for the Study of Inebriety held January 11, Dr. H. M. Vernon opened a discussion on alcohol and industrial efficiency. He pointed out that it was easier to investigate the effects of alcohol on the efficiency of manual workers than on that of the non-manual, but the conclusions arrived at concerning the importance of the physiological regulation of the conditions of drinking in the former class applied equally to all workers. The effects of alcohol on typewriting were systematically studied, as this is a class of work in which accuracy and speed can be easily measured. The subjects of experiment typed a memorized passage at frequent intervals before and after drinking the alcoholic liquid, and it was found that in each of the seven subjects the adverse effect of the alcohol was about twice greater when it was taken three and a quarter hours after food, or on an empty stomach, than when it was taken with food. In another series of experiments Dr. Vernon drank whisky containing $1\frac{1}{2}$ ounces of alcohol at various periods after a substantial meal had been eaten. He found that while the effect produced was com-

paratively slight up to two hours after food, it then underwent a sudden jump, and three and a half hours after food the effect was increased to more than double. With more prolonged fasting, up to 20 hours, the effect became greater still. When vigorous exercise was taken at the end of a 13-hour fast the effect of alcohol was the greatest of all, and for a few minutes induced a condition not far removed from intoxication. Conditions similar to the experimental ones described were sometimes observed in industrial workers before the war when they worked hard for two or three hours in the early morning on an empty stomach and in the breakfast interval visited the public houses, then open at 5 to 8 A. M., before eating food. With regard to the toxicity of beers, a very important point, Vernon found that dilution had a much more than proportionate effect in reducing toxicity. For example, 90 c.c. of alcohol taken in the form of 3 per cent. beer produced only as much effect as 46 c.c. of alcohol in the form of 5 per cent. beer. The speaker was of the opinion that it was practically impossible to become intoxicated on beer containing only 3 per cent. of alcohol. This view was strengthened by the state of affairs in Denmark, in which country the Government allows beer containing 2.6 per cent. by volume of alcohol to be produced and sold free of all taxation, though the stronger beers are taxed and are therefore more expensive. Vernon held that it would greatly encourage sobriety if a scheme of graduated taxation of beers of different gravity were adopted by the Government of this country. It may be said that in Denmark intoxication has almost ceased. In accordance with previous results, the speaker found that the toxic effects of whisky reached their maximum at 10 per cent. alcoholic strength, by volume, and at this concentration they were just as great as that of neat whisky 15 to 50° under proof. Consequently, spirit drinkers by diluting their spirits moderately would reduce the injurious action on the gastric mucous membrane without diminishing the alcohol sensation they desired. The typewriting method showed that alcohol disappeared from the human body at about the same slow rate as Mellanby found it to disappear in the dog. In Vernon's own case it was got rid of at the rate of about 13 c.c. per hour, that is, nearly half an ounce. As one pint of fairly heavy beer contained an ounce of alcohol, it followed that if a man drank a pint every two hours, as was observed in Great Britain during the day time in some industrial drinkers before the war, his blood was never free from alcohol. In the discussion that followed Mr. Nicholson said that prohibition, whatever its merits, was looked upon as a class measure by the laboring man, and Mr. Theodore Neild further said that an attempt was being made in America to eliminate the saloon without stopping the sale of liquor. The conclusions of this meeting were practically identical with those held by the large majority of investigators, that alcohol beyond a certain amount detracts from industrial efficiency. It must be borne in mind that the British workman has always been accustomed to a heavy beer and the gist of the discussion was to the effect that

he should be influenced to drink a low-gravity beer by means of a graduated taxation of beers of different gravity. It had been successful in Denmark, so why not in this country?

Honor for Medical Man.—Sir Edward Napier Burnett, K.B.E., the well known Director of Hospital Services, British Red Cross Society, has been appointed a Knight of Grace of the Order of St. John of Jerusalem. Sir Napier Burnett has a thorough knowledge of the hospital situation in Great Britain and has suggested practical schemes for the reorganization of the hospital system here.

Self-Disinfection in Venereal Disease.—Sir Arbuthnot Lane, Sir Humphry Rolleston, Sir F. W. Mott, and Sir G. Sims Woodhead have been appointed by the National Birth Rate Commission, members of a committee to inquire into various questions in relation to the subject of self-disinfection in venereal disease. All the above distinguished members of the medical profession are advocates of early self-disinfection, and believe that facilities should be provided for carrying this preventive measure into effect.

Obituary.—Dr. T. W. Simpson, one of the physicians to the Royal Hospital for Sick Children, Edinburgh, died very suddenly on Jan. 11. Simpson was an authority on children's diseases and the author of a work on infant feeding, as well as of other books on the diseases of children. He was also one of the greatest athletes of his day, taking part in no fewer than thirteen International Rugby matches. He also shone at golf and was a keen fisherman. Like most men of his type, he was modest and unassuming to a degree, and also like most men of his disposition he had hosts of friends.

Mr. Charles Higgins, F.R.C.S. England, Consulting Ophthalmic Surgeon to Guy's Hospital, died suddenly on Dec. 28. He was 74 years of age and became senior ophthalmic surgeon to Guy's Hospital in 1883, and lecturer on ophthalmology in the medical school. He was also for many years ophthalmic surgeon to the French Hospital and surgeon to the County of London War Hospital during the war.

Progress of Medical Science.

British Medical and Surgical Journal.

January 27, 1921, cxxxiv. 4.

1. "Megacolon." W. E. Ladd.
2. Megacolon in the Adult. Peer P. Johnson.
3. Conditions in Palestine During the War. Izak Alcazar.
4. Recent Progress in Surgery. Edward H. Risley.

1. "Megacolon."—W. E. Ladd prefers the term used to any of the others by which this condition is indicated—"giant colon," "Hirschsprung's disease," "neuropathic dilatation and hypertrophy of the colon," "congenital ideopathic dilatation of the colon"—considering the term "megacolon" quite satisfactory, providing it is not confused with pseudomegacolon, a disease of the adult. Broadly speaking, megacolon may be said to be a disease of childhood only, though it is possible that occasionally a patient may reach adult life with this condition. Its congenital origin seems well established, as several cases have been reported during the first few days after birth, and at least one in a seven months fetus. The cause is still a matter of speculation. Pathological findings show an enormously dilated and hypertrophied colon, the affected part beginning and

ending abruptly, the sigmoid and descending colon being the portions most commonly involved, though occasionally one sees the whole colon, from the rectum to the cecum, enlarged. The small bowel is not involved, and does not become distended even when the colon has tremendous fecal retention. In all the writer's cases the mesocolon has been unduly long and without the extreme thickness mentioned by others. The intestinal wall of the affected portion is two or three times thicker than that of the unaffected gut. Clinically the story is usually one of constipation from birth or soon afterwards, the most important feature of the constipation being the long periods of time—several days, or even weeks—in which there is no bowel movement without evidence of acute obstruction. Sometimes the bowels may move daily when there is still tremendous fecal retention. The diagnosis should always be confirmed by a radiograph of a bismuth clyster. No treatment, medical or surgical, is always successful. The two operations which the writer considers worthy of consideration are colostomy and resection of the affected colon with anastomosis between the normal gut above and the lower sigmoid below. Partial colectomy with anastomosis is the operation of choice and the one that yields the best hope of success. Ladd reports five cases which, with 113 collected from the literature, make 118, 60 of which were treated medically, with 41 deaths, a mortality of 67 per cent.; 4 unimproved, 6 per cent.; 8 improved, 13 per cent.; 7 cured, 12 per cent. Of the 58 surgically treated, 24 died, a mortality of 41 per cent.; 2 were unimproved, 3 per cent.; 8 were improved, 14 per cent.; 24 were cured, 41 per cent. From these figures it would appear that the chance of curing a patient by the surgical treatment is over three times as good as by the medical treatment.

New York Medical Journal.

January 29, 1921, cxlii, 5.

1. The Management of Breech Presentation. William Pfeiffer.
2. Treatment of Addiction Disease. Frank Burns.
3. The Role of the Ocular Muscles from an Economic and Social Viewpoint. Edwin B. Miller.
4. Fumigation Inhalation Treatment of Syphilis. Joseph P. Burns.
5. Bronchopulmonary Spirochetosis (Castellani). Moise D. Levy.
6. Fractured Skull. Joseph Friedman and Samuel D. Greenfield.
7. Myotonia Atrophica. J. T. Broadwin.
8. Newer Laboratory Methods in Diagnosis and Prognosis of Diseased Kidneys. A. I. Rubenstein.
9. The Renoreflex, with Report of a Case. Wilbur H. Haines and K. P. A. Taylor.
10. Inflamed Eyes. S. A. Agatston.
11. Examination of Water from Ganges River, India. Randle C. Rosenberger.
12. Icterus Gravis. Charles Greene Cumston.

2. Treatment of Addiction Disease.—Frank Burns reports on his work as Federal physician for the southern district of Ohio, in which capacity he has devoted a great deal of time to the medical handling of drug addiction disease patients, arrested in this district by narcotic officials. The series includes eighty-four males and nine females, a total of ninety-three. From his observations he draws the following conclusions: 1. Lipoidal substances gradually reduce the craving. 2. During the treatment with lipoidal substances the patient does not suffer the tortures experienced during the reduction treatment. 3. All the by-symptoms of drug addiction disease (respiration, heart action, constipation) are rendered normal during the treatment with lipoidal substance. 4. In patients once clinically recovered under the influence of lipoidal substances there develops a well-defined contempt toward alkaloids. 5. Patients with pathological changes not due to the influence of alkaloids will go back to the use of narcotics. 6. Patients who suffer solely from the ill effects of alkaloids will remain normal, once the treatment comes to a successful conclusion. 7. Lipoidal substances are administered hypodermically with no ill effects whatever.

3. The Role of the Ocular Muscles.—Edwin B. Miller, considering the subject from an economic and social point of view, holds that the study of muscle imbalance and the search for these cases is the duty not only of

the specialist, but also of the general practitioner. The correction of these errors is a boon to many suffering patients, and opens up a new world to them, from both economic and social viewpoints. The recognition of these conditions, and the knowledge that they can be greatly improved or entirely cured by suitable measures, should be disseminated throughout the community. The utmost frankness and cooperation should exist between the employer of labor, the teacher, the physician, and the parents of the child.

9. **The Renorenal Reflex.**—Wilbur H. Haines and K. P. A. Taylor report a case in point, and assert that modern methods of diagnosis have not refuted the renorenal reflex. Cases such as the one reported point rather to the importance of careful cystoscopic and roentgen-ray study of all suspected surgical kidney cases, and the neglect of such study prior to operation could only justify the accusation of negligence. Disease of the healthy kidney as well as disease of the corresponding genitourinary tract must be eliminated before a diagnosis of renorenal reflex can be made. The reflex is easily explainable on anatomical grounds, but its exciting cause is not understood.

Journal of the American Medical Association.

January 29, 1921, lxxvi, 5.

1. Uremia. Nellis B. Foster.
2. Diverticula of the Esophagus. Arthur Dean Bevan.
3. Spontaneous and Operative Cure of Cirrhosis of the Liver: Report of Illustrative Cases. David Riesman.
4. The Treatment of Pernicious Anemia by Splenectomy: Second Report. H. Z. Giffin and T. L. Szlapka.
5. The Relationship of High Blood Sugar to Furunculosis: Report of a Case. William Thalheimer.
6. The Urea Concentration Test for Kidney Function: Preliminary Report. Edward Weiss.
7. Protein and Carbohydrate Equivalents in the Diabetic Dietary. Ephraim M. Ewing.
8. Reaction of Normal Skin to Destructive Doses of Roentgen Ray: Its Decrease by Pharmacologic Means, and the Mechanism Involved. John Auer and W. D. Witherbee.
9. Menthol and Peppermint in Acute Catarrhal Conditions of the Respiratory Tract. Hugh McGuigan.
10. The Alkal Reserve in Abdominal Infection, and Its Relation to the Leukocyte Count. A. Murat Willis.
11. Amebic Dysentery in Siam. R. W. Mendelson.
12. A Case of Tuberculosis Primary in the Thyroid. William H. Reichenman and John I. Marker.
13. Foreign Protein Therapy in the Acute Infections. Joseph L. Miller.
14. Nonspecific Protein Therapy in Arthritis. David Murray Cowie.
15. Intravenous Protein Injections in Urology and Dermatology. Harry Culver.
16. The Nonspecific Reaction. W. F. Petersen.

4. **The Treatment of Pernicious Anemia by Splenectomy.**—Giffin and Szlapka make this second report, which they consider of value chiefly as a statement of the postoperative life of the fifty patients operated on more than three years ago. The operative mortality was 6 per cent. Ten patients (21.3 per cent.) of those who recovered from operation survived splenectomy three years or longer. Five patients (10.6 per cent.) of those who recovered from operation have survived splenectomy more than four and one-half years, and are still living. The total length of history of these five patients averages almost six years. It may be said with reasonable accuracy that, in addition to the immediate remission which occurred constantly following splenectomy, splenectomy prolonged life in at least 20 per cent. of the cases. The writers cannot satisfy themselves that any particular preoperative characteristics of the disease are indicative of favorable results following splenectomy. However, in the type of case in which there is evidence of active hemolysis, the patient shows a more marked immediate improvement. Splenectomy may be recommended in pernicious anemia when, in view of all the circumstances, personal as well as medical, the possibility of the prolongation of life appeals to the family and to the patient. Occasionally the operation may be performed in order to bring about an immediate remission.

5. **The Relationship of High Blood Sugar to Furunculosis.**—William Thalheimer reports the case of a school-boy, aged 15, whose history is deemed sufficiently important to record because (1) the original complaint was of "attacks of multiple furuncles," and in investigating this condition it was discovered that the patient had a high blood sugar, and (2) the clue given by the high blood sugar was investigated further, and it is believed

that the data indicate that this is a case in either the prediabetic stage, or else an unusually early stage of diabetes. It has been impossible to reach a definite conclusion as to just what is the underlying condition in this case. One of the main points of interest is the apparent relationship between the high blood sugar and furunculosis in a case which is not one of outspoken diabetes. The most conservative opinion would be that this case shows an abnormal carbohydrate metabolism, which is so nearly the same as that in diabetes that it may be called a prediabetic stage of this disease. It may be, however, that the case is an extremely early one of diabetes. It was noted by the boy's parents that before the attacks of furunculosis appeared he was in the habit of eating tremendous quantities of carbohydrates. This indulgence in large amounts of carbohydrates might signify that the diabetic condition or tendency of the boy caused this appetite for carbohydrates. It is possible that he indulged excessively in carbohydrates and that this precipitated the furunculosis and the abnormality in carbohydrate metabolism.

9. **Menthol and Peppermint in Acute Catarrhal Conditions of the Respiratory Tract.**—Hugh McGuigan tested the effect of menthol or oil of peppermint on surface viscosity. With a suction filter pump he drew a current of air through solutions of soap, blood, saliva, and saponin. Each of these, especially the soap, saponin, and blood, foam readily. The merest trace of menthol or spirit of peppermint added to these solutions rapidly destroys the foam. Crystals of menthol may be added apparently without much effect. The foam in such conditions is so strong that it readily supports the crystals, and to be effective the drug must be in solution or in a condition in which volatility can act. Menthol, however, dissolved in saliva has a noticeable effect, and in alcohol the effect is still stronger, because of greater solubility. In another experiment in which a dog was anesthetized with ether through the trachea by means of a tracheal cannula, marked râles developed. Râles develop frequently in such cases. A few drops of the spirit of peppermint in the tracheal cannula immediately broke the foam and noticeably relieved respiration. There is, therefore, a reasonable basis for the statement that the efficacy of menthol and peppermint in the respiratory passages is due to the changes in the surface viscosity of the mucus and on the membranes producing the exudate. An important and well-established fact in viscosity is that the viscosity of a liquid is increased about 2 per cent. for each degree that the temperature is lowered. This is of great importance in the treatment of all respiratory cases in which the expulsion of mucus is desired. Warm, moist, inspired air will greatly aid the expulsion, while cold air, if respired, will increase the difficulty. What has been said of menthol and peppermint undoubtedly can be extended to other substances of this general class.

The Lancet.

January 8, 1921, cc, 2.

1. An Address on the Use and Misuse of the Curette. W. E. Pothergill.
2. A Dissertation upon Carbuncles. Sidney Phillips.
3. Some Problems in Marine Hygiene; with Special Reference to Merchant Ships. Surgeon Vice-Admiral Sir Robert Hill. II. Water Supply of Ships and Diseases of Ship Life.
4. Tabes: Its Early Recognition and Treatment. E. Farquhar Buzzard.
5. Difficult Cases of Infant Feeding and Management. Ralph Vincent.
6. Diabetes Insipidus Complicated by Intermittent Glycosuria. Geoffrey Evans and R. L. Mackenzie Wallis.
7. The Cultural Diagnosis of Enterica in Inoculated Individuals. J. C. G. Ledingham.
8. Treatment of Crippling Disabilities of Children. G. R. Girdlestone.
9. Ostelut Deformans. Frank Romer. With Observations by Sir W. Arbuthnot Lane.

1. **An Address on the Use and Misuse of the Curette.**—W. E. Pothergill, in summarizing his views on this subject, emphasizes the point that the curette is mainly a diagnostic instrument. Apart from mere increase in the duration or quantity of the menstrual flow, and in the presence of any uterine hemorrhage whose cause is not clear, the rule, "When in doubt, curette," is a sound one. In women of reproductive age the cause of irregular bleeding is found in the majority of cases to be

retained products of conception; and it is remarkable how often these relics are found in women who will not admit that they have missed a single period. Sometimes one or more polypi are found. Occasionally, though the cervix feels normal, the curette finds a place within the cervical canal where epithelioma yields like cheese. And not so very rarely malignant disease is found within the body of the uterus. After the close of reproductive life uterine bleeding absolutely demands dilatation and exploration by curette unless the hemorrhage has an obvious cause, such as cancer of the cervix, the twisting of the pedicle of an ovarian cyst, or the degeneration of a fibroid. In these postmenopausal cases exploration generally reveals the presence of cancer of the body of the uterus; but sometimes there is nothing but the result of a chronic infection whose steps are senile vulvitis, vaginitis, cervicitis, endometritis. In these cases, if the cervical canal becomes occluded after the endometrium has been infected, the result is pyometra, with distension of the uterus by pus and blood-stained purulent vaginal discharge. In cancer of the corpus uteri infection of the ulcerated new growth occurs very late, so that the discharge becomes offensive only when the disease is far advanced. Thus foul discharge means pyometra, or late cancer of the body, while a discharge of pure blood through a clean vagina means early cancer of the body. The cases of senile hemorrhagic endometritis and of pyometra are more numerous than is realized, and they are quite curable by the curette. Thus the operator who removes every enlarged bleeding uterus in an old patient without preliminary exploration will subject to the discomforts and risks of hysterectomy a certain proportion of old ladies who could have been cured by a simpler and safer method.

6. **Diabetes Insipidus Complicated by Intermittent Glycosuria.**—Evans and Wallis give the histories of two patients who appear to be examples of a pituitary dystrophy comparable to those clinical cases of thyroid dystrophy in which there is no marked change in the size of the gland and no distinct clinical picture of either hypo- or hyper-function. From their past history neither case seems to be progressive. These patients are not, therefore, regarded as early cases of acromegaly or other recognized pituitary syndrome, but rather as persons in whom the pituitary is functioning irregularly and perhaps at times excessively. We believe that cases of the type here described have not been previously recognized. The two cases are alike in their salient features, and they do not fit into any of the subdivisions into which Cushing divides his five main groups of dyspituitarism. The interest of the cases does not lie in the possibility of their representing a group of dyspituitarism that has hitherto escaped recognition, but depends on the fact that such cases may lead to the recognition of clinical phases of pituitary activity that bridge the gap between physiological and pathological states. When this borderland has been explored the earliest stages of progressive pituitary disorders will be more easily recognized.

British Medical Journal.

January 8, 1921, 1, 3122.

1. Lines of Advance in the Surgery of Breast Cancer.
2. Abstract of a Lecture on Subacute Bacterial Endocarditis. Basil Parsons-Smith.
3. An Operation for the Radical Cure of Pre-Masseteric Fistula of Stenson's Duct. Gilbert Chubb.
4. Adrenalin in Resuscitation from Apparent Death. Cranston Walker.

2. **Abstract of a Lecture on Subacute Bacterial Endocarditis.**—Basil Parsons-Smith places subacute bacterial endocarditis in a position midway between the simple and the fulminating types of the disease. The onset of the disease is usually insidious, and symptoms are not necessarily pronounced; in fact, more often than not they appear to be extremely vague. Not so the physical signs, which present an unmistakably clear-cut clinical picture. Examination of the heart shows in every instance the presence of an organic murmur at the aortic or mitral regions; apart from the murmur, the heart may show little or no evidence of functional disturbance during the course of the disease; beyond a simple tachycardia the rhythm, as a rule, remains

unaffected, the myocardium retains its power, venous stasis does not develop—in fact, one may follow the entire progress of the disease without noting at any time a full development of the true signs of cardiac failure. In other words, it may be very reasonably concluded that the endocarditis does not represent or explain the signs and symptoms which one has learned to associate with this disease, and furthermore, one can readily understand the prevailing idea of the nature of the malady—namely, that it is a general systemic disease depending upon a bacterial invasion whose seat of origin is localized at some focus of chronic or quiescent valvulitis. A blood culture must be attempted in every case that comes to notice, but a negative result should not deter one from further efforts to cultivate the organism. The writer believes that the variety of endocarditis under consideration is not the result of any one specific organism; several types have been found, including pneumococci, gonococci, the influenza bacillus, and small streptococci. The disease is invariably fatal, from three to twelve months being the average period. The cause of death is cerebral embolism or hemorrhage, uremia, progressive anemia, or intercurrent pneumonia. Treatment should follow the broad lines adopted for any form of septicemia.

4. **Adrenalin in Resuscitation from Apparent Death.**—Cranston Walker reports having injected a minim or two of 1 in 1000 adrenalin chloride directly into the heart muscle in some twenty cases of death from various causes, when all signs of life had ceased for several minutes. A fine needle was passed through the fifth left intercostal space, just mesial to the lung resonance; the point was directed slightly inwards and upwards, and could be felt to enter the apex of the heart; when firmly imbedded in the muscle the injection was made. Several of these needle tracks were examined *post mortem*, and in no case did it appear that any drawback would have ensued had the patient survived. Adrenalin applied to the heart muscle acts on the sympathetic neuromuscular junction, and very greatly increases both the excitability of the tissue and the energy output of the muscular contractions. The writer considers the method sufficiently promising to invite preliminary experiments on animals.

Endocrinology.

October-December, 1920, iv, 4.

1. Experimental Researches on the Pituitary Body. Diabetes Insipidus, Glycosuria, and These Dystrophies Considered as Hypophyseal in Origin. J. Camus and G. Roussy.
2. The Relation of the Thyroid and of the Adrenals to the Electric Conductivity of Other Tissues. G. W. Crile.
3. Secondary Sexual Characteristics and Endocrinology. A. Pézard.
4. The Origin and Evolution of the Interstitial Cells and of the Ovary and the Significance of the Differential Internal Secretion of the Ovary. Isaac Ochoterena and Eliseo Ramirez.
5. The Internal Secretion of the Testis. Aldo C. Massaglia.
6. Effects of X-Ray Treatment of the Hypophysis in Bronchial Asthma. Maurizio Ascoli and A. Fagioli.
7. A Fatal Case of Cardiac Dilatation with Associated Gastropathy and Endocrinopathy. Chas. M. Nice.
8. The Influence of the Thyroids on the Functions of the Suprarenals. P. T. Herring.

6. **Effects of X-Ray Treatment of the Hypophysis in Bronchial Asthma.**—Ascoli and Fagioli call attention to the fact that hitherto radiotherapy in endocrinology has been used only in destroying tissue, as in cases of exophthalmic goiter, in tumors of the hypophysis, etc. It remained to be seen whether, with lighter applications, the opposite effect could be reached of stimulating the gland cells to activity, or, in other words, if a stimulating endocrine radiotherapy were possible. As soon as the necessary apparatus was available they tried the practical application of the principle suggested, the first case being one of dystrophic adiposo-genitalis, the hypophysis as well as the thyroid being irradiated. Favorable results were obtained in this case, and also in a case of Basedow's disease with two irradiations of the thymus. Results were negative in a typical case of eunuchoidism, a case of angioneurotic edema of Quinke, and three cases of diabetes mellitus. In view of the favorable results obtained by various observers in the use of pituitrin in asthma, irradiations of the hypophysis were tried in five cases of this disease. At each

sitting three different fields were irradiated—one frontal and two temporal—for 12 minutes with aluminum filter of 2 mm. S.E. 13-20 c.m. and $3\frac{1}{2}$ m.m. current. In these five cases the favorable influence of the irradiations is clear. In the othopathic treatment of asthma usually pituitrin and adrenalin are used together; therefore, whenever the stimulation of the hypophysis proves insufficient one should try the stimulating irradiation of the adrenalin also. At any rate, the case reported clearly demonstrates the usefulness of the treatment. Further experience is needed to determine the duration of the application and the persistence of the effects. At the same time, the authors say, one should make sure that the effect is really due to stimulation of the hypophysis or whether there are other factors acting on the syndrome.

8. The Influence of the Thyroids on the Functions of the Suprarenals.—P. T. Herring discusses the effect of hyperthyroidism upon the size, weight and structure of the suprarenals; the effect of hypothyroidism upon the size, weight, and structure of the suprarenals; the effect of hyperthyroidism upon the adrenalin content of the suprarenals; the effect of hypothyroidism upon the adrenalin content of the suprarenals; the effect of hyperthyroidism upon the adrenalin content of the blood; the sensitizing action of thyroid upon structures stimulated by adrenalin; the thyroids and suprarenals as a subsidiary heat-regulating mechanism. The writer summarizes the discussion as follows: There is much evidence, though not unanimous, that hyperthyroidism increases the size and weight of the suprarenals. The observations in this respect are confined to a few species of animals, chiefly the albino rat, and it does not follow that a similar change takes place in all animals. In the albino rat the hypertrophy of the suprarenals is due mainly to an increase in the size of the cortex of the gland, the histological features of which have not as yet been investigated. The hypertrophy of the cortex of the suprarenals is associated with gross changes in other organs and in the general metabolism of the animal, and it is to these influences rather than to a specific action of thyroid that the cause may be attributable. There is some evidence that hyperthyroidism does in the healthy animal increase the adrenalin load of the chromophil tissues. The adrenalin load, however, is so easily altered by a variety of circumstances that it signifies little in itself. The alleged increase of adrenalin in the blood of animals suffering from hyperthyroidism is neither proved nor disproved. The evidence is untrustworthy. There is greater unanimity in ascribing to the thyroid hormone an activating influence upon the structures which are amenable to adrenalin. This sensitizing action of thyroid may explain the phenomena of Graves' disease which have been attributed to an increase of adrenalin in the blood. It does not exclude the possibility that an increased secretion of adrenalin may actually occur in this condition. A specific action of thyroid in stimulating the secretion of adrenalin, and in sensitizing the structures amenable to its action, though not improbable, is not satisfactorily proved. Pituitrin has a similar action in sensitizing certain structures to the action of adrenalin, and further experimental work may extend the similarity. Hypothyroidism is shown to have no effect upon the adrenalin load of the suprarenals, but here again no definite conclusions as to the absence of a specific stimulus can be drawn, for we know nothing about the extent of the requirements of the body for adrenalin in this condition. The theory that one endocrine gland exercises a specific influence upon another only touches a part of the question. The changes in metabolism which occur when any gland is disturbed in function must have a widely spread effect. Many of the metabolic changes undoubtedly take place in the liver, and it is unreasonable to suppose that this organ takes no active part in the problems presented by the ductless glands. Hyperthyroidism provokes such gross changes in the organs of the albino rat that one is drawn to look for the explanation of its effects in the products of a disordered metabolism. Noël Paton has emphasized the importance of the endocrine organs as regulators of metabolism. The investigation of the substances normally formed in the body, and the influence which the ductless glands have upon them, provides a line of research which may eventually lead to the establishment

of the endocrine glands as important factors in the regulation of the general metabolism of the body.

Revue médicale de la Suisse romande.

November, 1920, xi, 11.

Etiology of Goiter.—Boitel makes a very thorough contribution to this subject, which includes original work and maps. He reaches relatively few conclusions, his research being largely limited to goiter in one canton, that of Vaud. He finds the distribution of the disease in that canton to be very irregular. There is at least a coincidence between incidence and soil, for the least incidence is on the Jura mountains, especially on the flank, while the greatest is in the valleys of Broye and Mentue. This kind of contrast is to be seen in other goiter countries. Heredity is evident in 47 per cent. of cases. There is no evidence that autochthons suffer more than late comers. The distribution differs entirely from that of typhoid fever, both being supposedly water-borne affections. City dwellers are but slightly less affected than rural dwellers. There is as yet no proof that the disease is due to lack of iodine in the environment. Hunziker's dictum that the disease flourishes best at the altitude 600-1000 meters is not upheld. We have no basis for a causal therapy.

Famine Osteomalacia.—Cramer and Schiff consider this subject *in extenso*. The supposition is that the nature of an endocrine malady should be inferred from the treatment, and all observers insist that the nourishment should be abundant and varied. Subjects respond rapidly enough to show that the disorder is not deep seated. Calcium chloride, phosphorized cod liver oil, various other oils (sunflower), strontium and adrenalin have all been used, so that the treatment closely resembles the modern treatment of rickets. But plenty of good food and mineral food are sufficient for a prompt cure—several weeks.

La Presse Médicale.

December 11, xxviii, 91.

Hemoclastic Crises in Hepatic Insufficiency.—Widal, Abrami, and Iancovescu refer to the new exploratory test of hepatic insufficiency—the so-called digestive hemoclasia. It is based as follows: In the normal subject partly disintegrated proteins derived from the food enter the portal circulation and are arrested in the liver, for if they enter the latter in their heterogeneous admixture the blood suffers a hemoclastic crisis. In hepatic insufficiency the latter takes place. An immense amount of labor has been required to demonstrate these facts, and one is entitled to ask just what proteins are responsible for the crisis. It is safe to state that a mixture of amines is involved. Feeding subjects with hepatic insufficiency with certain crude proteins will produce the crises, but thus far we find no reference to any individual amines. The test shows that in very many clinical affections the liver is insufficient, and the author cites in succession cases of so-called cardiac liver, cirrhoses of various types, icterus of the most varied origin, the toxic action of neosalvarsan and chloroform, various acute infectious diseases, biliary lithiasis, diabetes, chronic nephritis, latent hepatic disease as in alcoholism, pelvic surgical affections, amebic dysentery, etc. Very small amounts of protein are able to produce these crises. One glass of milk has done it, and in a diabetic a little sugar. If a number of heavy drinkers are tested some will show latent hepatic insufficiency, others will not. A drinker for forty years still showed intact hepatic cells. Once immune always immune seems to be the rule in such cases. The subject is a promising one, but it is too early to announce it as a great advance in medicine. The blood counts are not discussed in this paper.

Rarity of Epidemic Hiccough in Women.—Achard and Pouillard mention this fact which has also been seen by others. The incubation period is shorter and the affection less developed. In a girl of 17 the hiccough seemed incomplete and limited to an inspiratory spasm of the diaphragm, chiefly upon the left side. This infrequency would seem to exclude a hysterical element, although there has never been any reason to suspect one in the present epidemic.—*Le Progrès Médical*.

Book Reviews.

FUNCTIONAL NERVE DISEASE, an Epitome of War Experience for the Practitioner, Edited by H. CRIGHTON MILLER, M.A., M.D., late Consulting Neurologist 4th London General Hospital. New York: Oxford University Press, American Branch, 1920.

Dr. Crighton Miller has presented the view of ten experienced men in dealing with war neuroses. The object is that while these states were exposed by the stress of war, their factors during peace should be realised as existing potentially in the practice of every practitioner. The hope is that a class of cases in which instruction is not given to the ordinary medical student, may receive due consideration in regard to etiology and treatment. The various writers present different points of view, but while physical therapeutics had to give place to suggestive therapy the latter had to be directed by the method of Psychoanalysis. Really treatment has to be directed to the causes of the trouble and the truly analytical method proved the means of dealing comprehensively with the variety of cases. Briefly the argument is that the psychoneuroses result from disharmony of the mind. This leads to amnesia and loss of control by the personality. Analyses of the mind, whether hypnotic or by association and association-reaction, with the content of dreams, are the chief aids, and then the readjustment may be made. This is aided by all the physical and mental reeducative and reconstructive processes which have been used. The book is an effort to deal by common-sense methods with a class of cases which have been to a considerable extent misinterpreted. The apparent divergence between the various authors does not militate against the general principles of the treatment, for in the principles all are agreed.

LE DIABÈTE SUCRÉ. Par DR. MARCEL LABBÉ. Paris: Masson & Cie, 1920.

This volume of 376 pages is the result of many years of study. The disease is divided into two types in accordance with the presence or absence of denutrition. The reader is naturally interested in the attitude of the author toward the Guelpa-Allen-Joslin treatment of the disease. His surprise will naturally be great to find that this aspect of treatment is almost wholly ignored, even under the head of acidosis on page 258 the three sponsors of the fasting treatment are disposed of in a few lines. Such studied indifference does not make a favorable impression; it is as if the book had been written a dozen years ago instead of recently and we more than suspect this to be the case. There is reason for the suspicion that the book was written long before the war and its publication indefinitely held up. Most Frenchmen are jealous of the credit of Guelpa in connection with priority in the fasting treatment but Labbé ignores him no less than his American rivals.

GRUNDZÜGE DER BEHANDLUNG VON HAUT- UND GESCHLECHTS KRANKHEITEN dargestellt von DR. LEOPOLD PULVERMACHER. Berlin and Vienna: Urban & Schwarzenberg, 1920.

This volume of pocket size and flexible covers seems designed especially for students. Of the 249 pages 188 are devoted to cutaneous diseases. The organic arsenicals receive but 8 pages *per se* but under the head of combined treatment old and new salvarsan receive additional attention. Under the treatment of skin diseases carbonic acid now receives but a paragraph. Facts of this sort are apt to suggest that many works now appearing in Europe were written before the war and are only now coming to light.

LES MUTILÉS DE LA GUERRE. Par DOUGLAS C. McMURTRY. Ancien Directeur du Red Cross Institute for Crippled and Disabled Men. New York: Avec une Introduction par le Dr. MAURICE BOURRILLON, Président du Comité Permanent Interallié pour l'Étude des Questions Intéressantes les Mutilés de la Guerre. Paris: Masson et Cie, 1920.

This volume is a translation of the author's work "The Disabled Soldier," so well and favorably known to American readers. The preface contains an appreciation of the author's prodigious activity and capacity for

work and styles him justly a man "of heart and of toil."

LE LAIT CONDENSÉ. Par Dr. P. LASSABLIÈRE. 2d édition, revue et augmentée. Paris: A. Maloine et Fils, 1920.

This little work has been awarded both the Prix Jeunesse and the Prix Monthyon for 1920. The author is the chief of the laboratory of the Faculty of Medicine, Paris. The book is a monograph of 150 pages on the subject of condensed milk. The subjects in detail are history, manufacture, chemical composition, food value, bacteriology, value in sanitation, physiological value, clinical value, relative indications for use in children and adults, therapeutic uses, etc. The book makes an appeal to many classes of readers, as dietitians, pediatricists, collectors of monographs, etc.

MARINE HYGIENE AND SANITATION. A Manual for Ships' Surgeons and Port Health Officers. By GILBERT E. BROOKE, M.A. (Cantab.), L.R.C.P. (Edin.), D.P.H., F.R.G.S., Chief Health Officer, Straits Settlements Medical Department, Port Health Officer, Singapore. Lecturer in Hygiene at Singapore Medical School, Author of "Tropical Medicine, Hygiene, and Parasitology," "Essentials of Sanitary Science," "Aids to Tropical Medicine," etc., etc. Formerly Ship's Surgeon to various shipping companies, also Health Officer and District Commissioner, Turks and Caicos Islands, West Indies. New York: William Wood and Company, 1920.

This is a book of an unusual type; it contains a large amount of the miscellaneous information which a Ship's Surgeon so constantly needs. It is a manual of "sailing directions" for the doctor, and it is written in as plain and colloquial a manner as possible. Throughout the volume one is struck with the author's inexhaustible fund of information, shrewd common sense, and general knowledge of human nature; and if a Ship's Surgeon once gets possession of the book, there is no possible excuse for his putting it down until he has read and enjoyed a large part of it. The author has had a wide experience, and many a novice will find his own difficulties and doubts solved in this chatty volume. It is assumed that the Ship's Surgeon possesses not only sound professional ability and judgment, but also an inexhaustible fund of good nature and tact; and the author wisely adds:—"A man without a saving sense of humor had better steer clear of the billet altogether."

DIATHERMY IN MEDICAL AND SURGICAL PRACTICE. By CLAUDE SABERTON, M.D., Hon. Radiologist to the Harrogate Infirmary, and to the Royal Bath Hospital, Harrogate. With 33 illustrations, New York: Paul B. Hoeber, 1920.

This book is obviously a compilation from various authors and with facts culled from their experience as well as from the writer's own. It deals accurately with the principles of Diathermy and it gives careful instructions as to its application. Here and there it makes excursions into the application of general high frequency currents as well as the essential practice of diathermy. Still the impression left on the mind is that diathermy is of so wide an application as to be nearly a "cure-all"; and this is a pity, for the author has set out his case well and fairly and has given a full bibliography. In this last it is an improvement on books of similar character and it is right up to date.

CATALYSIS and its Industrial Applications. By E. JOBLING, M.C., A.R.C.Sc., B.Sc., A.I.C. Second Edition. Philadelphia: P. Blakiston's Son & Co., 1920.

The average medical man has heard of the use of catalytic agents and perhaps is familiar with one or two methods in which they are used, the Kjeldahl method for instance, but he has no idea of the tremendous importance which these "inorganic enzymes" have in industrial chemistry. Jobling's little book reviews briefly many of the methods in which catalytic agents play an important part and indicates the explanations which have been given concerning the manner of their action. The book is perhaps not one which will help the reader to be a better physician but it is intensely interesting, especially to those who are familiar with chemistry. The second edition has been thoroughly revised during the past year.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held December 2, 1920.

THE THIRD VICE-PRESIDENT, DR. RUFUS I. COLE, IN THE CHAIR.

THE program of the evening was arranged in cooperation with the Section on Surgery.

The Intravenous Injection of Large Doses of Sodium Citrate—A New Method for the Control of Bleeding.—Dr. HAROLD NEUHOF, in collaboration with Dr. Samuel Hirschfeld, presented this contribution. They stated that when the citrate method of blood transfusion was introduced, in 1915, the question that at once arose was whether the intravenous introduction of sodium citrate, recognized as an anticoagulant, would not result in a suspension of coagulation in the recipient's blood. It was soon established conclusively that this did not occur; in fact, a transient shortening of the coagulation time in the recipient, with a subsequent return to the previous level, was found to follow the transfusion of citrated blood. The writers had undertaken experiments in an effort to seek an explanation of this paradoxical action. Their first step was to determine the toxic and lethal dosage of sodium citrate. The results of these experiments showed that, contrary to the observations of Lewisohn and others, there was no fixed toxic dose of sodium citrate per kilogram of body weight, but that toxicity depended to a remarkable degree upon the rate of intravenous introduction of the citrate solution. In general, it could be stated that the toxic dose of sodium citrate was much larger than that given by Lewisohn and others, the minimum being 6 grams for a dog weighing 10 pounds, when given over a period of 20 minutes. Their main purpose in administering sodium citrate in lethal quantities was to learn its effect on coagulation time under such circumstances. They had found that the effect of slow lethal doses given to dogs manifested itself by a suspension of coagulability of the blood. The writers then described their experiments dealing with the intravenous introduction of "normal" nontoxic quantities of sodium citrate. They found that within fifteen minutes of the introduction of the citrate solution the coagulation time dropped from a normal of five to eight minutes to two minutes, and even less. This was followed by a profound change in the color of the blood withdrawn from the vein, the appearance being that of almost pure arterial blood. In these experiments the effect of sodium citrate on bleeding was at least as marked as that on coagulation; the bleeding time became greatly shortened. This was observed in a large number of instances in which large veins were divided and the rapid cessation of hemorrhage was noted. During the war Dr. Neuhoof had gained the impression that there was a greater tendency for the cessation of hemorrhage from fresh gunshot wounds following citrate blood transfusion than after the transfusion by the paraffined flask method as employed in the British service. Upon examining Lewisohn's papers on the results of citrate transfusion this impression was strengthened. In short, they believed it was the sodium citrate and not the blood that played the important rôle in controlling hemorrhage. Hemorrhage in the case of blood disease was not referred to. Experimental work confirmed this belief. Few and incomplete observations had been reported on the effect of sodium citrate administered intravenously in the human being. Weil reported the administration of sodium citrate in one case, an adult, in whom 5 grams of 20 per cent. solution were injected. The coagulation time was halved; no other data were given. In a case of hemophilia, described by Ottenberg, a minute dose (0.6 gram) was followed by a marked drop of coagulation time. Forty-eight hours later a prolongation of the coagulation time was found. Kinsella and Brown reported an attempt to control hemorrhagic manifestations on five influenza patients, and had noted a marked effect. Finally they had learned within the past few days that Weil had attempted to control bleeding in three patients by the intravenous administration of one gram doses of sodium

citrate; the results were not published. They had found no reports in the literature of any study of the possible effects of so large doses of sodium citrate on bleeding, so clinical observations were begun on the service of Dr. Lillenthal at Mount Sinai Hospital, and were being continued at the present time. They had found that the optimum dose was 6 to 8 grams in 30 per cent. dilutions for adults, and 1 to 3 grams for children. The largest quantity they had given was 14 grams to an adult and there had been a number of instances in which 10 and 12 grams had been administered. No evidences of toxicity were observed in any of the seventy-five injections of large doses of sodium citrate up to and including the dose of 14 grams. Hence the assertion of Lewisohn and others that 5 grams was the maximum human dose could not be accepted. The only untoward manifestations observed were minor complaints during or immediately following injection. It was their practice to stop the injection at the first expression of discomfort and to continue the introduction of the fluid only after that particular symptom had disappeared. Some patients described a salty taste, some mentioned trembling of the lips or tingling sensation in the extremities; others complained of dizziness, or nausea, or sense of oppression, or occasionally a feeling of tightness across the chest or abdomen. No untoward after-effects had been noted and no toxic effects on the kidneys. The effects of large doses of sodium citrate administered intravenously in the human being corresponded closely to those observed in their animal experiments. The typical curve in respect to coagulation time was as follows: Five minutes after the injection a coagulation time of 10 minutes dropped to 7 minutes; 10 minutes later it reached 5 minutes; in one-half hour after the injection the coagulation time was between 2 and 3 minutes. The peak was reached some 40 minutes after the injection and was sustained in the neighborhood of a two-minute coagulation time for an additional hour. It then returned to normal, but this was much more gradual than the rapid drop after the injection. In 6 hours the coagulation time reached 5 minutes. In some instances the normal was reached in 24 hours, in others not until 48 hours after the administration of the drug. No subsequent changes in coagulation time had been seen in observations taken up to six days following the injection. Of notable interest was the fact that the coagulation time was shortened by citrate injections to a similarly striking degree in patients in whom it was pathologically prolonged, especially in jaundice. They had noted drops in coagulation time from sixteen minutes to two minutes following the injection. There were some cases in which a more prolonged effect was desired than that obtained from a single dose of citrate. They had attempted to sustain the shortened coagulation time by repeating the dose after twenty-four and thirty-six hours. As a result the drop in coagulation time had been maintained in some instances for several days, to return to normal in about a week; in other cases the second dose had little or no additional effect. All types of bleeding, medical as well as surgical, that had been encountered had been controlled by large doses of sodium citrate administered intravenously. Large doses of sodium citrate had been successfully used to prevent hemorrhage in cases in which bleeding was anticipated at operation. This method offered a large sphere for the control of bleeding, was simple of application, and had proven both nontoxic and safe.

Dr. GEORGE BAEHR said that some years ago he had had the opportunity to assist Dr. Lewisohn in some of his experiments preliminary to the utilization of sodium citrate for blood transfusion in human beings. They had immediately observed that the intravenous injection of sodium citrate in animals was followed by a prompt and appreciable reduction in the coagulation time of the blood. This was so marked that in some dogs $\frac{1}{2}$ to 1 gram of sodium citrate shortened the coagulation time from six or seven minutes to two and even to one minute. In some instances this effect was so pronounced that the blood coagulated almost instantaneously upon being drawn into a test tube from the carotid. This at once suggested the question whether this was due to the transfused blood or to the sodium

citrate, and they found that the reduction in the coagulation time was due to the citrate and not to the transfused blood. Dr. Weil had independently reached the same conclusion and had published the observation. Recently Dr. Rosenthal and himself had investigated the subject from a different standpoint. They had endeavored to ascertain the mechanism which was responsible for this remarkable shortening of the coagulation time after the introduction of sodium citrate. The possibility of a change in the calcium balance first suggested itself in view of the fact that sodium citrate delayed coagulation *in vitro*, but it was found that the calcium was not responsible for the change *in vivo*. After the intravenous injection of sodium citrate, the calcium content of the blood showed no change even when the coagulation time was markedly shortened. They then made observations in reference to the fibrinogen in the blood of the patient after the administration of sodium citrate, and they found that the quantity of fibrinogen remained absolutely normal. They next carried out observations in reference to the antithrombin content of the blood according to the method of Howell, and found that there was no change in the antithrombin of the blood. In other words, the shortened coagulation time after the administration of sodium citrate was not due to calcium, to fibrinogen, or to a diminution in antithrombin. They found, however, that regularly in all their experiments there was a marked increase in the prothrombin factors in the blood. There were several prothrombin factors in the blood, and it was difficult to determine which one was responsible for the shortened coagulation time. They believed they had now ascertained which factor was responsible, but their experiments were not yet sufficiently numerous, and at the present time they are not yet prepared to make any more definite statement than that the shortening of the coagulation time of the blood following the intravenous administration of sodium citrate is due to a proportionate increase in prothrombin. Dr. Baehr said that although observations had previously been made by Weil, Lewisohn, himself and others that the intravenous injection of sodium citrate shortened the coagulation time of the blood, he felt that credit should be given to Dr. Neuhof for having introduced this procedure therapeutically on a large scale and for having shown that it had a wide practical application. All credit in that respect was accruing to him.

Dr. RICHARD LEWISOHN said there were a few points about which he would like to speak, and the first was with reference to the toxicity of sodium citrate. It seemed to him remarkable that when he undertook his investigations in 1914 nothing was known with reference to the toxicity of sodium citrate; there was nothing in the textbooks as to how large doses of the drug could be given with safety. In the experiments executed in collaboration with Dr. George Baehr, they had found that 15 c.c. in a 10 per cent. solution was fatal to a dog weighing 11 pounds. He had stated in his first paper on this subject that 15 grams would be fatal to a human being weighing 110 pounds. In a person of average weight, 150 to 160 pounds, 22 grams of sodium citrate should be considered a fatal dose. There had always been some doubt expressed whether those conclusions should stand which were taken from animal experimentation and transferred to human beings. Carter, in 1915, expressed the opinion that not 15 but 30 grams should be considered the fatal dose for human beings, and the same opinion was advanced by Chaton in 1916. It was certainly of the greatest interest to all of us that Dr. Neuhof had shown by clinical observations in a large series of cases that sodium citrate was not nearly as toxic as it was supposed to be. That fact was of great interest, but he hoped the conclusion would not be reached that there was no toxicity associated with the use of sodium citrate. From the standpoint of blood transfusion in applying the citrate method, the observations of Dr. Neuhof were certainly of great interest. They showed two important points: (1) The chills which occurred after transfusion in about 20 per cent. of the cases, even when small doses of sodium citrate (not more than 2½ to 3 grams) were used, were not due to the sodium citrate as such. (2) There were no contraindications to the use of the citrate method

either in hemorrhage or in the so-called blood diseases, in which it would prevent further bleeding. Dr. Neuhof's conclusions were based upon two facts. The first was that he had shown the comparative atoxicity of sodium citrate when injected slowly, and second, he had shown that sodium citrate could be used to stop bleeding. When a great deal of blood had been lost this procedure might not serve all clinical purposes. There were cases in which we might wish not only to stop bleeding, but to replace blood that had been lost and in those cases transfusion would still be of a great deal of value. When a donor was not at hand the fact that sodium citrate, in the dosage stated by Dr. Neuhof, would control hemorrhage, would certainly be of great value.

Dr. HOWARD LILIENTHAL said he had been very much interested in the investigations carried on in connection with the use of sodium citrate in blood transfusion. He believed he was the first surgeon who had had opportunity to make use of sodium citrate transfusion in a human being. This was a case supposed to be carcinoma of the stomach. There had been a loss of weight and a few other symptoms suggestive of carcinoma, but no definite diagnosis had been made and he wished to make sure by excising a small node in the left supraclavicular space (Virchow's gland). Dr. Lewisohn made the transfusion by the citrate method and he removed the node with the patient under local anesthesia. He noticed and remarked at the time that there was less bleeding than one would have naturally expected during an operation of that type. If sodium citrate prevented coagulation *in vitro* it would seem that it should have the same effect in the human body. It would be interesting to know just why it did not have this effect in the human body. It seemed probable at present that oxygenation had something to do with it. He had been interested in the work of Dr. Weil and others who were working out the idea of the use of sodium citrate to prevent hemorrhage, and when Dr. Neuhof asked to try it out he was glad to give him the opportunity and was particularly pleased with the happy results. They had had a case of polycythemia, a woman who had had teeth drawn and was bleeding profusely. The bleeding sockets were packed and then sodium citrate was used. The first injection did not yield results, but the second dose did. In another case, a laryngeal case, in which Dr. Neuhof assisted at the operation, it was not necessary to tie more than four blood vessels after giving the sodium citrate, though the operation was one which ordinarily would have been very bloody, as the larynx was split from the thyroid notch to the intraclavicular space, and the pharynx was opened by another incision across the thyroid space so that it lay wide open. In this case there was little bleeding, and not more than four arteries had to be tied. He had expected no such an effect as this from the sodium citrate injection. Hemorrhage of all kinds was unquestionably influenced by sodium citrate, though it would not take the place of ligatures or surgery. It would act, however, as a first aid, and as Dr. Lewisohn said the hemostatic effect was one more important reason for the use of the citrate blood transfusion rather than any other method. Dr. Baehr had gone into the action of sodium citrate in the blood, and stated that the coagulating substances were increased in quantity by the citrate. It seemed that we had here another instance of the action of nature in trying to correct something that was doing harm and here overcorrecting the noxious tendency. For instance, in the case of irritation of a part of the peritoneum nature immediately used the omentum to seal off that region. In the action of sodium citrate in hemorrhage we had a substance introduced into the blood which ordinarily increased the coagulation time and nature in making an attempt to correct it went to the extreme and overcorrected by the formation of substances which increased the coagulating power of the blood.

Dr. E. LIRMAN said that it might be interesting in connection with what Dr. Lilienthal had said to find out whether sodium chloride given intravenously had any effect on coagulation time. Van de Velde had, as was well known, recommended the intravenous use of sodium chloride for hemoptysis and had claimed to have had results. As Dr. Baehr had stated, Dr. Richard

Weil had made the first observations on the effect of sodium citrate on the coagulation time of the blood. These studies were made at the time that Dr. Lewishohn was studying the value of citrate transfusion. Dr. Weil had found that citrate of soda would cut the coagulation time in half within one-half to one hour after the intravenous injection had been given, and that it would return to normal within twenty-four hours. Dr. Weil had suggested that sodium citrate doses in aqueous solution be used intravenously and he had begun studies in Dr. Libman's ward when the war broke out. It was rather curious to note that at that time there were some sharp reactions following the use of the citrate solution, and that Dr. Neuhof had witnessed no reactions. The question might be raised whether the drug used at the time was pure. Dr. Libman said that the studies made by Dr. Neuhof and Dr. Hirschfelder were the first real studies on the practical value of the use of citrate of soda for stopping hemorrhages. It seemed to him that the observations made by Dr. Neuhof and Dr. Hirschfelder on the prevention of hemorrhage by the use of sodium citrate before operation were particularly valuable. It had always been considered advisable to use transfusions as a preoperative method for preventing hemorrhage, but even in cases where it was most needed it had seldom been used. The sodium citrate method was so simple that more attention would be paid to preventing hemorrhage at the time of operation or afterwards, than had ever been done before.

Dr. NEUHOF, in closing the discussion, said that in reference to Dr. Baehr's remarks he was merely theorizing, whereas Drs. Baehr and Rosenthal were working on the question of the changes in the blood elements after sodium citrate injections. He did not question their provisional report that prothrombin was the element that was affected but both Dr. Hirschfeld and he had been so impressed by the change in the color of the blood after citrate that they believed oxidation must also play some rôle in the effect produced. Dr. Neuhof said he was pleased to hear Dr. Lewishohn express his views about the toxicity of sodium citrate. He said he and his coworker had observed, as shown in their paper, that sodium citrate could be toxic and unquestionably lethal in animals. That was why they had reported their experiments showing that a dose that might be toxic if administered rapidly was without toxicity if injected slowly. They could only repeat with the greatest emphasis that slow introduction was the only method that should be used. Another point brought out by their investigations was that the sodium citrate method of blood transfusion appeared more desirable than and not merely as desirable as any other method in many cases of hemorrhage. They had as yet had no experience with sodium citrate in hemorrhage in blood diseases except in the one case of polycythemia they reported, and whether that observation would be found to hold good in other instances he could not say. It seemed evident that in the single case of hemophilia reported by Dr. Ottenberg the coagulation time of the blood was profoundly affected by the very small dose of sodium citrate given to that patient. The later prolongation of the coagulation time in that case might have been due to the fact that the dose was so small. Dr. Neuhof wished to make one minor correction in the remarks of Dr. Lillenthal. In the case of polycythemia the bleeding from the gums was controlled for six hours following the injection of sodium citrate, bleeding then recurred to stop permanently after the second dose of the drug. In reference to Dr. Libman's remarks on the use of normal salt solution to induce changes in coagulation, Dr. Neuhof stated that they had tried such solutions without noting any effect on coagulation time. Dr. Neuhof expressed himself as pleased that Dr. Libman had again mentioned the fact that Dr. Weil was the first to give a large dose of sodium citrate (five grams) and to note that the coagulation time of the blood was thereby shortened. He also had indicated this fact in the body of his paper.

The Economic Value of Preventive Surgery in Industry.—Dr. JOHN C. A. GERSTER read this paper, in which he stated that during his past two years' experience as a surgeon to a hospital for the re-education of the industrially crippled, and as surgical advisor to a

casualty insurance company, the author has been repeatedly impressed with the amount of unnecessary and readily preventable disability encountered in the course of his daily work. In striking contrast to the policy of life insurance companies which made it a point to keep abreast with scientific medical progress affecting their interests, the casualty insurance companies as a body had gone on the way unheeding the common basic principles of accepted surgical practice as applied to their own field. They had failed to appoint expert buyers for the commodity, surgical treatment. In a recent series of 220 healed simple fractures of the extremities with marked disability, referred to an industrial rehabilitation hospital for possible improvement, the vast majority of cases showed readily preventable deformities. In other words, these deformities represented a vast sum paid out for preventable disability.

Dr. Gerster then outlined briefly the kind of service that a casualty company had a right to expect from the hospitals, and suggested that should local hospitals not prove amenable to constructive criticism it might be considered whether industry itself could not undertake increasing industrial human salvage by the organization, equipment, and management of large hospital centers with related dressing stations throughout the country; the personnel of these centers to include leaders in medicine and surgery. The chief object of a surgical department of a casualty company was to make sure that a man was receiving proper treatment from the hour of his injury until he was cured. This implied: (1) Report by telephone of accidents, ascertaining exact nature of injury, authorizing transportation, diagnostic measures, form of treatment, and consultation with specialists. (2) Maintenance of a daily follow-up system, especially with reference to a reminder file regarding motion at the earliest possible moment conducive with safety. Failure to start early motion at the right time was the greatest factor causing loss of function in fractures and hand infections. (3) Supervision of medical bills from outlying districts. The outside surgeon must render a concise statement of the original injury, the treatment and course of cure, together with the final result. The company paying him was entitled to a knowledge of these facts. (4) Analysis of results. Cases of preventable disability to be subject of weekly and fortnightly conferences with claims and executive departments to ascertain means for correction of underlying causes. Surgical information should be disseminated for the guidance of claim departments, generalizing procedures in given conditions, as (a) Every fracture should be regarded as an emergency and reduced as soon as possible. (b) Compound fractures might often be converted into simple fractures if proper surgical treatment was applied within six to eight hours from the time of injury. It was recommended that Thomas splints be used in transporting patients suffering from fractures of the thigh and leg from plant to hospital. (c) So-called contusions of the hip should be x-rayed. Patients had been known to limp even a mile or two after fracture. (d) Infection of the hand could often be prevented by prompt application of tincture of iodine. By such a simple means as this one large corporation reduced the number of finger infections 80 per cent. (e) In wounds of the fingers the palm or near the wrist divided tendons could be diagnosed by requesting the patient to open and close the hand. Failure of complete motion indicated the necessity for immediate surgical attention. Information might be supplied to employees regarding certain common injuries and infections, and what they meant, what surgery held out to them—what they might expect; what risks they ran from self-treatment or neglect.

These pertinent matters, he said, could be printed in bulletin form to be posted at conspicuous points in factories and offices. The education of employers should include not only what surgical neglect would cost them, but also what surgical care would save them. A few typical examples would drive home the argument that nurses could not replace doctors in treating minor injuries. The loss of a few fingers every year would more than offset this saving in salaries.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, Held November 24, 1920.

THE PRESIDENT, DR. HERMAN B. ALLYN, IN THE CHAIR.

Newer Aspects of the Clinical Study of Tumors.—Dr. JAMES M. EWING of New York read this paper, in which he said that the results of the past 20 years in experimental cancer research had been disappointing in their relation to the practical side of the cancer problem. They had had very little influence on the death rate from cancer, and, while the real progress of knowledge might not be measured by practical results, it was a sobering thought that the conquest of cancer was not to be achieved by the recent scientific contributions of the research laboratory. The importance of these contributions should not be underrated. It had been shown that there was no such thing as immunity against cancer, although a certain resistance to tumor growth had been observed under many conditions. No essential difference between tumor tissues and normal tissues had been demonstrated as regards the chemical composition, the ferment activities, or the mode of growth. So far as experimental cancer research was concerned, we were apparently not to have a new cure for cancer, nor any new and easy method of diagnosis, nor any revelation of specific etiology. We were still required to recognize the disease by the crudest of methods, by looking at it with our eyes and through the microscope; and most us still had to treat it by the equally crude method of cutting or burning it out. Mammary cancer, one of the most familiar forms of malignant tumor, presented wider variations in natural history than almost any other. It occurred as a fulminant febrile disease, fatal in a few weeks or months, or as a prolonged and relatively harmless affection lasting many years. It was therefore of no significance to determine the duration of mammary cancer as a whole or to state the general result of operation. The disease had to be subdivided. Unless mammary cancer existed in a form and size recognizable by the trained naked eye it was doubtful if it existed in a clinical sense. Age and state of nutrition of the patient were determining factors in the prognosis of mammary cancer. In florid young women under 30 years a mammary cancer had a very unfavorable prognosis, and many thoughtful surgeons refused to operate on such subjects. After 70 fewer operations would be performed if the surgeon would consult the tables showing the expectation of life at those periods. The author's experience with surgical material convinced him that too many women suffered radical operation for conditions that proved not to be cancer. This state of affairs was the result of the general assumption that any lump in the breast was to be regarded as cancer until it was proven otherwise, and that it was unsafe to make an incision into a localized cancer. But the majority of lumps in the breast were not cancer. The majority of those that were could be recognized by competent clinical and physical examination, and he knew of no evidence, clinical or experimental, that justified the belief that a clean incision into a breast cancer for diagnosis disseminated the disease. Certainly it did less harm than the squeezing and kneading of the scores of examinations that most mammary cancers received before they reached the operating room. The first thing to do with a lump in the breast was to determine its nature. He ventured to express the hope that in the not distant future the surgery of mammary cancer might be greatly restricted from its present scope and, without daring to make any predictions, he trusted it might eventually be entirely discarded and replaced by physical therapy. During the past 10 years a complete transformation had occurred in the clinical and therapeutic setting of uterine cancer due to the introduction of radium therapy. The majority of cervical cancers appeared to fall in the basal celled group, so that in about 80 per cent. of uninterrupted fatal cases the disease was limited to the pelvis and death resulted from occlusion of the ureters. Since the term sarcoma was applied to very numerous and very diverse groups of malignant tumors, it was obvious that the simple designation sarcoma was no diagnosis. One had to be quite specific in the recognition of the sarcomatous diseases, and this accuracy was generally best attained by stating the exact

cells or tissues of origin or by the use of some definitive clinical term which was free from obscurity. The absolute necessity of distinguishing sharply between different forms of sarcoma was well illustrated by those occurring in the limbs and bones. Not always, but generally, all these tumors appearing in the surgical clinic were masked in one grand class of "malignancy in bone," and most of them were consigned to but one treatment, amputation. Yet one could hardly find in the entire range of oncology more diverse diseases in clinical study, gross anatomy, histological structure, and natural history. They included wholly benign processes tending to spontaneous healing after many years or the most malignant of neoplasms fatal in a few weeks. If any important impression was to be made in our time upon the debility and mortality from malignant tumors, it was everywhere agreed that earlier diagnosis and earlier treatment must be secured. This service could be rendered only by learned and skilful clinicians. All along the line there was need of more cordial reliance upon the simple direct method of clinical study at the bedside and the morphological study of tissues in the laboratory. In the field of tumors it appeared that we had not yet begun to exhaust the resources of these methods.

When and Why Surgery Offers the Best Chance for Cure.—Dr. JOSEPH COLT BLOODGOOD of Baltimore delivered this address, in which he said that surgery of malignant disease was an attempt at complete removal with the knife or the cautery. Since the discovery of the x-ray and radium we had observations that these radioactive agencies inhibited or destroyed the vitality of the malignant cell. Inasmuch as complete removal with the knife or cautery had cured cancer, it was of importance to ascertain what method of treatment offered the patient the best chances of a permanent cure. We were educating the public to the fact that delay in treatment was dangerous, but we must also remember that in the early operable stage of cancer delay in the selection of the best treatment was just as dangerous. Unfortunately there was difference of opinion as to the best first treatment in malignant disease of different types, originating in different localities in the various tissues and organs. At the present time we had for comparison largely the results of surgical treatment with the knife and cautery. These records in many clinics needed careful restudy and revision. With these data brought up to date we should be able to give the profession the exact results, and upon these data only should the decision rest as to the first treatment. In the past and at present the percentage of cures of malignant disease had a large element of error due, first, to incorrect clinical and pathological diagnosis. Permanent cures of cancer were recorded as the result of different forms of treatment in which the local disease was not cancer, but some type of inflammatory or non-malignant process which had a tendency to spontaneous recovery.

Second, the clinical course and duration of malignant disease of different types in various tissues and organs varied with the different types and different individuals, and many cures were recorded when the disease was still present and running its natural slow and latent course. We needed to know the results of treatment in which these elements of error had been eliminated as far as possible for the practical question of what treatment to institute first. In the majority of localities inoperable cancer was due to delay due to ignorance. In the majority of instances, when inoperability could be established by the clinical picture and examination, and the pathological study revealed a process the malignancy of which was unquestioned, surgery offered no cure and other agencies could be tried without any danger from delay. It was in this group of operable cancers that the chief danger lay in the selection of the wrong first treatment. No one today should feel competent to decide which treatment should be instituted first unless that individual had a special knowledge of the pathological processes of the locality in which the disease had arisen. One might be a good operator and an expert technician with the x-ray and radium, and yet be without this essential equipment. Patients with possible cancer should receive the benefit of a thorough examination by one or more individuals trained in diagnosis.

Non-Surgical Methods of Treating Cancer.—Dr. HENRY K. PANCOAST of Philadelphia read this paper, in which he said that in the treatment of malignancy the object to be obtained was the eradication of all tumor cells either by extirpation or by some destructive process. The favorite procedures of the present day were surgery, exposure to the Roentgen rays, the use of radium, and the application of heat. Injections of Coley's fluid in sarcoma were well worthy of consideration. In the endeavor to obtain the best results one should never be so biased in his opinion as to follow solely that procedure in which he was best trained and equipped, with disregard for all others, but should select the method or combination of methods most likely to accomplish the result with greatest certainty in the least time with minimum danger to the patient's life and important structures, and in some parts of the body, as the face, with due regard to unnecessary sacrifice of normal tissue. In the treatment of cancer in some regions of the body, as the stomach and bowel, surgery was the only procedure offering practically any chance of success, but, to be effectual, it had to remove every cancer cell, because the supplementary use of Roentgen rays or radium offered very little hope when surgical removal failed. In other regions, as the uterine cervix, breast, and lower lip, the question of unusually rapid metastasis was of paramount importance, and surgery was the quickest method of extirpation. Here again, however, it had to eradicate every cell. Radiation and heat, usually in the form of electrothermic coagulation, were employed routinely in these regions in the so-called palliative treatment in inoperable cases, and the more successful they proved to be the more they encroached upon surgery in the borderline operable case. Only in case of the lower lip had anyone hazarded to place them on an equal footing with surgery, but, even in this instance, very important reservations had to be made in respect to technique before they should be in any way considered in this respect. In other localities, where early metastasis did not have to be so carefully considered, as other portions of the face and especially the eyelids, radiation and electrothermic methods usually offered better cosmetic results and were uniformly successful. In the mouth surgery was difficult as a rule, possibly excluding the tongue, and growths were so frequently found at an inoperable stage. Fortunately, in these cases, if not too extensive, radiation and electrothermic methods offered considerable hope of success. Probably no branch of medicine offered a greater field for haphazard work than did that which embraced the use of the destructive agents in cancer. They had come into extensive use before the profession at large could be educated in their proper application and principle. That they were extensively employed in an improper manner and without adequate training should be generally recognized. Exposure of body tissues to x-rays brought about definite and well recognized effects. Both the volume and penetration of the rays could be measured and controlled. The output of an x-ray tube was a bundle of waves varying somewhat in their powers of penetration just as did the various components of the light spectrum. For the effect on different depths of tissue definite degrees of penetration were required, and they were obtained by controlling penetration of the output and by filtering out waves of feeble and undesirable degrees of penetration. The exact effect upon cells was not known, but it was probable that the production of secondary radiation within the tissues played a part. Radium was one of the elements of high atomic weight which had an unstable atom and was undergoing at a constant rate a process of decay and giving rise to the phenomena of radial activity. The beta particle was thrown off with a velocity approaching that of light, and, for this reason, and also because of its small mass, it was highly penetrating, approximately a millimeter of lead or silver, half a millimeter of platinum, or three millimeters of aluminum being necessary to stop it. This was the actual therapeutic agent in the superficial use of radium and it might also be in the deep application. So far as had been determined at the present time the effects of radium and of x-rays upon the tissues were the same. The general effect upon the tissues following the prolonged application of radiation was, first, stimulation; longer exposure induced an inflammatory reac-

tion and still longer cell destruction. Therapeutic action depended upon the production of one of these reactions in the tissues. The effect upon healthy or apparently healthy cells was largely in the order of their specialization. In tumors susceptibility bore a certain relation to the approach of the cells to the embryonal type. Diseased cells with lowered vitality were more influenced than healthy cells. Certain lymphoid structures under abnormal conditions exhibited a remarkable susceptibility to radiation. The effect upon the smaller blood vessels and lymphatic vessels of prolonged radiation was an obliteration of the lumen through proliferation of the intima. This was a distinct advantage in the lymphatics, as it tended to check metastasis. The effect of radiation was to a certain extent cumulative, but one massive dose was more effectual than several smaller ones frequently repeated.

Dr. JOHN G. CLARK of Philadelphia said he felt as a member that he personally was very much indebted to Dr. Ewing for the splendid paper which he had presented. He had seen Dr. Ewing in his workshop, he had seen his splendid application of his scientific knowledge every day with his clinical confreres. What Dr. Bloodgood had done in the cancer propaganda and the good he had done was known to all. As he had pointed out to us this evening, a high percentage of cures could be obtained by surgical measures if the cases were taken in time. Dr. Pancoast had alluded to the use of radium in cancer of the cervix. Their series had now run well up to 200 cases. They started by taking what they considered inoperable cases. Because of the extremely good primary effects which they obtained in the inoperable cases, the number of operable cases became fewer and fewer. In other words, the case had to be distinctly operable at the present day before they undertook to treat it by surgical methods. He had seen frightfully inoperable cases freed from their distress and general symptoms for a time, and this alone was an argument in favor of the use of radium. In the group of inoperable cases in which treatment had been carried out four years or more ago, 18 per cent were alive. Because of the fact that radium could not affect the metastases it could cure only a limited number of cases. As Dr. Ewing had expressed it, this new phase of work would open up the question of the real etiology of cancer and perhaps through some of these avenues one might approach the subject in a clear way. We were all at the present time working empirically.

Dr. GEORGE E. PFAHLER of Philadelphia said that he had not been able to follow cases as long as had Dr. Bloodgood, but that he had had 75 cases of epithelioma of the lip, and he had not failed in a single one to get it well; he had had no metastases and the patients had remained well anywhere from six months to six years. Now what he did in these cases was to destroy by preference the disease locally by electric coagulation and then gave a thorough full dose over the chin, covering this whole area with the x-rays, and he then treated the submaxillary region on both sides, going the limit of skin toleration. The patient was seen once a month for two or three months and then at longer intervals for two or three years. The patient was treated two to six times after this destruction. He expected to cure all epitheliomas of the skin, even when they were large, by means of the x-rays or radium, without much local deformity. He preferred to use radium alone on the eyelid, because less contraction resulted. In cases of cancer of the cervix he believed we must learn to get as much radiation into the cancer tissue at once or within two weeks' time as possible. He thought if we treated with only a small amount of radiation that these embryonal cells gradually became adult cells, which developed resistance to radiation, and then we could not touch them without destroying surrounding tissue. Therefore early thorough radiation would help us to get all these patients well.

Dr. WILLIAM L. CLARK of Philadelphia said that his experience taught him that by combined methods better results could be obtained than by surgery alone; he referred to radium, x-ray, and the electrothermic methods. It had been his policy to treat these patients by a combination of x-rays and radium, but chiefly by radium. He had found it possible to insert the radium into hollow needles and to introduce these needles into various parts of the tumor. It had been his policy not to ex-

cise the glands, but to insert into them hollow needles containing radium. If the glands did not entirely disappear it was found that they had broken down in the center and that a fibrous capsule had formed, and no malignancy remained.

Dr. JOSEPH COLT BLOODGOOD said that he thought that there could be nothing more helpful to those who were using other treatment than to know the absolute results of surgery. When results of cures were based upon a careful pathological examination of tissue made by different pathologists, cures then were confined to malignant disease. When one removed a wart from the face, he did not include that in his cures of cancer; when one removed the breast, he did not include that. It was very easy to increase the number of cures by any treatment by inaccurate pathological examination. In fact, one could get many good pathologists to tell him that the lesion that had been removed was cancer. He believed that if a specimen had been submitted to more than one pathologist and there was a disagreement it was not cancer. He believed that many breasts were removed for lesions that surgeons of the past had never seen because they had disappeared before the surgeon had the opportunity to see them.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

MEDICAL COUNCIL OF CANADA.

October, 1919.

(Continued from page 210)

MEDICINE (INCLUDING THERAPEUTICS).

1. Give the symptoms of acute rheumatic fever. Indicate the commoner complications and contrast the clinical forms as seen in the child and in the adult.
2. Discuss the diagnosis of empyema as a complication of pneumonia. Definitely outline the treatment.
3. How may one differentiate cardiac murmurs: (a) organic, (b) functional (including extra cardiac)?
4. Discuss the signs and symptoms of influenza—affecting the respiratory system. Give the treatment of influenza pneumonia.
5. In a case of chronic nephritis with hypertension and arteriosclerosis, (a) discuss the treatment, (1) hygienic, (2) dietetic, (3) medicinal; (b) indicate briefly the possible complications in the respiratory and nervous systems.
6. Discuss the diagnosis of acute cerebrospinal meningitis, from the clinical and laboratory viewpoint. Outline the treatment.

SURGERY.

1. Describe the different fractures of the femur; symptoms, diagnosis, and treatment, apparatus and operations.
2. Pleural empyema, causes, symptoms, and treatment.
3. Give the pathology, clinical features, and the complications of stone in the common (bile) duct.
4. Acute dilatation of the stomach: (a) condition under which it may occur, (b) discuss the diagnosis fully, (c) give your treatment.
5. Extensive compound fracture of humerus, prognosis, and treatment.
6. Urethral stricture, classification, causes, and situation.

ANSWERS.

MEDICINE (INCLUDING THERAPEUTICS).

1. *Symptoms of acute rheumatic fever*:—"After a feeling of malaise, more or less soreness, and general stiffness, and very often after an attack of tonsillitis, the rheumatic pain begins in one of the larger joints: usually the knees, wrists, or ankles. The arthritis extends very rapidly to any of the medium-sized joints. At first the affected joints are red, hot, swollen, and intensely painful; later, the redness becomes less marked, and the joint may assume a dead-white appearance. Frequently the inflammation rapidly subsides in one joint, only to appear in another. The pulse is rapid, full, and soft. The temperature may be very high, rising even to 107° F.; indeed,

hyperpyrexia is not uncommon in this fever. In the majority of cases, however, it remains between 101° F. and 103°. It usually reaches its height in twenty-four hours, and is very irregular. *Marked sweating* of a peculiar sourish smell is a constant feature, and the various hair follicles and other cutaneous glands may become inflamed. *Anemia* may become pronounced. The urine is scanty, high-colored, and often loaded with urates. *Murmurs* either hemic or organic, may often be heard over the heart.

"*The more common complications are*:—Endocarditis, most frequent in youth, and affecting oftenest the mitral valve. It occurs in about half the cases. Pericarditis, less frequent. Myocarditis, which may be slight or profound. Pleurisy. Hyperpyrexia, often attended with delirium or coma. Certain skin eruptions, such as sudamina, miliaria, "petioles" or small red petechial spots around the ankles, and purpura. Pharyngitis and tonsillitis."—(Wheeler and Jack's *Handbook of Medicine*.)

Clinical peculiarities of acute articular rheumatism in children:—"The arthritic symptoms in children are in abeyance, while endocarditis and pericarditis are predominant, and may appear before the joint lesions are observed. Endocarditis follows the joint lesions twice as frequently in children as in adults. Stress is laid upon reduplication of the cardiac second sound, audible at the apex only, as an indication of the development of endocarditis. Rheumatic tonsillitis is common, and may precede, accompany, or follow attacks of rheumatism. Erythema is a frequent concomitant, and is often mistaken for scarlatina. The febrile movement is brief and hyperpyrexia less frequent than in the adult. The nervous features are more marked, notably chorea."—(Anders' *Practice of Medicine*.)

2. "*The symptoms of metapneumonic empyema* consist of fever, continuous with or coming on after that due to the pulmonary inflammation. Chills may occur, but generally do not, except at the onset of the fever, which often rises rapidly to a considerable degree. Sweats are of frequent occurrence, especially at night, but pain and dyspnea are rarely noted. Leucocytosis is generally found and is very suggestive, especially if it reappears after a postcritical absence. The physical signs are those of pleural effusion; and the exploring needle and the x-ray should be repeatedly used in doubtful cases, for when the exudate is encysted or between the lobes, a positive diagnosis may be impossible without their aid. The exudate of a pneumococcus empyema is odorless, thick, greenish yellow, and rich in cellular elements. Microscopically the leucocytes are mostly of the polymorphonuclear variety, mononuclears and endothelial cells being relatively few in number. Generally the pneumococcus is found; sometimes there is a mixed infection with pyogenic cocci, such cases being more severe in character, and accompanied by a higher mortality. Sometimes spontaneous absorption may occur but such an event should never be expected or awaited. Occasionally aspiration may bring about a cure, but generally resection of the ribs is necessary. If let alone the pus may rupture into neighboring structures such as the lung, bronchus, or pericardium."—(Osler and McCrae's *Modern Medicine*.)

Treatment of empyema: "Aspiration seldom cures, but may be undertaken where the dyspnea is great, and an anesthetic given afterwards for the excision of a piece of rib. Drainage is always necessary, and is best done by excising a portion of the fifth or sixth rib in the mid-axillary line. The patient should be allowed to come round quickly from the anesthetic, so that the coughing which occurs will expel the masses of coagulated lymph and help to expand the lung. A big drainage-tube is then inserted. Daily dressings are necessary, but irrigation of the cavity is seldom needed. If, because of delay in treatment the cavity does not soon close, Estlander's operation, or some modification, must be performed. The wound must be enlarged and a number of ribs exposed, and sufficient of them removed to convert the cavity into a pyramidal one, the base of which is the open wound. This is packed with gauze and allowed to heal from the bottom. If the operation has to be extensive, the flaps are allowed to fall back upon the granulating

surface of the lung, and in these cases marked scoliosis and weakness of that side of the chest follows."—(*Aids to Surgery*).

3. *Organic murmurs* are due to stenosis or incompetency of one or more of the valves of the heart.

Functional murmurs are not due to valvular disease.

Organic murmurs may be systolic or diastolic; may be accompanied by marked dilatation or hypertrophy, may be transmitted, and there will probably be a history of rheumatism or of some other disease capable of producing endocarditis. Whereas a murmur, usually systolic, soft and blowing, heard best over the pulmonary area, associated with evidences of chlorosis or anemia, and affected by the position of the patient, is a *hemic* or *functional* murmur, and denotes as a rule an impoverished condition of the blood.

4. *Respiratory symptoms in influenza*.—Coryza, angina, and tonsillitis may be present; laryngitis sometimes occurs, with hoarseness. Tracheitis causes pain, tenderness, and severe paroxysmal cough, induced by irritation at the tracheal bifurcation. Bronchitis is diffuse or occurs over one lung or lobe. The sputum is characteristically nummular and greenish-yellow. It is often blood-stained, viscid, and contains the bacillus. Rales abound near the liver and lingual lobe. . . . Influenza pneumonia, strictly speaking, shows no fibrinous exudation or granulations, but is *catarrhal*, with infiltration of cells about the bronchi as discrete foci. Clinically, the pneumonia is *atypical* and begins without a chill, but with insidious increase of the prior cough and dyspnea. It usually develops during or after the influenza attack, although pneumonia may be the first sign of influenza. Its symptoms are more pronounced than its physical signs, and the disproportionate cyanosis and dyspnea sometimes suggest miliary tuberculosis. Foci of dulness may be found but distinct bronchial breathing is rare; bronchophony is a much more reliable symptom. There may be slow breathing with difficult, prolonged expiration. The heart is often weak and a peculiar redness of the face and head, profuse sweats at the beginning, and characteristic paroxysmal coughing are symptoms not seen in ordinary pneumonia. The foci are bilateral or multiple in 60 per cent. of cases and the apices are involved frequently. The sputum is purulent or bloody.—(From Edwards' *Practice of Medicine*.)

The *Treatment of pneumonia* "depends entirely on the type of case, and the condition of the patient. Routine treatment is the worst of all treatments. Answer the following questions before prescribing: Is the patient full-blooded, and is there present a full bounding pulse? Is the pulse feeble, irregular, or intermittent?"

"In the first case, in a young and previously healthy adult, if there be cyanosis, or signs of dilatation of the right heart, blood-letting to the extent of a few ounces may perhaps relieve the strain, but more generally treatment should be directed to maintaining the strength from the outset.

"In the latter case we can hope for nothing from a depressing treatment, so stimulants must be resorted to, such as alcohol, ammonium carbonate, egg and brandy mixture, quinine, ether, etc. The giving or withholding of alcohol depends upon its effect upon the pulse; should the pulse rate fall and the tongue become moist it may be continued. In asthenic cases, strychnine hypodermically is necessary from the outset, and normal saline may be given by the rectum or by the skin. Oxygen inhalations are used where there is cyanosis, but it is doubtful whether they have saved many lives. When there is evidence of failure of the heart (weakness of the second pulmonary sound, etc.) digitalis should be resorted to. Many prescribe it from the outset.

"The diet should consist of milk, beef-tea or broths, white of egg, and so on. The patient should be as little moved as possible, and the bed-pan must be used. As in other fevers, an airy room and good nursing are essential.

"Remember that narcotics are not well borne in respiratory embarrassment as a rule. Chloral should be avoided, but if *pain be excessive* a hypodermic injection of morphine does more good than harm, notwithstanding that theoretically morphine is contraindicated. It should not be given later than the first few

days of the illness. The pain may also be relieved by poultices, which, however, are of doubtful use if carelessly made, or by application of ice. Cold packs applied to the trunk only, and frequently repeated, are very useful in relieving both pain and fever. Depressant antipyretics are to be avoided."—(Wheeler and Jack's *Handbook of Medicine*.)

5. In *Chronic interstitial nephritis*, the patient "must be cautioned not to expose himself to the inclemencies of the weather, to avoid all excessive muscular exercise and all mental worry; he must have his bowels open at least once daily (alkaline mineral waters, saline cathartics, occasional blue mass pill, etc.); and he must favor the action of the skin so as to relieve the subnormal cardiovascular-renal system; warm or hot baths are serviceable, but they are contraindicated if they cause unpleasant throbbings (increasing blood pressure). The diet is of the utmost importance, the duration of life probably depending more upon discretion in eating and drinking than upon any other factor. In many cases an exclusive milk diet for a time (four to six weeks) is desirable; and it may be repeated from time to time. In general the diet should be sufficiently varied to be attractive, it should be free from irritating qualities and readily assimilable, and the nitrogenous constituents should be relatively reduced. The meat allowance should not exceed 100 grams daily; a diet of ample fuel value should be constructed by adding a sufficiency of fats and carbohydrates; an excess of meat is said to favor the development of uremia; red and white meats are of equal value, and may be allowed in accordance with the patient's desires. As a rule, alcohol should be prohibited, although in some cases a little of the lighter wines appears to do no harm. In many cases the foregoing produces not only amelioration of the symptoms, but perhaps also arrest of the lesions; if so, other measures are not required."—(Kelly's *Practice of Medicine*.)

Drugs are not of much value. (1) *Nitroglycerin* lowers arterial tension; (2) *iron* may be of benefit in pronounced anemia; (3) *aconite* may help when nitroglycerine fails.

Respiratory complications.—Dyspnea, Cheyne-Stokes breathing, hydrothorax, edema of larynx, pleurisy, pneumonia, bronchitis.

Nervous complications.—Headache, insomnia, drowsiness, apoplexy, meningitis, convulsions, coma, epilepsy.

6. *ACUTE CEREBROSPINAL MENINGITIS*.—*Diagnosis* is made from (1) the symptoms, (2) Kernig's sign, and (3) lumbar puncture. *Symptoms*. The onset is generally sudden, with headache, rigors, stiff neck, opisthotonos, vomiting, moderately high (102° F.) and irregular fever, full and rapid pulse, herpes, photophobia; convulsions, delirium, monoplegia or hemiplegia, enlarged spleen, retracted abdomen, and disturbed reflexes may be present. *Kernig's sign* is obtained (if the thigh is flexed at right angles to the abdomen, the leg cannot be fully extended on the thigh, as it can in health, owing to the contraction of the flexor muscles). By *lumbar puncture*, some of the cerebrospinal fluid may be withdrawn and examined for the presence of the diplococcus.

Treatment.—"When there is marked collapse in the early stages, warmth, stimulants, and mustard may be used; later, the indications are to subdue the spinal irritation and to relieve pain. To meet the former, atropine or belladonna, bromides or ergot may be given; for the latter, opium is mainly to be relied upon, and must often be freely used. Leeches to the nape of the neck, and ice to the head are also useful, and an ice-bag may be applied along the spine. Blisters to the spine are advocated by many. Repeated withdrawal of cerebrospinal fluid by lumbar puncture is often of use, at least in relieving symptoms due to pressure, and may lead to cure. When the fluid is purulent, antiseptic solutions (10 cc. of a 1 per cent. lysol solution) may be injected after its removal.

Serum treatment.—"Flexner's antimeningococcic serum has been used with considerable success; 50 cc. of cerebrospinal fluid being withdrawn, 30 cc. of the serum are injected. This may be repeated daily for four days."—(Wheeler and Jack's *Handbook of Medicine*.)

SURGERY.

1. FRACTURES OF THE FEMUR.—“*Intracapsular fracture* most commonly occurs in people over fifty, especially women, owing to senile changes in the bone rendering it brittle. As a rule, indirect violence is the cause—e.g. slipping off a curb or catching the toe in a carpet. The patient falls, and is unable to walk or raise the limb. The head may be held at first by the reticular fibres. If impaction, which is uncommon, occurs, the neck is driven into the head. The displacement consists of drawing up of the lower fragment and external rotation. The rotation is due to the weight of the limb and to greater breaking up of the posterior surface than of the anterior. Shortening is rarely more than three-quarters of an inch. Treatment.—Fibrous union nearly always occurs in old people, as the blood supply of the upper fragment depends solely on the obturator branch running in the ligamentum teres. Then, old people often die of hypostatic pneumonia if kept lying long upon the back. If the patient be young, he should be put upon a long Liston splint, with extension, for six weeks. The same should be tried with old people, but the moment the respirations begin to increase the patient must be got up, wearing a Thomas's hip splint. Impaction favors bony union, and so should not be broken down.

“*Extracapsular fracture* means fracture of the neck near the trochanter, and often is associated with splitting up of the trochanter. The usual cause is a heavy fall on the great trochanter, and impaction is common. Shortening always occurs, up to as much as 3 inches; external rotation of the limb is always present, and if there is impaction the trochanter is broadened.

“*Signs and Symptoms of Fractures of the Neck.*—1. Pains, bruising, and swelling are more marked in extracapsular fractures. 2. Crepitus is present in the unimpacted fractures. 3. Loss of power usually occurs in both, but patients have walked with impacted fractures. 4. Eversion is a striking feature in both. 5. Shortening is much more marked in extracapsular fractures. 6. The position of the great trochanter is altered. It is raised, everted, nearer to the mid-line, and rotates in the arc of a smaller circle than the opposite one.

Its position is demonstrated as follows: *Nélaton's line* is drawn from the anterior superior iliac spine to the tuber ischii. The top of the trochanter should touch this line if the limb is placed in the axis of the body. *Bryant's line*: Drop a vertical line to the bed from the anterior superior spine, and measure off the length of a line running at right angles from this to the trochanter, and compare it with a similar line on the sound side. *Morris's bitrochanteric test*: Measure and compare the distances of the trochanter from the mid-line. 7. Broadening of the trochanter only occurs in extracapsular fracture. Treatment. Unless there is great deformity, it is not advisable to break up impaction. Bony union always occurs. The patient should be anesthetized, and traction kept upon the leg during fixation. A stirrup extension is first put on, and then the leg is firmly bandaged to a long Liston splint, with the eversion corrected. The chest is fixed to the splint by a binder; the foot of the bed is raised, and a weight of 8 or 10 pounds is put on to the cord of the stirrup extension. Hodgson's splint may also be used. Union occurs in six weeks.

“*Fracture of the great trochanter* without fracture of the neck is very rare. If the fragment is displaced, it should be wired or pegged.

“*Separation of the epiphysis* of the head of the femur resembles intracapsular fracture. Impairment of growth may follow.

“*Fractures of the shaft of the femur* may be due to either direct or indirect violence. The displacement varies according to the situation and obliquity of the fracture. In the upper third the upper fragment is flexed, abducted, and rotated out by the psoas, iliacus, and glutei, while the lower is drawn up and adducted by the adductors, and rotated out by its own weight. In the middle third the displacement is less marked. In the lower third the lower fragment is often tilted backwards by the gastrocnemii, and may puncture, compress, or rupture, the vessels and cause gangrene. Treatment.—In fractures near the upper or lower ends,

the smaller fragment, as a rule, is tilted, and cannot be controlled by an ordinary splint, so the longer fragment must be placed in a plane corresponding to that in which the shorter lies. For this purpose Macintyre's and Hodgson's splints are useful. In the middle third, extension and a long Liston splint, with a short Gooch splint over the inner part of the thigh. For children a double Bryant splint is necessary. The ‘gallows’ splint and plaster are also useful for children.

“*Supracondylar Fracture* is the same as fracture in the lower third.

“*T-shaped Fracture of the Lower End* separates the two condyles, as well as produces transverse fracture above them. The condyles can be moved on one another, with crepitus, and the joint is rapidly distended with blood. The only satisfactory treatment is to open the joint and peg the condyles together.

“*Separation of either Condyle* produces distention of the joint with blood, abnormal lateral mobility of the knee-joint with crepitus, and perhaps deflection of the leg to the injured side. The leg should be put in plaster after reduction; but the most satisfactory treatment is operation and mechanical fixation.

“*Separation of the Lower Epiphysis* is rare, and simulates transverse fracture; but the epiphysis is displaced forward, and the diaphysis may compress the popliteal artery. The injury is often compound. Reduction by traction and manipulation should be performed, and the limb put up fully flexed without a splint. The limb is fixed by a bandage and laid on its outer side, with an ice-bag over the knee. In a fortnight passive movement is begun.” (*Aids to Surgery*.)

2. EMPYEMA. Etiology: Wounds, injuries, pleuropneumonia, direct extension of a suppurative process in the lung, abdomen, or neck. The bacteria will vary with the cause; *Diplococcus pneumoniae* is the commonest; tubercle bacillus, staphylococcus, streptococcus, *Colon bacillus* may also be present.

The physical signs are those of fluid in the pleural cavity; that side does not move well, the percussion note is dull, there is absence of breath sounds, vocal fremitus and resonance are diminished. Left alone, an empyema may burst through an intercostal space, usually the fifth. The lung is collapsed in extent according to the amount of pus. The pleura, at first covered with lymph, soon becomes covered with layers of granulation tissue, the deeper part of which is converted into fibrocartilaginous tissue, and the lung itself also undergoes some fibroid change. If the pus is let out early the lung and pleura soon expand, but if allowed to go on the infiltration of the lung and the density of the scar tissue covering it hinder expansion. Nature attempts to remedy this in various ways: (1) The other lung expands and pushes the heart over to the opposite side; (2) the chest wall falls in, the intercostal spaces are obliterated, and the spine is curved, with its concavity toward that side; (3) the abdominal viscera are pushed up; and (4) exuberant granulations form on the pleura. If a cavity still remains an operation is necessary.

Symptoms: Fever, sweats, chill, diminished breath sounds and vocal fremitus, impaired mobility of chest, dullness on affected side, heart displaced to opposite side, leucocytosis.

Treatment: “Treatment should be undertaken without delay. Aspiration seldom cures, but may be undertaken where the dyspnea is great, and an anesthetic given afterward for the excision of a piece of rib. Drainage is always necessary, and is best done by excising a portion of the fifth or sixth rib in the mid-axillary line. The patient should be allowed to come round quickly from the anesthetic, so that the coughing which occurs will expel the masses of coagulated lymph and help to expand the lung. A big drainage-tube is then inserted. Daily dressings are necessary, but irrigation of the cavity is seldom needed. If, because of delay in treatment, the cavity does not soon close, Estlander's operation, or some modification, must be performed. The wound must be enlarged and a number of ribs exposed, and sufficient of them removed to convert the cavity into a pyramidal one, the base of which is the open wound. This is packed with gauze and allowed to heal from the bottom. If the operation

has to be extensive, the flaps are allowed to fall back upon the granulating surface of the lung, and in these cases marked scoliosis and weakness of that side of the chest follow."—(*Aids to Surgery*.)

3. "Gall-stones are rare in young subjects, but are commonly met with after middle age, especially in women. They consist of cholesteroline crystals, bile pigment, and bile salts, with a nucleus of inspissated mucus. When multiple stones are present they are faceted.

"Causes.—Retardation of the bile flow from the pressure of corsets, a sedentary life or irregular meals, and especially constipation, are the predisposing causes; then follows infection from the intestine, by the colon or typhoid bacillus setting up catarrh of the gall-bladder. Cholesteroline and pigment are now deposited, and give rise to stones. Gall-stones are commonly found in cases of carcinoma of the gall-bladder.

"Course.—Gall-stones only give rise to symptoms—(1) when they try to escape; (2) when they hinder the escape of bile; and (3) when they cause cholecystitis.

"Symptoms are entirely absent in many cases. Pain in the right hypochondrium is a common symptom, and is more often due to attacks of cholecystitis than to biliary colic. If the patient is examined during an attack, a distended gall-bladder projecting below the costal margin at the tip of the eighth or ninth costal cartilage may be felt. It forms an elastic tumor, moving with the liver on inspiration and dull to percussion.

"Biliary Colic is due to the passage of a stone along the bile-passages. It varies from slight pains, usually ascribed to stomach-ache, to the most agonizing colic, beginning in the right hypochondrium and accompanied by vomiting. The pain continues till the stone reaches the intestine or passes back into the gall-bladder. Some tenderness and slight jaundice usually follow for a few days, but jaundice is not present if the stone does not reach the common duct. These attacks recur at varying intervals, and should be treated by hot fomentations and the hypodermic injection of $\frac{1}{4}$ to $\frac{1}{2}$ grain of morphine.

"Impaction of a Stone.—When the stone lies in the cystic duct, the gall-bladder is usually distended with mucus and some bile; there is a varying amount of pain, but no jaundice. When the stone lies in the common duct, the pain and tenderness are more marked, and there is always jaundice, which, however, varies in intensity from time to time. A stone impacted in the lower end of the duct may ulcerate into the duodenum; higher up it may ulcerate into the colon or into the peritoneal cavity, producing peritonitis, or into the retroperitoneal tissues, producing an abscess."—(*Aids to Surgery*.)

The following list of complications is given by Robson: "Intestinal obstruction due to localized peritonitis, volvulus, adhesions, or large gall-stones which have ulcerated into the bowel; general hemorrhages, the result of chronic jaundice; adhesions causing pain, even after gall-stones have been removed, or dilatation of the stomach; fistula into neighboring viscus or to the surface of the body; stricture of cystic or common duct; abscess (liver, kidney, pericystic, abdominal wall, subphrenic, pancreas); cholangitis, simple or suppurative; septicemia or pyemia; phlegmonous or gangrenous cholecystitis; perforative peritonitis; cancer of the gall-bladder or ducts; pneumonia of the right lung or empyema of the right pleura; acute or chronic pancreatitis; cirrhosis of liver."

4. "Acute dilatation of the stomach is a sudden paralytic distention of uncertain origin, but probably the result of disturbed innervation. About 40 per cent. of the cases arise after operations, usually on the upper abdomen (hence shock, sepsis, purgation, handling of the viscera, and the anesthetic have been held responsible); 20 per cent. during exhausting fevers (typhoid, pneumonia, etc.), 10 per cent. after errors in diet, particularly the ingestion of enormous quantities of food or drink, and the rest as the result of trauma, emotional attacks, childbirth, peritonitis, and spinal deformity, especially when there is lordosis, which may encourage pressure on the duodenum. The enormously dilated stomach forces the small intestine into the pelvis and renders its mesentery taut. As a

consequence the duodenum is compressed between the root of the mesentery and the superior mesenteric vessels in front and the vertebral column behind. Some surgeons regard this constriction of the duodenum as primary, hence the terms *gastromesenteric ileus* and *arteriomesenteric occlusion*. Even if this is not true, it is certain that a secondary factor is thus added which serves to augment and perpetuate the condition. The symptoms are pain; profuse vomiting; severe thirst; distention of the stomach, which interferes with the action of the heart and lungs, and which may be so great as to fill the whole abdomen; gastric splashing sounds on succussion; constipation, perhaps with clay-colored stools; scanty urine; and finally collapse, with, if proper treatment is not quickly administered, death in two-thirds of the cases. The diagnosis from peritonitis is made by the absence of fever, leucocytosis, tenderness, and rigidity. In high intestinal obstruction there is little distention.

"The treatment is gastric lavage; placing the patient on the right side with the pelvis elevated, in the knee-chest posture, or prone, in order to relieve the duodenum of pressure; salt solution subcutaneously or intravenously; strychnine, atropine, or eserine salicylate hypodermically; electricity to the epigastrium; and, as a last resort, gastroenterostomy."—(*Stewart's Manual of Surgery*.)

5. "The chief dangers of compound fractures are, firstly, *hemorrhage*, the blood, instead of collecting within the tissues of the limb, escaping externally if a sufficient opening is present; otherwise subcutaneous extravasation occurs, as in a simple fracture; and, secondly, the advent of *infection*. The latter is the more important, and may lead to the most serious consequences. Portions of muscle and periosteum, which in a simple fracture would be absorbed or incorporated in the callus, become infected, and may slough. Small isolated fragments of bone are almost certain to necrose if suppuration ensues, while acute osteomyelitis may occur, leading to extensive necrosis, and even endangering the patient's life by pyemia. Joints may be infected, and acute suppurative arthritis result; and secondary hemorrhage may follow an infective peri-arthritis. Such results are more likely to follow when the external wound is small and insufficient provision has been made for drainage."

"In the treatment of compound fractures the main object is to render the wound aseptic and to give efficient exit to the discharges. For this purpose the patient should in all cases be anesthetized, the limb shaved, and thoroughly purified, and the wound enlarged and thoroughly washed out with some reliable antiseptic. It may be advisable to excise torn and dirty fragments of skin, muscle, and tendon, especially when dirt has been ground into them. Loose fragments of bone are removed and portions denuded of their periosteum may be taken away lest necrosis should ensue; where fragments retain any considerable connection with the soft parts they may be left without fear. When a sharp end of one of the fragments is protruding through a small opening in the skin it is first purified thoroughly before attempting its reduction and then replaced after enlarging the wound in the skin, or a portion sawn off. Hemorrhage is dealt with in the usual way, and the fragments are placed as nearly as possible in their normal position. If the fragments can be brought accurately into position it is well to fix them by some mechanical appliance; but where the ends of the bone are much comminuted the small portions must be arranged in position as well as possible, and no attempt made to wire them. A good-sized drainage tube is inserted, and, if need be, counteropenings are made; the external wound is closed or not, according to circumstances, and dressed, and suitable splints are then applied. Under such a régime the majority of cases do well. Immoveable apparatus may be used after a time, windows being left in the plaster cast to allow wounds to be dressed."—(*Ross and Carless' Manual of Surgery*.)

6. URETHRAL STRICTURE.—Three forms of stricture are described, spasmodic, congestive, and organic.

"Spasmodic and Congestive Strictures frequently co-exist, although either congestion or spasm may be the predominant feature in any particular case. Thus, in acute gonorrhea the mucous membrane often becomes

engorged and thickened to such an extent as to interfere with the act of micturition. Spasm is the chief element under the following conditions: (1) When a patient, suffering from slight organic stricture, is exposed to wet or cold, especially after heavy drinking; (2) after operations on the rectum or spermatic cord; (3) as a result of catheterism; and (4) from perineal irritation of the urethra, as by a blow or kick in this region, or from prolonged riding on a bicycle with a badly-fitting saddle or on horseback.

"Organic Stricture is the term applied to an undilatable condition of the urethra, resulting from the development of cicatricial tissue within its walls. The Causes of organic stricture are: (a) The long continuance of a urethral discharge, following gonorrhea, or the frequent recurrence of this affection. Chronic inflammations are always characterized by a tendency to sclerosis of the tissues involved, and the urethra is no exception to this rule, its walls under these circumstances becoming thickened, indurated, and contracted. (b) The cicatrization of a urethral chancre, or of an ulcer caused by the impaction of a stone, or the contraction produced by the healing of a urethral abscess, may also lead to stenosis. (c) The most intractable forms of stricture are those due to cicatrization after rupture or laceration of the urethral wall. The usual Situation is within the bulb, i.e., just in front of the triangular ligament; but the orifice and body are not infrequently affected. It occurs in the membranous portion only as a result of traumatism, and never in the prostatic. To find more than two strictures in any particular case is unusual, although three or four have been met with."—(Rose and Carless' *Manual of Surgery*.)

BULLETIN OF APPROACHING EXAMINATIONS.

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION
Alabama	S. W. Welch, Montgomery	Montgomery, July 12
Arizona	A. Martin, 207 Goodrich Building, Phoenix	Phoenix, April 5
Arkansas	C. B. Pinkham, Little Rock	Little Rock, May 10
California	C. B. Pinkham, Sacramento	Los Angeles, Feb. 14
Colorado	David A. Strickler, Empire Building, Denver	Denver, April 6
Connecticut	R. E. Rowley, Hartford	Hartford, March 8
Delaware	H. W. Briggs, Wilmington	Wilmington, June 21
Dist. of Col.	E. P. Copeland, Washington	Washington, April 12
Florida	M. W. Rowlett, Tampa	Jacksonville, June 13
Georgia	C. T. Nolan, Marietta	Jacksonville, June 13
Idaho	Edmt. O. Jones, Boise	Boise, April 5
Illinois	F. C. Dodds, Springfield	Chicago, Feb. 28
Indiana	W. T. Gott, Crawfordville	Indianapolis, May 10
Iowa	G. H. Sumner, Des Moines	Des Moines, May 10
Kansas	H. A. Dykes, Leavenworth	Topeka, May 10
Kentucky	J. N. McCormack, Louisville	Louisville, May 10
Louisiana	E. W. Mahler, New Orleans	New Orleans, May 10
Maine	F. W. Searle, Portland	Portland, March 8
Maryland	J. McP. Scott, Hagerstown	Baltimore, June 21
Massachusetts	W. P. Bowers, 1 Beacon St., Boston	Boston, March 8
Michigan	B. D. Harrison, 205 Whitney Building, Detroit	Ann Arbor, June 14
Minnesota	T. McDavitt, St. Paul	Minneapolis, April 5
Mississippi	J. D. Gilgleyen, Jackson	Jackson, May 10
Missouri	G. H. Jones, Jefferson City	St. Louis, May 10
Montana	H. A. Conner, Helena	Helena, April 5
Nebraska	H. H. Antles, Lincoln	Lincoln, June 8
Nevada	S. L. Lee, Carson City	Carson City, May 2
N. Hampshire	C. Duncan, Concord	Concord, May 10
N. Jersey	S. MacAlister, Trenton	Trenton, June 21
New Mexico	R. K. McClanahan, E. Las Vegas	Santa Fe, May 10
New York	G. M. Wiley, Univ. of State of New York, Albany	New York, May 23
No. Carolina	K. P. B. Bonner, Moorehead City	Raleigh, June 14
No. Dakota	G. E. Williamson, Grand Forks	Grand Forks, July 5
Ohio	H. M. Platter, Columbus	Columbus, May 10
Oklahoma	J. M. Byrum, Shawnee	Oklahoma City, May 10
Oregon	B. E. Miller, Portland	Portland, May 10
Pennsylvania	N. C. Schaeffer, Harrisburg	Harrisburg, May 10
Rhode Island	B. U. Richards, Providence	Providence, April 7
So. Carolina	A. E. Booser, Columbia	Columbia, June 28
So. Dakota	H. R. Kenaston, Bonestell	Sioux Falls, May 10
Tennessee	A. B. DeLoach, Memphis	Memphis, May 10
Texas	T. J. Crowe, Dallas	Dallas, May 10
Utah	G. F. Harding, Salt Lake City	Salt Lake City, May 10
Vermont	W. Scott Nay, Underhill	Burlington, May 10
Virginia	J. W. Preston, Roanoke	Richmond, June 14
Washington	W. M. O'Shea, Seattle	Seattle, May 10
W. Virginia	R. T. Davis, Charleston	Charleston, July 12
Wisconsin	J. M. Dodd, Ashland	Milwaukee, June 28
Wyoming	J. D. Shingle, Cheyenne	Cheyenne, May 10
National Board S. Rodman, 1310 Medical Arts Building, Philadelphia	Philadelphia, Feb. 23	Philadelphia, Feb. 23

*No reciprocity recognized by these States.

Miscellany.

The First Centenary of the Paris Academy of Medicine.—Brochin, writing in the *Gazette des Hôpitaux* for December 18, 1920, xciii, 106, indulges in reminiscences of the Paris Academy of Medicine, which was organized in December, 1820. The new body represented a consolidation of the old Academy of Surgery and the Royal Society of Medicine. The first few years the meetings were held in the Louvre and then during the period 1824-1850 the society leased a building in the Rue de Poitiers. When in September, 1850, it moved into the old chapel of Charité Hospital there were solemn ceremonies. This building proved to be its home for more than 50 years. In 1902 it moved into its present quarters in the rue Bonaparte. The first president of the Academy was Portal and among his earlier successors we note the names of Dupuytren in 1824, Lisfranc, 1835, Belpeau, 1849, Orfila, 1851, and Cruveilhier, 1859. Many of the older presidents are forgotten today. Brochin remembers when Malgaigne was president and among his successors recalls Bouchardat, Tarnier, Jaccoud, Guyon, Tillaux, Dieulafoy, Lannelongue, Hayem, Delorme, and many others of equal or lesser note. Several eminent men almost failed to become members, including Labbé and Péan. The latter had a way of presenting specimens instead of patients which roused considerable opposition. The Academy was naturally conservative and in passing on the great questions of the day was often slow in accepting new discoveries. This was the case when Villemin read his paper on the contagion of tuberculosis, and Pasteur's early work roused the most violent opposition. The author states that the systematic opposition to all new developments proved a blunder and in the case of Pasteur it went to extremes. When we consider how quickly the latter's views made good it is hard to realize the attitude of many of the leaders of the Academy. It was argued for example that a mere chemist could know nothing of medicine.

Medical journalism has played a considerable role in the history of the Academy. Originally the journalists had a special bench, but on the removal to a new building in 1850 they were compelled to use the common seats. A protest led to the resumption of the old order. Many of the former journalists are mentioned by name, with the periodicals represented, these including some of the lay journals. Not a few of these men were also eminent as practitioners and scientists. We note the names of A. Broca, Dujardin-Beaumetz, and Guérin, famous as the enemy of Pasteur. When the society moved to its present quarters, the journalistic force, which then comprised 15 or more men, including secular reporters, were relegated to a corner where they were out of touch with the members and where the poor acoustics rendered their work difficult. Despite all dissatisfaction volubly expressed the officers compelled them to remain in the "chicken coop" as it was called until recently, when the present president Richelot, who was once a journalist, intervened to make the situation more tolerable. The author in closing styles himself "a friend of the Academy but a greater friend of truth."

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Original Articles.

THE POSSIBLE RELATION OF THE ADRENAL CORTEX TO GRAVES' DISEASE AND TO MYXEDEMA.*

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MUCH has been written about the rôle of the adrenal medulla in Graves' disease, but the adrenal cortex apparently remains a *noli me tangere*. The reason is obvious: little is known about the physiology of the cortical portion. But it seems that with increased, though fragmentary, knowledge of the suprarenal cortex obtained in recent years, a better understanding may be reached as to its possible rôle in some endocrine disorders. Before approaching our theme, a few remarks are essential in regard to the relation of the adrenal medulla to Graves' disease and to myxedema.

The symptoms and signs which have led the clinician to suspect overactivity of the medulla in hyperthyroid states are as follows: the occasional hypertension, the tremors, the tendency to alimentary glycosuria, and perhaps the phenomenon of exophthalmos. That exophthalmos is due to excesses of epinephrin and not to excesses of thyroid, was emphasized by Maurice¹ of Lyons. The sensitiveness of hyperthyroid subject to epinephrin injections or to the well known Goetsch test; the sensitiveness to the same test of individuals afflicted with diffuse adenomatosis of the thyroid, a clinical entity recently discovered by Goetsch;² the findings of increased amounts of epinephrin by Adler,³ Fraenkel,⁴ and others in the blood serum in exophthalmic goiter cases, are the corroborative evidences furnished to the clinician by the laboratory.

It is true, however, that the epinephrin content in the medulla, as Elliott⁵ writes, has never been found increased in any morbid condition, especially in Graves' disease. Elliott emphasizes the dependence of epinephrin losses in the medulla upon post-mortem changes. Thus the low epinephrin contents found in the medulla in exophthalmic goiter cases do not disprove the hyperfunction of the medulla in hyperthyroid states. Pettavel⁶ found in the majority of cases of Graves' disease large cells with large nuclei in the medulla. He sees in these histological changes a partial cellular hypertrophy and inasmuch as these findings were present in the medulla of

Basedow cases with adrenals of normal weights, he concludes that the overactivity of the medulla in hyperthyroid states must be of a mild grade. Pettavel's findings are in perfect accord with Goetsch's discovery that hyperthyroid individuals are sensitive to epinephrin injections. The reverse condition, hypofunction of the adrenal medulla, may possibly hold good for myxedematous individuals.

It is known from experiments that the renal vessels are more sensitive to epinephrin than the vessels of other organs. Epinephrin injections dilate the vessels of the kidneys. Perhaps the frequent polyuria in Graves' disease may be explained by the diuretic effect of epinephrin. The diminished diuresis in myxedema may, then, be due to diminished epinephrin secretion.

The high sugar tolerance in thyroidectomized animals, the effectiveness of epinephrin injections to cause glycosuria in such animals, as shown by Eppinger, Falta and Rudinger,⁷ the absence of glycosuria after injections of the drug in individuals afflicted with Addison's disease, the hypoglycemia in myxedema, as well as in Addison's syndrome are facts suggestive of a possible mild hypofunction of the adrenal medulla in myxedema. Furthermore, eosinophilia is frequent in Addison's disease. In four out of six of my patients afflicted with Addison's disease, in whom blood counts were made, eosinophilia was a marked feature. Wolf and Thacher⁸ found that the eosinophiles in Addison's disease ranged between 10 and 20 per cent. Hyper-eosinophilia in myxedema was reported by Lebreton and Vaquez,⁹ Bence and Engel,¹⁰ Falta¹¹ and others. That eosinophilia in myxedema may actually be due to a deficit in epinephrin secretion is highly probable because intravenous injections of epinephrin in animals lead to eosinophilia.

Necropsy reports of myxedematous individuals in regard to the suprarenals are meager, as one may convince himself by searching through the literature. In the pre-thyroid era little attention was paid to the suprarenals. In recent years, on account of the beneficial results of substitution therapy, autopsies in myxedematous individuals are rare. Hun and Prudden¹² found the adrenals atrophied in two cases of myxedema.

From all these considerations, it seems possible to assume a mild deficiency of the adrenal medulla in myxedema. The reason why this adrenal deficiency in myxedema remains hidden from the clinician will be discussed later. The object of this paper is to show that the adrenal-cortex plays an important rôle in hyperthyroidism and in myxedema, and that the share of the cortex in Graves' disease differs from that in myxedema.

*Read before the Harlem Medical Association, November 4, 1920.

Embryology suggests that the function of the cortex may be entirely independent of that of the medulla. The cortex originates from the peritoneum, the medulla from the sympathicus. While it is known that the adrenal medulla has endocrine properties, the same does not hold true so far for the cortex. It is an established fact that the cortex and not the medulla characterizes the higher animals. When the cortex in the fetus remains undeveloped, corresponding to such a stage as in lower animals, the child is born without cerebral hemispheres. In the anacephalic child the rest of the body is normally developed. Such influences are ascribed to hormones.

It is known that in fish the cortex is entirely isolated from the medulla. Inasmuch as it is generally believed that the medulla receives its raw material for elaboration of epinephrin from the cortex, in fish, the latter must unload its material for the medulla through the general circulation. This process reminds one of the workings of duodenal secretin upon the pancreas. This is also suggestive that the cortex has some properties common to endocrine glands.

The adrenal cortex under physiological conditions is the richest organ in lipoids; it also contains pigment, which is iron free. The French believe that the cortical portion represents the factory for the lipoids; the Germans consider the adrenal cortex as a storehouse for the lipoids drawn from the tissues through the blood stream.

Although some experiments were performed to show that the cortex and not the medulla is essential to life, this has not been generally accepted. It is probable that both are equally essential. One must assume, in the present state of our knowledge, that the functions of the cortex and the medulla are dependent and interdependent. This means that some functions ascribed to the suprarenal gland are chiefly carried out by the cortex, others by the medulla, and again, others by both portions. The cortex and the medulla possess an accessory apparatus. The accessory glands, belonging to the interrenal system, have the same histological structure and the same properties. They may justly be called emergency apparatuses, and so may the adrenal system, with its ganglia which possesses chromaffine properties. The greater importance of the cortex may possibly be assumed from the well-known fact that cortical tissue is found in the medulla; also occasionally in the kidneys; but medullary substance has never been found in cortical tissue.

There is not a single case on record in which life was possible without a cortex; but there are recorded cases which show that in some individuals the medulla was absent. Complete absence of the medulla was found by Ulrich¹² in a man, aged 72. Klebs¹³ reports an autopsy of a young and robust man, aged 20, who died from pneumonia, that revealed the presence of cortex only. One must assume that other members of the adrenal system furnished the necessary medullary epinephrin in these individuals. The cortex, according to Elliott,¹⁴ is completely devoid of epinephrin, and it is not under control of the splanchnic nerves, as proved by the same author.¹⁵

The fact that the cortex and the medulla are united to form one organ in man and other higher

animals, and not separated as in fish, shows that such arrangement is necessary for the harmonious working of both suprarenal portions. Each gland in normal individuals weighs from 4 to 5 grams, with an epinephrin content of 4 to 5 mngs. The cortex composes 90 per cent. of the gland; the medulla, 10 per cent. Both glands weighing about 10 grams, contain 1 gram of medullary substance with 10 mngs. of epinephrin. In order that the tissues of the body remain in a physiological epinephrin equilibrium, the medulla must produce more or less constantly this amount of epinephrin. The medulla probably receives material for the elaboration of epinephrin directly or indirectly from the cortex.

According to the studies of Flint,¹⁶ Srdinko and Landau,¹⁷ the cortex and the medulla have a common vascular system; the medulla in addition has an independent branch from the cortex with the general circulation. The cortex may pour its material for elaboration of epinephrin directly into the bloodstream, as in fish. In man, the communication between the cortex and the medulla is probably a direct one. The blood of the body, according to Poll,¹⁸ which has become deprived of its epinephrin contents by the tissues, is carried by the vessels which serve the medulla directly to the epinephrin-forming cells; the latter give off their elaborated secretion and the blood, with its renewed epinephrin load, is again returned to the general circulation. The medulla receives material for the epinephrin through the venous blood discharged from the cortex, the latter containing the products of metabolism of this tissue. These adrenal cortical products constitute the raw material for elaboration of the medullary secretion.

Thus the chief function of the cortex seems to consist in supplying the medulla, either directly or indirectly, with its products for the elaboration of epinephrin. The second function of the cortex is probably a detoxicating one. Myers¹⁹ has shown that cobra toxin loses its toxicity if mixed with an emulsion of suprarenal cortex, but that its toxicity is unchanged by an emulsion of suprarenal medulla.

What are the poisons which the cortex must detoxicate and what is the nature of the raw material which the cortical portion furnishes the medulla for the elaboration of its secretory product? According to the recent investigations of Bauer,²⁰ the cortex detoxicates the waste products of the intermediary metabolism which are present in the circulation even under physiological conditions. The chief product of the purin metabolism presents uric acid. The latter, according to Bauer, is also the mother substance of pigment. The melanin of the cortex, or oxidized uric acid, is elaborated into epinephrin by a process of destruction and by repeated processes of reduction in the medulla. Thus the oxidation of uric acid in the cortex serves a double purpose: to keep the pigment in the cortex in equilibrium, and to oxidize the raw material for the medulla. Bauer quotes Meirovsky²¹ who emphasized long ago that the adrenal glands regulate the metabolism of pigment in the skin by decomposing certain products of epidermal layers like tyrosin and its derivatives. Neuberg²² went even further and showed that the tryptophan group with tyrosin, p-oxyphenylethylamin and adrenalin belong to the

substances of the animal body from which melanin forms through enzymatic processes.

Inasmuch as Bauer's theory presents the basis for the contention defended in this paper, a few remarks are essential in considering the working hypothesis which led him to his conclusions. Bauer found the adrenals very large in individuals who died from nephritis, especially in those in whom contracted kidneys were found at necropsies. While the weight of the adrenals normally averages about 10 grams, they amounted in his nephritics to as high as 18 grams. Simultaneously with the large size of the suprarenal glands, the cortex was unusually broad and it showed a pronounced increase in pigment. Similar findings were also noted by him in those cases of Addison's syndrome in which there were no gross anatomical changes in the gland. Obviously, when suprarenal glands are destroyed by caseation, as in the majority of cases of Addison's disease, an accessory adrenal having the same function as the cortex, may hypertrophy and work vicariously for the destroyed cortex. He claims that since kidneys, according to our present state of knowledge, do not possess nerves regulating their function, the renal function depends solely upon the physics of the general circulation, *i.e.* upon the velocity of the blood current and upon the height of the blood pressure. Furthermore, he refers to the previously mentioned fact that the renal vessels are the most sensitive to epinephrin. The greater the amount of purin bases in the blood, the more epinephrin is formed. He compares the adrenals to a ventilanometer which, under physiological conditions, prevents the accumulation of toxic uric acid in the body and in such a manner saves the organism from uremia. In this sense the cortex, especially the interrenal system, has a detoxicating function.

In case the interrenal system has become overworked from binding and oxidizing the uric acid in severe cases of nephritis and cannot fulfill its function, the uric acid is deposited in the skin, where it may become oxidized to pigment. From individuals who died from severe nephritis with uremia, Bauer excised pieces of skin 24 to 48 hours after death, fixed them in alcohol and let them remain in the incubator in bottles filled with distilled water at a temperature of 56 to 60 degrees for three days. The same procedure was carried out with the excised skin from bodies of individuals who did not show any pathology in the kidneys and who did not have during life any symptoms or signs of nephritis. His results were uniform: while the skin from the uremic cases showed on the first day a marked brown color which grew more intense on the third day, the skin from the controls showed no change in color during the whole procedure.

Bauer also demonstrated, by the most accurate microchemical tests, uric acid in all sympathetic ganglia, its absence in non-sympathetic ganglia, and its presence in the cortex, chiefly in the pigment zone.

Mirovsky proved that the pro-pigment of melanin was present in the skin of individuals who died from Addison's disease and that the skin of the bodies required only oxidation over water of a temperature of 56° C. in order to show distinctly the phenomenon of pigmentation. The skin

from individuals who died from various other diseases did not assume a brown color after the same procedures. The hyperpigmentation of the skin in the Addison syndrome, one of the cardinal symptoms, is due to excessive accumulation of uric acid in the blood which is deposited and oxidized in the skin.

That there is a marked retention of purin bases in the blood in Addison's disease was shown by Wolf and Thacher,²² who found that the retention of creatinin and uric acid in this condition was pronounced. The accumulation of uric acid in Addison's disease has two causes: (1) the cortical material cannot be utilized for the elaboration of epinephrin and (2) the deficiently functioning cortex has to oxidize still more uric acid.

When the cortex has been completely destroyed, as in some cases of Addison's disease, by tuberculosis, an accessory gland may temporarily perform the function of oxidation. Ultimately the vicarious function must cease. This is evident from a case of Lippman's²³ of acute Addison's disease which lasted only 18 days. The cortex and medulla were found to be destroyed by caseation; an accessory gland was found to be hypertrophied. No tubercle bacilli were demonstrated in the hypertrophied gland. Thus the detoxicating power of the cortex is not only evident *in vitro*, as in the case of cobra venom, but also *in vivo*, as in nephritis and Addison's disease.

The cortex seems to have an effect upon bacteria. The cortical lipoids were found by Elliott²⁴ to have disappeared in all acute febrile diseases, in acute septic conditions and to a lower degree in chronic infections. He claims that cortical lipoids are not influenced by postmortem changes as the epinephrin content in the medulla. It should be emphasized that in the influenza epidemic of 1918 many cases were observed with such pronounced asthenia that they reminded one of Addison's syndrome with an additional fever. In connection with the possible rôle of the cortex in this condition it may be mentioned that Wells²⁵ found pronounced increases of uric acid in the blood of influenzal pneumonias which terminated fatally.

The cortex also controls the body weight. Elliott and Tuckett²⁶ found that the increase in the size of the body is principally due to an increase in the cortical portion. Exceptionally large suprarenals are characteristic of the guinea-pig and are composed almost entirely of cortex. According to the same authors a five-fold increase in weight of the guinea-pig body is accompanied by a twelve-fold increase in weight of the adrenal cortex. The medullary portion practically remaining unchanged. In man cortical overgrowth leads to a premature adolescence. Emaciation and muscular weakness after epinephrectomies runs parallel to the amount of suprarenal tissue removed. That these symptoms in animals after removal of the adrenals are chiefly due to the cortex is evident from the fact that the animals that possess highly developed accessory glands like rats, stand epinephrectomies better than animals like guinea-pigs, which in a great majority of cases, do not possess them. In guinea-pigs after unilateral epinephrectomy, the remaining gland invariably hypertrophies, while in other animals that possess accessory glands, especially in older ones,

the remaining adrenal does not so often hypertrophy.

Still another function of the cortex is the control of the blood pressure, although to a lesser degree than the medulla. Voegtlin and Macht²² succeeded in isolating from the cortex a substance which, on injection into dogs, caused a considerable rise in blood pressure and had an effect like digitalis. In my own unpublished experiments with intravenous injections of cortex I have obtained a rise in blood pressure in all rabbits experimented upon. I also obtained in animals a slight rise in blood pressure with cholin, purified and crystallized by Dr. Bookman from Merk's cholin, which in the impure state lowers blood pressure. It should be noted that the cortex is the richest organ in cholin. Aubertin and Ambard²³ found in seven out of eight cases of contracted kidney with hypertension, hyperplastic and adenomatous changes in the adrenal cortex; in seven cases of nephritis without high blood pressure and twelve other pathological conditions, similar changes in the cortical portion were noted only on one occasion. So high blood pressure may also be due to hyperfunction of the cortex.

To summarize what has been said so far about the cortex: (1) It furnishes raw material to the medulla for elaboration of epinephrin. (2) It regulates the purin metabolism of the body. (3) Because of this function the cortex is also the regulating organ of the physiological pigment metabolism. (4) It probably destroys pathogenic bacteria of the body. (5) The weight of the animals and the development of the musculature depends chiefly upon the cortex. (6) Controls blood pressure to some extent.

It is superfluous to theorize as to whether the cortex presents the store-house for the lipids or is the actual place in which lipoids are formed; the fact remains that hypercholesterinemia is often present in cases of chronic nephritis which are progressing favorably. Henes²⁴ pointed out that a normal or subnormal figure for cholesterol in nephritis points distinctly to a bad prognosis. In individuals afflicted with Addison's disease in which there is a retention of uric acid in the blood, the cholesterol of the serum was found to be low. Dr. Felsen told me that in four cases of Addison's disease there was a hypocholesterinemia. In a case of my own, under observation for the last two months, there is a low cholesterol, low blood sugar, a systolic blood pressure of 85, eosinophilia of 8 per cent., with the cardinal symptoms; emaciation, asthenia, and pigmentation of the skin and of the mucous membranes of the mouth.

Armed with all these facts stated in this paper it is now possible to approach the question of the relation of the cortex to Graves' disease and to myxedema. The purin metabolism is increased in the former condition; decreased in the latter; of course the reverse occurs in regard to the general metabolism in these conditions. Forsbach²⁵ found strikingly small amounts of creatinin in the urine in cases of exophthalmic goiter. The exogenous factor, like the addition of meat extract, was unable to bring about any increase in the creatinin in the urine. Zehner and Falta²⁶ found that the endogenous amount of uric acid eliminated was very small and the exogenous uric acid was almost nil. On the

contrary in myxedema, Magnus-Levy,²⁷ Haushalter and Guerine,²⁸ and Kowalewsky²⁹ found an increase in urates.

The decreased elimination of uric acid in Graves' disease is similar to the disturbed purin metabolism in Addison's disease, though to a lesser extent. The cause is a similar one: insufficient detoxicating power of the cortex. Thus the increased retention of uric acid in exophthalmic goiter cases must frequently lead to hyperpigmentation of the skin, which, according to Falta,²⁷ is present in 50 per cent. and according to Kocher³⁰ in 30 per cent. of the cases. There is no hyperpigmentation in myxedema, because the detoxicating power of the cortex is increased. Thus the difference in the purin metabolism in Graves' disease and myxedema suggests the hypofunction of the cortex in the former condition and the hyperfunction in the latter.

The cholesterol metabolism is decreased in Graves' disease and increased in myxedema. Youchtchenko³¹ found that in thyroidectomized dogs the lipoids in the serum were increased; in experimental hyperthyroidism they diminished.* Weltman³² found in all his cases of myxedema a marked increase in the cholesterol of the blood; in Graves' disease a tendency to be diminished. Rothschild, who was kind enough indeed to give me data of some of his unpublished works on cholesterol, found hypercholesterinemia in six cases of myxedema, and hypocholesterinemia in 25 cases of hyperthyroidism.

Pathology also seems to be in accord with the assumed rôle of the cortex in Graves' disease and myxedema. Hirschlaff, Landau, Pettavel, Mattin, and Rautman³³ found diminished fat and diminished pigment in the adrenal cortex of exophthalmic goiter cases. Elliott³⁴ refers to a woman, aged 28, who suffered from exophthalmic goiter with tachycardia and dyspnea for four months. She had no fever. Her pulse was *ante finem* 180. At necropsy the cortical lipoids were found to have almost vanished. In a case of myxedema cited by Fry³⁵ the autopsy revealed an increase in the thickness of the adrenal cortex with adenomatous formation and vacuolization of the cells. The medulla appeared to be diminished by fibrosis and the chromaffine tissue reduced in amount.

Besides hyperpigmentation which is found in the Addison syndrome and in Graves' disease, there are other symptoms which are common to both conditions. These are loss in weight and asthenia. I have referred elsewhere³⁶ to gastrointestinal disturbances which are alike in these conditions. The emaciation in Addison's disease is due chiefly to failure of the cortex. The tuberculous process in the glands *per se* cannot be responsible for these symptoms inasmuch as they are found in non-tuberculous atrophies of the suprarenals. The symptoms of Addison's disease are not due to changes in the spine, celiac plexus, sympathetic nerves, or in the nerves innervating the suprarenals. Bittorf³⁷ writes that of 25 cases of adrenal atrophies the sympathetic was perfectly normal in 21 cases, 84 per cent.; only slight changes in 3 cases, 12 per cent.; and only in 1 case were severe changes noted. In Addison's

*Herring, in a recent paper (Endocrinology, Vol. IV, No. 4, Serial No. 16, 1920, p. 583), quotes Gley, who found the suprarenals of thyroidectomized rabbits hypertrophied and full of fat.

disease of the tuberculous type, the changes in the sympathics were also rare and insignificant. It seems, therefore, that the emaciation and asthenia in Addison's disease is chiefly due to the failure of the adrenal cortex, and this viewpoint is in accord with the previously mentioned experiments, that emaciation and muscular weakness in animals after epinephrectomies are chiefly due to loss of cortex.

Charcot¹⁶ described a type of myasthenia in Graves' disease which may be quite extensive. He describes the hyperthyroid myasthenia as a "giving way of the legs." Although this form of asthenia manifests itself in severe cases, milder grades of muscular weakness occur in almost all hyperthyroid conditions. Askanazy¹⁷ found marked atrophy of muscle fibers in exophthalmic goiter cases. Dock,¹⁸ speaking of asthenia in Graves' disease says that insufficient attention was paid to Askanazy's important findings.

In myxedematous individuals the obesity is marked; there is no asthenia, rather plumpness and a lack of "pep." The general metabolic rate is increased in hyperthyroidism; decreased in myxedema. Arteriosclerosis is rarely found in individuals afflicted with Addison's disease, according to Bittorf.¹⁹ Kocher²⁰ writes that sclerotic changes in the vessels are rare in Graves' disease. On the other hand, atheroma of the vessels is frequent in myxedema. The emaciation, and muscular weakness in Graves' disease may possibly be due in part to cortical insufficiency; the obesity and absence of myasthenia in myxedema to cortical hyperfunction. Because of the adrenal medullary deficiency in myxedema one would expect to find asthenia here. But the effect of the diminished epinephrin secretion in this condition becomes so overbalanced by the effect of cortical hyperactivity, that the influence of the former disturbance does not manifest itself. This is probably the reason why clear symptoms of adrenal deficiency remain unnoticed to the clinician. Scholz²¹ writes that the mammae in myxedematous women are occasionally unusually large. I have noted in two of my female patients afflicted with Addison's disease atrophy of the mammae. One must consider the mammary enlargement as a sign of cortical hyperfunction similar to those enlargements of the breasts found in girls of 9 or 10 of the early adolescent type which are supposed to be due to cortical overgrowth.

The excellent results, reported by Plumer in a recent paper read before the Eastern Medical Society, obtained in rapidly reducing the swelling of the face by thyroxin in myxedematous individuals, are possibly the result of the reduction of cortical hyperfunction by the drug. That such an assumption is not a speculation becomes evident from Kocher's observations on hyperpigmentation in Graves' disease. Kocher²² states that after surgical procedures in exophthalmic goiter cases, be it ligation or partial thyroidectomy, the brown color of the face in those who are pigmented entirely disappears, and is replaced by a healthy rosy color. The excessive pigmentation in such cases disappears forever, provided suprarenal extract had been administered for some time. Inasmuch as an important symptom like cuticular pigmentation disappears after treatment by suprarenal extract, cortex would serve the purpose better. The medullary part is theoretically

contraindicated in Graves' disease since there is overactivity of the medulla in the latter condition.

Suprarenal treatment also gave good results in individuals afflicted with v. Reclinghausen's disease, which, according to Foà,²³ is a primary atrophy of the suprarenals. Chaffard and Brodin²⁴ report a case which apparently confirms the connection between hemochromatosis and the suprarenals. Suprarenal treatment was followed by immediate and noticeable improvement in Pic's and Jullien's²⁵ cases.

To sum up: Some of the clinical symptoms found in individuals afflicted with Addison's disease, such as emaciation, asthenia, and hyperpigmentation, manifest themselves, truly to a lesser degree, in individuals suffering from Graves' disease. The symptoms have been shown to be due chiefly to various degrees of adrenal cortical deficiency. Because of the mild grade of cortical hypofunction in hyperthyroid states, the above mentioned symptoms are not as frequent or as pronounced as in Addison's syndrome. The hyperpigmentation in Addison's disease, as well as in Graves' disease is due to the same cause, i.e. to the increased retention of uric acid in the blood on account of adrenal cortical insufficiency; since the cortex is not able to bind or oxidize the excessive uric acid which accumulates in the blood, that uric acid is deposited in the skin where through oxidation it turns into pigment. The gain in weight and the absence of true asthenia in myxedema must be due indirectly to hyperfunction of the cortex. Abnormal pigmentation of the skin is absent in myxedema because the elimination of uric acid is increased and the rest which is not eliminated the hyperfunctionating cortex is able to oxidize in its tissue.

Conclusions.—1. There is a hyperfunction of the adrenal medulla in Graves' disease and hypofunction in myxedema.

2. There is a hypofunction of the cortex in Graves' disease and a hyperfunction in myxedema.

3. The proofs are experimental, histological, biological, and clinical.

4. The suggestion follows, therefore, that hyperthyroidism and myxedema are not monoglandular disturbances.

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THE VALUE OF VACCINE THERAPY VERSUS TONSILLECTOMY IN SYSTEMIC DISEASE OF TONSILLAR ORIGIN.

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We desire to present a subject of considerable interest which we believe has heretofore been treated in a more or less haphazard manner. The term focal infection is greatly in the thought of practitioners in all lines of medicine. Every unaccountable disease or peculiar train of symptoms seems to come under this heading, with the result that we are seeking in every nook and cranny of the body for a possible seat of infection. The teeth, the oral cavity, the tonsils, the intestines, the appendix, the gall-bladder, each one separately and sometimes many of them together, have been more or less definitely proved as the etiological factor in a curious and unaccountable train of joint symptoms. And, in their turn, the teeth, the tonsils and the appendix have been removed, the intestines treated, and the gall-bladder opened. When any or all of these operations have not been possible the physician has had to resort to vaccine therapy, with results that vary with the individual doctor and individual patient.

We have no doubt that many physicians are as well acquainted as we are with focal infections. For example, W. H. Haskins reports certain eye diseases in focal infections of the teeth, and Dwyer reports focal infections of the eye from the intestinal tract. We understand that in one of the large clinics of this country, teeth are considered such an important etiological factor that no one who goes there comes away without missing at least one or two molars. What does one mean by the term focal infection? Is the focal infection the cause or the result? In the papers above cited, one author speaks of eye diseases as the result of focal infections of the teeth and the other speaks of focal infections of the eye from the intestines. We are inclined to believe that the original infection is a "local" infection and that the systemic result is a "focal" infection. However, we are not particularly interested in cases other than those of tonsillar origin, and it is our purpose to analyze the cases we have seen in private practice which have been closely studied and to give our conclusions.

In the course of the past few years it has been definitely established that innumerable maladies of heretofore unknown origin spring from a localized

infection, many times the infection being located in the tonsil. That the tonsil can cause systemic trouble is evidenced by the fact that clinical reasoning establishes our conviction that, for example, acute tonsillitis is directly responsible for acute articular rheumatism. Moreover, Wood and others have done experimental work on animals to show the direct relationship of the tonsil to important structures like the lungs. Again, our blood cultures, taken during or right after an attack of acute tonsillitis, have shown the presence of various pathogenic organisms. But one is not content to think that rheumatism is the only disease with which one has to deal. Among important others are endocarditis, kidney disease and iritis. These are more or less dependent on the rheumatic disease but other authors mention pleurisy, acute osteomyelitis, tuberculosis, general sepsis, actinomycosis, chorea, Hodgkin's disease, pericarditis, myocarditis, neuritis, adenitis, keratitis, herpes, phlebitis, scarlet fever and possibly typhoid fever, leukemia, and appendicitis. To these we should like to add a chain of symptoms indefinitely grouped under the terms mental and physical depression.

The normal tonsil may act as a channel while the diseased tonsil acts as a definite focus of infection. Wood shows that the tubercle bacillus may pass through tonsillar tissue into the lymphatics and not cause local disease in the tonsil. He reports 5:2 per cent. tuberculous tonsils in 1,671 cases examined. Anderson has shown by animal experiments that pigments and various microorganisms may be taken up by the tonsils and carried to neighboring lymph nodes. Stohn states that abundant immigration of leucocytes is constantly taking place from the deeper tissues into the oral cavity. The space formed in the epithelial layer often remains open and becomes a convenient door for infected material to enter. Goodale found that carmine readily passes through the hypertrophied tonsil. Packard reports five cases of endocarditis following acute angina, while Elliot states that many toxins and toxalbumins are harbored by the tonsils and diffused into the general circulation.

In our practice it is our custom to take a culture from every nose and throat in which there is evidence of recent inflammation. Cultures from the nose are often sterile, cultures from the nasopharynx show a multiplicity of bacteria. Cultures from the tonsils are taken, both from the surface of the tonsil, from the tonsillar crypts or from the supratonsillar fossa whenever there is any evidence of any tonsillar disease. The disease may not be evident on the first superficial examination. Many times the tonsils cannot be seen until the patient is made to gag, when they present themselves very plainly. It is surprising to note at that time how many of the crypts will open up so that one can see a diseased condition which did not appear before. We do not hesitate to say that there is no way to tell whether a tonsil is responsible for a systemic infection without taking a culture to find out whether pathogenic bacteria are present in sufficient numbers to make us feel that they may be causing the trouble.

Cultures have been taken in over a hundred cases which form the basis of this report. At first the culture was taken after cleaning off the surface of

the tonsils with some warm, mild, alkaline solution. The mouths of the crypts were sought and the swab applied to those parts if possible. It is surprising to note in how many cases the mouths of the crypts are so small that no culture can be taken from them; in a few instances, no cryptal openings could be found. In these cases, cultures were taken from the surface of the tonsils or from the supratonsillar fossa. It is in the cases with small cryptal openings or no openings at all that one finds bacteria accountable for systemic disease. This is not difficult to explain when one considers the pathology of acute tonsillitis. One of us (Hays) explained this pathology some years ago. In acute tonsillitis the openings of the crypts are considerably swollen and constricted with the result that minute pus pockets are formed in the body of the tonsil. Systemic disease results from the chronicity of such a process, the result being that, as the infectious matter cannot escape externally, it finds its way into the system. As a rule, where crypts are wide open, systemic disease does not result unless the drainage has met with an obstruction somewhere.

During the past few months we have been taking our cultures from the supratonsillar fossa. The results have been most gratifying. When cultures are taken from the surface of the tonsils or from the superficial portions of the crypts, one gets a multiplicity of organisms and it is often difficult to tell which predominates. On the other hand, cultures taken from the deeper portion of the supratonsillar fossa show one organism in pure culture. We are in the habit of taking cultures from both supratonsillar fossæ and invariably the same organisms are found on both sides. In one of our cases, we found a pure culture of the influenza bacillus. We recall one case of persistent iritis of over a year's duration in which the tonsils could not be seen except during the act of swallowing and where there was no evidence of cryptal disease. A culture taken from the surface of the tonsils showed a streptococcus viridans and staphylococcus aureus. The tonsils were removed about one year ago, since which time the iritis has entirely disappeared and the patient's general health has improved considerably. We have seen many tonsils in which the mouths of the crypts have been filled with cheesy material where there is no evidence of systemic disease and we have come to the conclusion that the tonsil which drains well—in other words where there is no occlusion of the crypt—is not nearly as dangerous as the tonsil which on the surface frequently shows no evidence of disease. In other words, the amount of systemic infection seems more important to us than the size of the tonsil or its surface condition. There is one diagnostic point of great importance. If the tonsillar gland, beneath the angle of the jaw, is enlarged or tender, it is apparent that there is tonsillar disease which should be attended to at once.

Our throat cultures, whether taken from the crypts or from the tonsillar surface or the supratonsillar fossa, have shown a variety of bacteria. Among those found most frequently have been the streptococcus—chain, hemolytic, pleomorphic, viridans—staphylococcus, pneumococcus, micrococcus tetragenous, micrococcus catarrhalis, pseudo-influenza bacillus, influenza bacillus, diphtheroids, un-

determined diphtheroids and other unidentified organisms. We have purposely not mentioned the Conellan-King diplococcus for we do not believe we are in a position to say definitely that there is such an organism. Bacteria, so classified, were present in the first cultures taken by us when the bacteriological work was done by a laboratory to which Dr. King sent a great many of his cultures, but since the work has been done in our own laboratory by Dr. Winslow, we have not found an organism such as Conellan and King describe.

We consider that the streptococci, mainly the streptococcus hemolyticus and viridans, are the only pathogenic organisms in the throat which are responsible for systemic infection. There may be exceptions to this statement but we are yet to see the first case in which this organism does not predominate in the throat in association with, for example, rheumatic diathesis. The patient may not be aware of any throat ailment and an antecedent tonsillitis may have occurred so long ago that the patient may have forgotten that he had the disease. One may properly ask here: "If, as you state, the worst cases of systemic disease associated with diseased tonsils occur when the crypts are so tightly closed that sometimes it is impossible to get a culture from them, how can you determine that a culture taken from the surface of supratonsillar fossa is of any value? Do not these same organisms occur in any throat?" We support our case on the clinical evidence. Normal throats do contain many organisms but it is seldom that the predominating organism is a streptococcus unless there is some diseased condition which needs remedying. We have frequently heard the statement made that a streptococcus, particularly the streptococcus viridans or hemolyticus, can readily be recovered from any normal tonsil and therefore its recovery is no evidence that it is the cause of systemic disease. Our experience makes us feel otherwise. In the majority of our cases, other organisms have been isolated—organisms which we have not considered pathogenic. Where we have found a streptococcus in the tonsils associated with systemic disease, the removal of the tonsils or administration of vaccines have been invariably followed by good results. Again, although it may be impossible to find an opening of a crypt large enough to admit a platinum loop or a sterile applicator, the opening may be large enough to allow of the escape of a certain number of bacteria, not in sufficient numbers, however, to eliminate the main focus of infection.

All our vaccines were made up of the strength of 500 million bacteria to the cubic centimeter. The injections were given intradermally. The first dose was a half c. c., and every third day after that a full c. c. was administered, until ten doses in all were given. We seldom saw any severe systemic reactions like one sees after the administration of typhoid vaccine. Local reactions of a mild type were often present.

We shall not attempt to outline every step in the procedure of preparing the vaccines but merely emphasize a few points of importance. First of all the vaccines were made with the aim always in view of obtaining the organism in its most virulent and active form. To accomplish this result care was taken to make as few transplants as necessary, and

to subject it to as little heat as possible in sterilizing.

To make as few transplants as necessary only blood agar plates were used and the bacteria scraped off dry into the saline. Some consider it poor technique to use blood agar media for the final growth. But we found if the organisms were scraped off dry rather than washed off there was no discoloration of the saline from dissolved or hemolyzed blood. In doing this there was one difficulty. Certain strains of streptococci, owing to the richness of the media, have a tendency to invade the media rather than grow on its surface. This makes it most difficult to obtain enough of the organisms by dry scraping. This can be overcome, however, if the plate is thickly seeded and incubated for only ten to eighteen hours. The young colonies will not have become set by that time and the growth will generally be sufficient and easily scraped off. The blood agar plates were made from guinea-pigs' blood and the agar was titrated as near the neutral point as phenolphthalein would allow.

The next important step in obtaining virulent organisms was in the sterilization. If a vaccine is made under proper sterile care no spores will be present, hence no need for more than one sterilization. Our vaccines were never sterilized but once and at a temperature varying from 58 to 60 degrees. This was continued for an hour in a concentration of 0.8 per cent. phenol. Only once in over a hundred cases was the control found positive. But as there is a very small margin of safety in this method it is necessary to use a generous amount of the vaccine in making the control. We have never experienced any bad result in using the phenol in the strong percentage above mentioned.

A few words as to the method of counting the bacteria may not be out of place here. The old way of counting against blood cells seemed both too inaccurate and too laborious. We therefore made up several standard dilutions with Hopkins tubes. Using these as comparisons, we made the new vaccines to match. However, several types of standards were necessary. A dilution of 500 million of *B. coli* per cubic centimeter does not match the same dilution of catarrhalis or streptococci, due to the fact that one mixes in an even homogenous suspension while the other appears flaky. This difficulty was met by having a standard dilution of typhoid which would sufficiently match *B. coli*, pneumococci, influenza staphylococci, and the diphtheroids. Then a second standard was used to match the streptococci and catarrhalis and chromogenic diplococci. This made counting a much simpler procedure and we feel that it was the most accurate method.

Vaccine treatment for disease of tonsillar origin is of comparatively recent development and no very large number of cases are reported in the literature. Howland and Hoobler consider the subject from the point of view of the type of organism. They found that a localized infection caused by the *staphylococcus aureus* was cleared up with four to five inoculations and three cases of general septicemia, due to the same organism, recovered. Local streptococcus infections were helped but responded less rapidly while some showed no improvement after prolonged treatment. No apparent benefit re-

sulted when the pneumococcus was the cause, while a few cases of unusual infection were helped. Dabney thinks that vaccines abbreviate convalescence and cites three cases of acute tonsillitis, one with abscess formation, improved by one or two doses of vaccine, while four cases of arthritis due to tonsillitis infection were cured. Stone considers that success in vaccine therapy requires (1) localization of the infection and (2) a predominating type of organism. He states that vaccines cannot be used promiscuously, that they are of value in prophylaxis but no cure-all for disease. The best results were obtained in staphylococcus infection. Miller and Lusk claim that vaccines are non-specific in therapeutics because the same results may be obtained by the injection of proteose and albumose. Regardless of the possible good results from the use of vaccines which we have seen stated by others, we do not hesitate to say that in no instance should vaccines be given with the promise of a relief of symptoms where it is possible to do a thorough tonsillectomy. On the other hand, the removal of the tonsils will give an absolute cure—that is if the tonsils are the sole cause of the trouble; the administration of vaccines may merely temporarily relieve the trouble, always leaving a certain amount of diseased tissue *in situ*. We have administered vaccines for systemic disease of supposed tonsillar origin in over seventy-five cases, and in few instances have we completely satisfied ourselves that the vaccines have caused the systemic disease to disappear.

In view of the facts stated above, one may ask whether we sincerely believe that vaccines are ever of any value in systemic disease of tonsillar origin. There are certain patients to whom vaccines must be given for there are contraindications to operation. Among such patients are those whom we consider above the operative age. It is only fair to try vaccines first in patients over fifty years of age. We consider tonsil operations on patients over that age unjustifiable until vaccines have been used, unless the systemic disease is so severe that no other remedy will suffice. And we are most happy to say that our most successful results in the treatment of systemic disease of tonsillar origin by vaccines have been in elderly people. We have in mind half a dozen cases of subacute arthritis which have been relieved for over a year and perhaps have been permanently cured by this method of treatment. Then there are certain conditions of the patient, such as a severe kidney lesion, which make it imperative to administer vaccines first. We do not consider the milder forms of endocarditis a contraindication to operation. Severe valvular lesions should be treated with vaccines first although we have seldom any good results in these cases. It is possible, however, to tone up the system in this way so that the patient's resistance may be increased. There is another class of cases in which vaccines must be used—that is in patients who simply will not submit to operation. We have no alternative in the matter and often, after the patient sees that the vaccines do little or no good, he is more amenable to our common-sense advice.

Do we consider tonsillectomy a curative measure in systemic disease of tonsillar origin? Upon this question there is considerable difference of opinion.

The reason for this difference is not difficult to understand. Tonsillectomy has been followed both by brilliant cures and by unforeseen disaster. Certainly the good results far outnumber the bad, yet Stucky reminds us that in a series of cases he found one case of facial paralysis lasting five weeks; three cases of marked impairment of the voice; two cases of marked cicatricial contracture of the pillars of the tonsil, resulting in discomfort in swallowing; three cases of uvula removed; two cases of loss of tone of the tensor palati and levator palati muscles, causing regurgitation through the nares; one fatal hemorrhage; nine cases of secondary hemorrhage, and two of cellulitis. Further, Sheedy reports that in fifty cases of tonsillectomy which he studied, 80 per cent. had some throat deformity two to three months after operation. Seventeen had speech defects for three weeks, two lost their singing voice, while the voices of thirteen were improved. Faulty technique was responsible for many of these bad results.

Good results in the ordinary case are the rule, providing the operation has been complete and in the great majority of cases the local and general condition of the patient is much improved after diseased tonsils have been removed. Of the unusual cases Dabney reports three cases of chorioretinitis, two cases of multiple arthritis with Bright's disease, cured, and one case of Darier-Roussy sarcoid disease improved by tonsillectomy. He also cites four cases of endocarditis of proved tonsillar origin which died and might have been saved if a tonsillectomy had been performed. Beck states that the tonsils are the focus of infection in 20 per cent. of chronic infections due to focal disease and in 30 per cent. cure takes place after complete tonsillectomy. The patient's resistance to other diseases is increased as well, by the improvement in the general health.

The vital question is, which cases to operate and which to leave alone. Swain finds French's method of determining the pathological tonsil useful. A light is passed behind the tonsil *in situ* and thus the structure can be more easily examined. He does not consider cheesy crypts a criterion for operation, as all tonsils at one time or another have some white matter in the crypts. Swain states that we cannot consider the tonsils merely an irresponsible functionless lump of matter but as an organ which if not doing its full physiological duty or if distressed can modify some of the most vital functions of the blood and lymph. The tonsils are intimate parts of the lymphatic nodes of the body and cases of general lymphatic enlargement always involve the tonsils. We must not remove tonsils indiscriminately nor must we leave them alone entirely. We must operate thoroughly but must remember that we do not give immunity by operation in all cases.

We feel that vaccine therapy is still in its infancy and that the future may show us that autogenous vaccines may take the place of a radical operation. This is not so at the present time. Yet we have enough confidence in vaccines to have them made up in every case where we suspect that the systemic disease may be of tonsillar origin. This is done for two reasons. In the first place, the patient may object to operation and the vaccine must

be used, and in the second place, sometimes even when the tonsil is radically removed, some focus of infection remains which can be eradicated by the administration of a few doses of the vaccine.

In closing we should like to emphasize the following points:

1. Systemic disease is often of tonsillar origin even when the tonsils are small and show little evidence of disease.

2. Cultures from the tonsils should be taken in all cases of systemic disease.

3. Cultures taken from the tonsils, preferably from the supratonsillar fossa, showing any form of streptococcus, should be considered prima facie evidence of tonsillar disease sufficient for their removal, if associated with systemic disease.

4. Tonsillectomy is a better procedure than the administration of vaccines unless operation is contraindicated.

5. A poorly performed operation is no criterion of the value of tonsillectomy. A small piece of tonsil remaining may still keep up the systemic infection.

6. The value of the vaccine as a curative agent is yet to be proved.

2178 BROADWAY.

THE WHITMAN OPERATION AS APPLIED TO VARIOUS TYPES OF PARALYTIC DEFORMITIES OF THE FOOT.

RESULTS IN THE AVERAGE CASE.*

By ARMITAGE WHITMAN, M.D., F.A.C.S.

NEW YORK.

The Whitman operation, consisting of astragalectomy and backward displacement of the foot, has been in use at the Hospital for the Ruptured and Crippled since 1897. Up to January 1, 1920, 920 such operations had been performed. During the last five years the yearly average has been 100 such operations. It is, therefore, evident that in this institution the faith in its efficacy has steadily increased, and that it is now regarded as a standard procedure.

In an interesting paper entitled "Removal of the Astragalus in Paralytic Feet," Dr. J. W. Sever† says: "It has always seemed to me wise and of distinct value to present end results from clinics or individual operators, regardless of the nature of the results." Following this preface he then reports the results of the Whitman operation as performed at the Children's Hospital, Boston, observed in a series of 217 feet. Upon Dr. Sever's suggestion I wish to comment upon the methods of and the results obtained by a similar research recently conducted at the Hospital for the Ruptured and Crippled. I think the methods employed are of even more importance than the results obtained, as if we ever are to overcome the force of institutional, local, or personal prejudice and arrive at conclusions of scientific value, we must have a common ground from which to start, and similar methods to pursue. In reporting the results of any operation, and judging thereby of its success or failure as a standard procedure, it is essential to have a definite

*From the Hospital for the Ruptured and Crippled, service of Dr. Royal Whitman.

†Sever, J. W.: *Journal A. M. A.*, lxx, 18.

idea of why the operation was performed and what were the results expected from it.

I recently investigated a series of 60 cases from Dr. Royal Whitman's service in which the Whitman operation had been performed, with the aim of getting as accurate information as possible as to its results in the average case. To this end the record clerk took the names of ten patients operated on in 1915, ten in 1916, ten in 1917, ten in 1918, and 20 in 1919. (It was my original intention to analyze 100 cases but lack of time forced me to stop at 60.) The names were taken in order as they appeared upon the operating book. If Case I could not be traced, Case XI was substituted, and so on. The possibility of favorable selection, as to either class of case or results was thus obviated.

Name: S——, R——.
Address: 548 E. 146th Street.

Age: 9
Original condition: Calcaneovalgus.

Walked c apparatus.*
Walked s apparatus.
RA 18½
LA 19 1 Before operation.

Purpose of operation: For calcaneus.

Operator: Dr. Whitman.

Date: Sept. 28, 1915.

Present condition: Moderate inclination toward varus; dorsal flexion checked at a right angle; foot is perfectly resistant; useful.

Walks c apparatus.*

Walks s apparatus.

Parents' opinion: Satisfied.

Result: * Satisfactory. Improved. Poor.

LA 25½ 24½
LH 27½ 20½

*Erase all but the one indicating the condition.

FIGURE 1.—Card used for summarizing cases. LA, distance from anterior superior spine to tip of internal malleolus; LH, distance from anterior superior spine to heel.

When the patient appeared at the clinic, his hospital record was investigated, and his past and present condition recorded on a card as shown in Fig. 1. Fig. 2 shows a form of questionnaire sent to patients living at a distance, who could not return, to get a general idea of their condition.

Name: R——, H——.
Address: Box 38, Brownsville, Jefferson County, N. Y.

Age: 13
What is the date of your operation (astragalectomy)? May 16, 1918.

Do you limp? No.

Do you walk without any apparatus? No.

Do you walk with a brace? Yes.

Do you walk with a brace or crutches? Yes; both.

Do you walk at all? Yes.

Before the operation did you walk without apparatus? No.

Before the operation did you walk with a brace? No.

Before the operation did you walk with a brace or crutches? No.

Before the operation did you walk at all? No.

Was your foot deformed (twisted out of shape) before the operation? Yes.

Has the deformity been improved? Yes.

Is any deformity still present? No.

What is your present occupation? School student.

Do you consider the operation a success? Yes.

If not a success, why? (for example, because the foot is still deformed, weak or still painful?)

Have you noticed any increase of power in the muscles of your foot since the operation? No.

How much shorter is the operated leg? Not any.

If you are not satisfied with your present condition, what would you like to have done for you? I am satisfied.

FIGURE 2.—Form sent to patients living at a distance.

The operation was done for three conditions: (1) For calcaneus, or perhaps it would be more strictly accurate to say for disability, of which the most important feature was paralysis of the calf muscle, thus embracing calcaneovarus, calcaneovalgus, etc. (2) For dangle feet. (3) For lateral deformity.

The object of the operation varies in each group. In the first it is, by checking dorsal flexion at a right angle, to restore propulsive power to the foot;

secondarily to restore symmetry and thus improve the appearance of the limb; finally in young and recently paralyzed cases by forcing functional use to check the extreme atrophy of the fore foot.

In the second we intend to give the foot propulsive power and to do away altogether with lateral instability. In the most severely paralyzed cases the operation has been done simply to permit brace wearing with comfort, doing away with the pressure sores so frequently encountered as the result of a flail ankle wabbling and chafing against the up-rights of the brace. In the third group the object is to check, by removing the possibility of lateral motion at the subastragaloid articulation, a progressive varus or valgus deformity that already has not been, or does not seem likely to be amenable to other measures such as tendon transplantation.

Briefly, then, the operation was performed for calcaneus, for dangle foot, and for lateral deformity, and the objects sought primarily in the various groups were, correspondingly propulsive power, stability, and arrest of deformity.

The conditions upon which the results were classified were: (1) That dorsal flexion should be checked at a right angle. (2) That there should be no appreciable lateral deformity when weight was borne. (3) That apparatus when worn should be worn with comfort. (4) That the patient's opinion of the result should be satisfactory. The results were accordingly classified as Satisfactory, Improved, Poor.

TABLE II.

- (1) Florence C. Case 43. Operated, June 23, 1919; left calcaneus, slight tendency to varus; has had no after-treatment whatever, owing to bad home conditions.
- (2) Richard G. Case 49. Operated, June 23, 1919; calcaneus; dorsal flexion checked at 80°; insufficient backward displacement.
- (3) Mary Mc. Case 53. Operated, May 19, 1919; right valgus, secondary operation; dorsal flexion checked at 80°; still has considerable valgus deformity.
- (4) Gladys B. Case 31. Dangle foot in equinovarus, operated June 24, 1918; had a resistant equinus deformity, operation a failure; has had no postoperative supervision.
- (5) Catharine C. Case 35. Right varus deformity, operated Sept. 9, 1918; still has varus deformity, due to slight power in the tibialis anticus and posticus; should have a supplementary tendon transplantation.
- (6) Nathan R. Case 39. Right calcaneus, operated Jan. 21, 1918; has dorsal flexion to 45° in spite of good backward displacement of the foot; result classed as unsatisfactory, though the patient prefers his present state to that before operation.
- (7) Martin D. Case 22. Dangle foot, operated Oct. 29, 1917; slight valgus and insufficient backward displacement of the foot, though dorsal flexion is checked at a right angle.
- (8) Minnie S. Case 26. Left dangle foot in equinus, operated March 31, 1917; very slight tendency to varus, not quite sufficient backward displacement.
- (9) Annie L. Case 16. Left calcaneovarus, operated 1916; dorsal flexion limited at 80°; insufficient backward displacement.

There is always in every case, and this should be thoroughly understood, a tendency to the eventual development of varus deformity because of the removal of the support afforded to the scaphoid, by the head of the astragalus, thus shortening the inner border of the foot. This deformity, however, takes place at the mediatarsal joint, and is, properly speaking, an inward deviation of the forefoot. This tendency is always increased by the persistence of the toe flexors, which Dr. Sever mentions. On this account it is our practice to instruct the patients in

	Age of patient at operation.	For calcaneus.	For deformity.	For stability.	Operator.	Satisfactory.	Improved.	Poor.	Apparatus worn.	Apparatus discarded.	Average amt of shortening.	Parent's opinion.	Both limbs paralyzed.	Secondary to other operations
1915-10 Cases.....	S	4	4	2	W O 2 8	10			2	5	1 10	S	6	1
1916-10 Cases.....	S	4	1	5	W O 5 8	9	1		3	3	5 5	S 9 I 1	6	3
1917-10 Cases.....	9	2	4	4	W O 2 8	8	2		5	1	19 28	S 9 I 1	3	1
1918-10 Cases.....	9	4	0	6	W O 5 5	7	2	1	2	5	43 50	S 7 I 2 F 1	1	1
1919-20 Cases.....	8	11	5	4	W O 11 9	17	3		2	12	15 24	S 19 F 1	S	1
Total-60 Cases.....	8	25	14	21	W O 25 32	51	S	1	14	26		S 54 I 5 F 1	24	7

W-Whitman.
O-Other
S-Satisfactory
I-Improved
F-Failure

Table I classifies the conditions for which the operation was done and the results. Twenty-eight were operated by Dr. Whitman himself, 32 by surgeons on his service. Eighty-five per cent. of the results were successful; 65 per cent. of the patients wearing apparatus were enabled to discard it. One patient regarded the operation as a failure; 90 per cent. were satisfied with its result.

Table II is an analysis of the unsatisfactory results. It will thus be seen that the most frequent cause of failure is insufficient backward displacement of the foot, which is accepted as *prima facie* evidence that the operation was improperly performed. Next would come varus or valgus in dangle feet from the pull of some muscle of apparently inconsiderable power.

daily manipulations of the foot to guard against the development of this deformity.

There are such striking discrepancies between the operative results of the Children's Hospital and our own that it might be well to examine thoroughly the possible causes, particularly because there seems to be a widespread impression in Boston and elsewhere, that the operation leads to ankylosis at the ankle joint. There are even some misinformed to such a degree as to believe that one of the objects of the operation is to produce ankylosis between the tibia and the os calcis. The general looseness of the ideas prevailing in regard to the operation is largely due to the unfortunate prevalence of the appellation "astragalectomy," an error into which even Dr. Sever falls in his title "Removal of the

Astragalus in Paralytic Feet." In fact, the removal of the astragalus is primary, it is true, but the keystone of the operation is the backward displacement of the foot. One must bear in mind the original purpose of the operation and be continually conscious of the fact that its application to the treatment of any deformity other than talipes calcaneus is at the responsibility of the operator, who should be clear in his own mind as to just what he expects to gain by the operative procedure. For example: What may be expected from the application of an operation designed to remedy the deformity of calcaneus to 91 cases of the equinus type is not clear. (Table I, Dr. Sever's article.) The essential feature of the operation is backward displacement of the foot, which by actual bony contact between the scaphoid and the tibia checks dorsal flexion at a right angle, and thereby endows a functionally passive foot with resistance. This is the essential feature of the operation in the condition for which it was originally designed, and strangely enough it is not even mentioned in Dr. Sever's article, unless we may assume that it is included under the somewhat vague heading "functionally better" (Table V). The writer also speaks of inserting the peroneals into the os calcis after Whitman's method. As Dr. Whitman has not employed this method for the past ten years at least, either transplanting the peronei into the tendo Achillis or leaving them undisturbed, and as some of the eight operators mentioned find it necessary to remove the astragalus in two parts, I conclude that a standard technique is not a feature of the cases reported in this series. The advantages of removing the bone as a whole are indicated by an illustration from Dr. Sever's article, an x-ray picture which he employed to show bad postoperative position in which a large fragment of the astragalus remained in situ. I therefore quote the description of the operation from Dr. Whitman's text book on Orthopaedic Surgery,* as we must agree that in reporting end results the means employed to accomplish them should be, at least, approximately the same.

Description of Operation.—The line of incision begins at a point about an inch above the extremity of the external malleolus midway between it and the tendo Achillis, and is continued downward and forward about three-quarters of an inch below the malleolus over the dorsum of the foot to the external surface of the head of the astragalus.

The sheaths of the peronei tendons are opened and the tendons are cut below the malleolus and drawn backward. The bands of the external lateral and interosseous ligaments are divided and the head of the astragalus is freed from its attachments to the tibia and scaphoid. An elevator is then inserted between it and the os calcis, and, the foot being forcibly inverted, the head of the astragalus is drawn from the wound, and, the attachments on its inner and posterior borders having been cut or broken, it is removed.

One then prepares the new articulations. A thin section of bone is cut from each of the adjoining surfaces of the cuboid and os calcis, and turned backward to form a flap. On the inner side a knife

is passed about the superior and internal surface of the scaphoid and the tissues are separated by an elevator. The foot is then displaced outward and the malleoli are laid bare by dissection from their ligamentous attachments and are reshaped somewhat on their internal surfaces to fit the new articulations. The peronei tendons, freed from the lower extremity of the fibula, are passed through a slit at the base of the tendo Achillis, sewn firmly to it, and then drawn forward and reunited to their distal extremities to serve as ligaments.

The foot is now displaced backward, the external malleolus covers the calcaneocuboid articulation, the internal overlaps the navicular. The above-mentioned flap is turned upward and sutured to the external malleolus by a mattress suture of chronic gut. The wound is then closed with catgut sutures and the foot is fixed by a plaster splint in an attitude of moderate plantar flexion and abduction.

In the routine of hospital practice the operation is performed under the Esmarch bandage. The tendons are sutured with kangaroo tendon. The wound, having been cleansed with warm saline solution, is closed without drainage. The foot and leg are bandaged with sterilized sheet wadding, over which a light plaster is applied, holding the foot in the attitude described, and the leg at a right angle to the thigh. The limb is afterward suspended between tapes running from the head to the foot of the bed. Great care is taken to avoid constriction. To this, and to the rest assured by the plaster splint, is ascribed the very slight discomfort following the operation, and the absence of complications.

The after treatment is also deserving of consideration. At the Hospital for the Ruptured and Crippled it is our routine to place the foot immediately after completing the operation in an attitude of moderate plantar flexion and abduction, in which it is maintained by plaster of paris. The leg is flexed at anywhere from a right angle to 135° on the thigh. In this attitude it is suspended by tapes or other apparatus for the purpose. At the end of about three weeks this splint is removed and the walking plaster is substituted, which extends to the knee and holds the foot in moderate equinovarus, the sole being levelled by a cork wedge. Dangle feet are placed at a right angle. The patient is encouraged to walk with even steps and to bear weight on the forward part of the foot. After two to four months the new joint will have become stable and the fixed support may be discarded for a shoe with a cork wedge beneath the heel of sufficient thickness to compensate for whatever was the pre-existing shortening. If necessary the other border of the shoe is raised to counteract the tendency to varus deformity. The parents are instructed in the daily manipulations which are sometimes necessary, and always advisable, to guard against this tendency.

I again emphasize that ankylosis at the ankle joint is neither sought for nor expected, and except in flail extremities is regarded as an exceedingly unfortunate result. It was not found in any of the 60 cases examined in this series. It would seem unnecessary to insist upon this point save for the fact that other authors than Dr. Sever have fallen into this misconception. Dr. Lovett says, "Although it

*Whitman: Orthopaedic Surgery, Lea & Febiger, Edition 6.

*Lovett, R. W.: Treatment of Infantile Paralysis, P. Blakiston's Son & Co. Second edition, page 118.

would seem that a sufficiently destructive removal of joint surfaces would surely result in ankylosis, the fact remains that skillful and experienced surgeons will *occasionally* (the italics are mine) fail to secure a stiff joint.* Again, "Because in the modified operation as performed at the Children's Hospital, Boston, an ankylosed ankle is not aimed at."

As a result of the analysis of these cases I agree with Dr. Sever that astragalectomy is not an operation to be advised for any foot showing lateral instability as the result of the paralysis of one muscle group alone. I agree with him that it is as good an operation as any on feet which are flail, or those which have only one muscle group left, although I should be interested to know what procedure he considers equally effective. I agree with him that "In feet in which there was good muscle power before the operation and good weight-bearing position of the foot" the operation should never have been performed. I diametrically disagree with him when he says that "it is not an operation that will cure a limp or even improve one as a rule." Selected cases may be shown in which the characteristic hamstrung gait of calcaneus has been altered to one, the irregularity of which to the average person would be imperceptible. I agree with him that it is not "an operation to be advised lightly or universally for foot deformities."

The results of the two series are so extraordinarily at variance that I cannot but conclude, hesitate as one must to do so, that the results expected, the methods employed, and the standards of criticism, must be equally apart. How, for example, as reported in Table V, 80 cases out of 217 show "good lateral movements" is difficult to understand. One would like to know, after the removal of the subastragaloid articulation, where such lateral movement took place.

I conclude that the fundamental reason for the divergent opinions lies in the selection of cases judged suitable for the operation. Widely as the field of a useful operation may be expanded, when its original purpose was to remedy the disability following paralysis of the calf muscle, its application to 69 cases in which the gastrocnemius was classified as "good to fair," would seem, to say the least, hyperenthusiastic.

The results of Dr. Sever's investigation are interesting and instructive. I am confident that a better selection of cases and a more standard operative technique will make the results of his next series more encouraging.*

*A detailed report of the cases upon which this paper is based, and a fuller discussion of the principles and practise of the operation, will be found in an article entitled "Astragalectomy and Backward Displacement of the Foot—an Analysis of Its Practical Results," read before the American Orthopaedic Association at its last meeting.

233 LEXINGTON AVENUE.

Cocainism in Berlin.—The nervous strain caused by the war has left the people in a condition ripe for drug addiction. The abuse of cocaine especially has become widespread in Berlin. The drug can readily be obtained, even in large quantities, not only from druggists but from hotel servants and waiters, prostitutes, etc. These irregular dealers are apt to falsify the alkaloid with boric acid.—*Deutsche medizinische Wochenschrift*.

MAN AND THE ENDOCRINES.

WITH STRESS ON THE FEMALE.*

By G. K. DICKINSON, M.D., F.A.C.S.,

JERSEY CITY, N. J.

BURIED in the earth of Western Europe for over fifty thousand years lay the remains of primitive man, which, when exhumed, were still in good condition. It is claimed they dated from the period just before the last Ice Age. Being intact, those competent to judge report that the bones were big, the lines of attachment of muscle prominent, the joints large, and from close study conclude that he was not tall, but strong, vigorous, and well adapted for the fight necessary for food and protection, and in appearance somewhat approached the anthropoids.

There were five races: four of them more muscular, heavier, and more cumbersome in body than the fifth. This latter, the Cro-Magnon, on account of greater agility (being more slender and lighter), survived where the four perished, and it is supposed that the present race of man descended from this.

If we study the different nationalities, particularly those from mid-Europe, we will find a type which we are compelled to consider as more closely allied to this primitive state. They have large bones, big joints, plenty of muscle, big chests, wide costal margins, and broad abdomens. Their hands and feet are large, the hair coarse and shaggy, the hair margin on the forehead broad, and the eyebrows heavy, meeting over the nose and laterally coming down to meet the hair descending from the scalp. They are hirsute all over the body, particularly on the chest and over the sacrum. There is apt to be a fatty prominence at the lower cervical region. The upper jaw is broad with well set, large teeth, there being an interval between the two incisors, and the second incisor often simulating a tusk. The lower jaw is equally well formed.

This anatomical condition being free from nasal defects, leads to good inspiration and well inflated lungs. The abdomen shows an absence of any defect such as imperfect rotation of colon and visceroptosis. They are of those who were brought up in the open. For many generations both men and women worked on the soil. The women were beasts of burden. Even to-day in some countries we see them doing the heaviest work in the field. They were considered of secondary importance and carried the burden with men as their overlords. These people are hypophyseal; the hypophysis in its secretion stimulating all the tissues mentioned and their activity reacting on the hypophysis to stimulate it.

But, as specialization in life, so-called civilization, advanced, when woman came out of the field and remained in the home, when man took the burden, where culture and education predominated, there resulted a lessened call on the hypophysis, its effect on stimulating growth diminished, and the adrenal, which has charge of energy, became more effective. In people of the adrenal type we have smaller bones and muscle, narrow chests, soft, silky straight hair, a sharp hairline on the forehead, an empty space between the eyebrows, which do not extend far

*Read before the Academy of Medicine of Northern New Jersey, held in Newark, October, 1920.

laterally. There is less hair on the body. Being deprived of the full stimulation of the hypophysis, there is greater tendency to defects of development and malformations of both bone and viscera. The upper jaw is prone to be narrow, with a vaulted arch, deviated septum, teeth small, and not so well placed, the chest flatter, the costal margin narrow, and congenital visceroptosis common, together with malformations in the intestinal tract, failure in development of the large gut, mobile colon, dragging cecum, early recession of the appendix, vagotonia, and all the stigmata of imperfect development making for our high-grade defectives and physiological hermaphrodites.

But modifications do occur, largely influenced by climate and diet. In countries where the diet is principally carbohydrate, disturbances due to developmental defects are not as noticeable as in those where high proteins are mainly used.

So much for the anthropological.

Now from the biological viewpoint. For development, sustenance, and protection in the lowest forms of animal life (where there is an arrangement of cells and some fluid content without a nerve system) there exists a hormone, which activates and correlates the several functions. Injuries are also repaired through its influence.

Somewhat higher in life, we find that which is analogous to our vegetative nervous system. It is autonomic, but with it are associated glands which secrete hormones to aid in the functions of circulation, digestion, reproduction, and protection.

Higher still, we come to the cerebrospinal system, which is a late accessory. The vegetative nervous system is fully developed and the several endocrine glands functionate actively, so that man today is cared for by his internal secretions, his autonomic system, and his mentality as expressed through the cerebrospinal. He is an inclusive trinity.

The endocrines are subject to few pathological processes, except through what might be termed the "sins of man." In a man living a normal life, a life approaching the primitive, little pathology occurs to them, but a man living the modern artificial life, far removed from that which was the custom for hundreds of centuries, suffers thereby. The main disturbances of the endocrines are those of function and have a very severe effect upon the constitution.

The autonomic nervous system is more easily affected, being more recent in development. It is disturbed by climate, diet, and mode of life. But even these are not considerable when the nervous system has inherited full growth and vigor. We seldom see what we nowadays call vagotonia in those who are fully hypophyseal in build and physiology. It is more commonly discovered in the adrenal type associated with defective development: the flat chested, the small boned, those with narrow costal margins and visceroptosis. The perverts, morphological and physiological, are the ones who go to make up our so-called neurotics.

Most neurotic pains are preceded by exhaustion of the sympathetic plexus, the stigma of a chronic rather than an acute process. Types of regional neuritis, neuroses, and a neurotic mind are generally associated with lesions of the sclerotic type, where we have vague expression and mental obsession.

With a life in the open, a life of work, a life of energy, one that stimulates bone, muscle, and gland function, where the only thing taken to inebriate is pure oxygen, we rarely find defective physiology. But in those who for generations have lived in close rooms, have had exercise but spasmodically, who are not earners of their bread by sweat, who are given to lives of leisure, laziness, and intoxication of the toxic type, morbid physiology and a whole vocabulary of symptoms develop. In people who work for a living, who cannot consider their comfort and convenience, whose skin is ever moist, we seldom find a neurosis.

The cerebrospinal system is of the latest development and yet has been the object of study for the longest period. Man's consciousness of himself has led to speculations, diverse theories, and largely unwarrantable conclusions. What this system is anatomically we know pretty well, but what it is physiologically and psychologically we are far from comprehending. To a considerable extent the mind has an influence over the body, though, fortunately, it has none over the sympathetic nor the endocrines. In fact, they are the masters of the mind. Many types of cerebration are practically independent, but character, that is our personality, is dependent upon the endocrines and the autonomic.

With the thyroid juice we are able to metabolize; with the adrenal we give energy to our metabolism; from the liver we obtain glycogen and a something yet unknown to feed the tissue cells of the body and brain and keep their output, be it mental, motor, sensory, or otherwise, at their maximum. It is not inaccurate to say that active mental processes are dependent upon the thyroid, adrenal, and liver, particularly the latter.

But the hypophysis and adrenal are what might be termed "cold" organs. They stimulate for energy. The thyroid and the ovary develop gentleness. They are "warm." The hypophysis and adrenal contract the bloodvessels and raise tension. The thyroid and ovary dilate. We fight with the aid of our adrenals and high tension. We worship, make love, and sympathize through the thyroid, and, in the female, the ovary.

We find that the hypophyseal infect less readily (especially is this true as to tuberculosis), but tend more to tumor formations, while the adrenal type is more susceptible and less resistant to chronicity.

In every gonad there are to be found elements of the other sex, so that a woman may demonstrate male characteristics. Sometimes they are evident anatomically, more often physiologically. When there is a physiological demonstration, there is prone to be soubrette voice, hirsuteness, and sterility. So far as our observations go, the hypophyseal demonstrates this more frequently than the adrenal type.

The endometrium is acted upon by the internal secretion of the ovary, with the resulting production of a periodic menstruation. This is correlated with a temporary enlargement and activation of the thyroid. The hypophysis is also said to enlarge, and through it we have increased tonic and intermittent contractions of the uterus.

If an ovum should be implanted in the endometrium the hypophysis tends to expel, the thyroid preventing, until such time as the ovarian secretion

has enabled the ovum to obtain a placenta. The placenta being formed, it also develops a hormone which passes to the mammary gland, stimulating its growth, eventually with the production of the colostrum. The hormone in the colostrum is absorbed into the general circulation and has an effect similar to that of the pituitary, so that when the tenth oestrus cycle comes around, the pregnant womb is doubly acted upon, with the result that delivery is effected.

If the thyroid secretion fails in its effect upon the endometrium of a pregnant woman, some believe that toxins are formed in the syncytium which disturb the liver function as well as the renal, and may lead to an abortion, pernicious vomiting, or even eclampsia.

As the internal secretion of the ovary recedes, the effect of the hypophysis and adrenal, as well as the thyroid, is not properly balanced, and, periodic bleeding being absent, we often find augmentation of arterial tension. This is not a pathology of the bloodvessels and not so serious as the usual high-tension states.

Not so many years ago, considering the long period that man has existed, education of the forebrain gradually was instituted, and this for several centuries was the pleasure of the male sex solely. As a result, man became differentiated from woman in strength of mind, breadth of vision, and ability to balance logically opinions on matters brought to his judgment. Woman was still kept either on the farm or in the home. She was not considered man's equal, simply his helpmate and companion in pleasure.

But recently, in the countries where education has advanced, there has been given to her a mind which is observant, a mind whose forebrain is not dwarfed by false speculation, and we have now developed in the female a being who is not as subject to man, who is not so strongly influenced by intuition, and whose thought is clear and unhampered by emotion. The woman of today is not the woman of the past, nor of the recent past. If she be given a hypophyseal body, strong and vigorous, she will have an equally strong, vigorous, and sensible mind. If she be given an adrenal body, persecuted by viscerotoposis, intestinal stasis, and diseased functioning of the endocrines, then she will suffer.

We cannot cure malformations which nature has wrought, but with our knowledge of hygiene, diet, and endocrine stimulation we can do much to relieve them. It has long been known that there exists a correlation between the tissues of the different parts of the body, that no one organ can be affected without another responding and sympathizing. We know there is a strong relation between the physiology and pathology of the female pelvic organs and the kidney, liver, stomach, heart, and brain and the different endocrines, particularly the thyroid, adrenal, and pituitary. Let us not forget that, correctly speaking, gynecology means a study of woman. With the specialists it refers simply to the diseases of woman.

The gynecologist whose mind is in the pelvis becomes narrow. He fails to comprehend many existing conditions and misses the great beauty of the Symphony of Nature. To do full duty by woman, to succeed in relieving her of that distress which

focuses its symptoms and signs below, one must not only know the unfortunate malformations and diseases which are the result of artificial modern life, but must know woman from all viewpoints, her anthropology, her biology, and her wonderfully perfected psyche.

250 MONTGOMERY STREET.

CHRONIC PULMONARY INFLAMMATION IN YOUNG ADULTS.

By FRANK PORTER MILLER, M.D.,

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THE great majority of the cases which constitute a basis for this article were the victims of influenza. In this discussion I wish to touch upon some common types of inflammation in children, namely tuberculosis, bronchiectasis, and post-influenzal thickening. I wish also to point out the ease with which a diagnosis may be made—though in the main the condition remains unrecognized—and to offer a few suggestions incident to treatment. These children should be spoken of as small adults, as we did not have access to infants, the age period being somewhat variable, ranging from five to sixteen years.

Although a prodigious effort has been made by various writers to cover post-influenzal complications, that portion which is relegated to the pediatrician has received only meager attention; and this is unwarranted. Admitting that the physical findings are not compatible with the subjective sensations, it offers a problem which, because of its obscurity, is peculiarly interesting. It is a common fault that, when examining these children and being unable to elicit signs which, to our mind, are indicative of pathology, we turn to the trusting parent and state that "as growth proceeds in the child there is a tendency for the condition to right itself"; and the patient is dismissed undiagnosed and untreated.

It is highly imperative that these children be placed under judicious management for a prolonged period. The response in these cases is quite as sluggish as in the adult form, but the results are far more gratifying; and I have no hesitancy in stating that, if these children have access to proper treatment, the results at times are nothing short of brilliant. In the event that these cases remain untreated they offer a fertile field for later developments, and it is essential that this period be bridged by a rigorous régime.

Pulmonary tuberculosis usually advances in three stages, namely, (1) period of implantation; that is the time at which the host becomes infected, and this may occur at any time from infancy until the pubertal age is attained. This must be true if we accept Hamburger's conception that practically all children become infected before fifteen years of age. (2) Period of extension. (3) Parenchymal destruction. When tubercle bacilli fall upon virgin soil there is conferred upon the host an immunity which apparently persists through the 'teens, though this is somewhat variable. The clinical evidence to prove the above hypothesis is that frequent sputum examination seldom reveals the organism, even though the refined, so-called

"homogenizing method" is employed. The immunity at this age is great enough to prevent parenchymal destruction, but lacks the power to inhibit extension of the process. After the age of sixteen this immunological effect apparently decreases and the organisms are more numerous in the sputum.

In early childhood the initial infection manifests itself around the hilus and the bronchial bifurcation, involving the epibronchial, peribronchial, tracheo-bronchial, and bronchopulmonary glands; and it seems that these glands check the inroads of the virus, causing the process to remain quiescent for a period, which later becomes reactivated when an acute intercurrent infection supervenes. Then the second stage is reached, the period of extension. As the process extends it limits itself mostly to the bronchi, producing a peribronchial thickening.

The symptoms which are attributed to hilus tuberculosis in children have been described as vague and indefinite, and most writers have described only the toxic group and those which would occur with any lymphatic diathesis, not necessarily tuberculous. The symptoms are quite distinct and, if the history is carefully taken, a diagnosis can practically be made from this alone. The most outstanding symptom of hilus tuberculosis in which there has been some extension is "frequent and protracted colds." Practically all these cases are associated with elevated temperature and invariably a diagnosis of bronchopneumonia will be made, unless one is on the alert for this condition. These attacks always produce some expectoration if the child has been taught to expectorate. In the interval between exacerbations the temperature may return to normal, although a great majority of cases continue to run a slight elevation of temperature. It is our observation that too much significance should not be attributed to temperature in children, meaning by that a temperature ranging from 99° to 100°. The instability of the nervous system, which is manifested mostly through the sympathetic division producing a lessened dissipation of heat, is quite often the causative factor in these children; and it does not necessarily imply that an infective process is the underlying basis. It is necessary to labor the point that instability of the nervous system in young adults must be borne in mind when deducing conclusions relative to the temperature.

As has been shown by Ott,¹ the thermogenic center is located in the tubercinerium, with subordinate centers in the corpus striatum and spinal cord. The tubercinerium is the floor and anterior wall of the third ventricle and belongs, according to Cajal, to the pars optica of the optic thalamus. Edinger believes that the central gray matter of the midbrain contains the central apparatus of the sympathetic. In the event that this is true thermoregulation would occur as a result of stimulation reaching this portion of the brain. In children of this age an unstable nervous system is to be expected, and a hesitancy should be adopted in arriving at a diagnosis when the outstanding symptom is fever.

In this series very few of the cases had lost any appreciable weight. A more frequent complaint was stationary weight. Blood spitting is almost negligible at this age. Distinct pleuritic attacks are seldom seen, but complaints will often be made

of fleeting pains in the chest. Reflex hoarseness is occasionally noted and is significant when present, but is absent in the majority.

In the physical examination one can easily be deluded because of its negativity. On the affected side there is usually a lessened excursion. That portion of the chest anteriorly which evidences hilus infection is above the second rib, and there is usually degeneration of the skin and subcutaneous tissue with an accentuation of the subclavicular space. The accessory muscles in small children do not offer as great an aid as in older ones because of lack of development; but when the child has attained the age when the musculature is developed they are equally valuable.

Inability to diagnose tuberculosis early in these cases is due to our lack of interpretative power, and insufficient attention is directed toward the asymmetrical degenerative areas upon the chest wall and the tenseness of the shoulder girdle musculature. Posteriorly there is usually a marked degeneration and thinning of the muscles immediately over the hilus region, the degeneration being most marked over the side of greatest involvement. If the process is of long standing there is a flattening of the shoulder muscles—particularly the trapezius and levator anguli scapulae. The mechanism producing the above is due to stimulation within the lung, irritating the fibers of the upper six thoracic segments. The afferent sensory impulse courses centralward to the cord, then by interconnecting neurons reaches the third and fourth cervical segments and mediates with the cervical spinal nerves. As has been pointed out by Pottenger,² all degenerative areas above the second rib anteriorly and the spine of the scapula posteriorly are due to a chronic inflammatory lesion of the lungs.

Mediastinal shifting was noted in a number of the cases, frequently without a history of pneumonia, so the natural conclusion one would deduce is that an upper lobe pneumonia had occurred, but was undiagnosed; and the contraction was great enough to produce the shifting. The remaining physical findings were not particularly noteworthy, and we might add that frank pulmonary rales were seldom elicited.

In hilus tuberculosis with slight extension these children appear perfectly normal, response to effort is good, and we should not be misled because the stigmata are lacking.

X-ray examination would usually reveal the hilus shadows of either side markedly increased, and peribronchial streamers extending outward through the lung, frequently to the periphery. The mottling which is present in the early adult form of tuberculosis was equally distinct in these cases.

Bronchiectasis.—Unquestionably the weakening of the bronchial wall is the most important, probably the essential factor in inducing bronchiectasis, since the wall is not able to resist the pressure of air which occurs during a paroxysm of severe coughing. Particularly is this true in those cases which follow whooping cough; and since whooping cough has been quite prevalent in this section of the country during the last few months, it offers a comparatively large number of bronchiectatic cases. Bronchiectasis increases in proportion to the fre-

quency of influenza in any community, and is even more prone to occur if the influenza was associated with pneumonia. It has been known for a long time that if a diligent search is maintained in sputum from these cases influenza bacilli can be recovered in the majority. There is one other type in which pneumonia, influenza, and whooping cough do not play the leading role, and that is the form which follows repeated attacks of bronchitis, often dating back to infancy to the so-called "croupy babies."

We have rather taken advantage of the term bronchiectasis by including in this category all those cases of infected bronchi, even though the x-ray fail to reveal saccular dilatation. If we await x-ray evidence for a diagnosis of this condition in children, the greater percentage will remain undiagnosed. Again allow me to reiterate that the history is of paramount importance, and the aforementioned diseases usually comprise the groundwork.

These cases possess a characteristic cough which, once heard, is not easily forgotten. The "looseness" of the cough is absolutely diagnostic, and I can only describe it by contrasting it to the cough which occurs in an acute bronchitis when it has reached the expectorant stage. This has recently been explained in this manner: If the sacculatation occurs in the primary bronchi, the ingress and egress of air are capable of moving the foreign body back and forth, hence this characteristic rattle upon coughing. Again, the diminution in the excursion of the chest offers a valuable lead, usually a short, high-pitched percussion note upon the side of involvement, and rhonchi are usually present in at least 75 per cent. of the cases. It is not unusual for the rhonchi to be transmitted to the unaffected side. Pulmonary rales are not present. When a limiting membrane is formed in the lung which inhibits extension of a chronic inflammatory mass, rales are never present. In the production of rales it is necessary for the contiguous cells to have undergone destruction, and such is not the case; even though a peripneumonic process surrounds the bronchiectatic area the cells remain intact. The same will also hold true from lung abscess. This explanation was advanced by Pottenger,³ and appears quite plausible. Muscular degenerative areas and shoulder girdle tenseness are absent because sufficient lung substance is not involved.

No attempt has been made to compile statistics relative to locus of incidence; but I feel safe in stating that there were as many cases limited to the upper lobe as there were to the lower.

Postinfluenzal Thickening.—The symptoms presented by this group were analogous to those already mentioned, but following the rule of most air-borne infections, it would produce its pathology in the lower lobe. Even though we attempted to be very meticulous, it was often quite impossible to ascertain the exact etiology without the use of the intradermal tuberculin test. The dosage that we employed was one-tenth c.c. of a 1-5000 solution of Koch's old tuberculin, and with this dosage constitutional symptoms were negligible. The intradermal test has a number of advantages over some of the other tests because of the more exact dosage, the earlier reaction, and the certainty of absorption. It also offers a method of determining the degree

of hypersensitiveness of patients with active tuberculosis and aids one in gauging the rapidity with which the tuberculin may be administered.

Treatment.—These children were given tuberculin and in cases where indicated a mixed respiratory vaccine was also added. A cold sponge bath was given immediately upon arising, the portion of body sponged including the chest and arms. After the temperature had receded, sun baths were instituted, beginning with five minutes a day, and increasing five minutes each day until one hour was reached. It is our plan to have these children rest at least twelve hours each night and two hours during the day, and to allow them to play the rest of the time without any effort at restraint.

In conjunction with the above iodides are usually given. The preparation that we use most frequently is the syrup of hydriodic acid and the compound syrup of the hypophosphites.

Jobling and Petersen⁴ have shown that the anti-ferments contained in tubercle bacilli and in tuberculous caseous material are due to the unsaturated fatty acid radicals of the lipoids. When iodides are taken into the tissues a portion of the iodine combines with the unsaturated carbon atoms of the fatty acids. As soon as this occurs in necrotic tissue, so as to remove the antiferment action, autolysis ensues.

The action of the hypophosphites is rather hazy, although it has been thought for a long period that they produce favorable metabolic changes.

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1100-1103 TITLE INSURANCE BUILDING.

A CONCEPT OF X-RAY PATHOLOGY.

VII. CRANIOPATHY.

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SINUSES.—The technology involved for the production of the x-ray plate of the sinuses, including the frontal, ethmoid, sphenoid, and supraorbital, is outlined in Hirsch's "Principles and Practice of Roentgenological Technique," pages 143 to 154. In the frontal sinus study, the method is to demonstrate the fluid level when there collects in the cavity a purulent secretion. No extraordinary success has attended this endeavor. The x-ray pathology of sinusitis is determined by the relative radiopacity in the two sides. In general a normal frontal sinus in postero-anterior view is radiolucent; in lateral view, it is radiopaque. The reason for the difference lies in the fact that in the postero-anterior the outline of the sinus is radiographed through the posterior cranial structures and the skull contents, whereas in the lateral view there is relatively less structure other than sinus to be penetrated by the x-ray.

There does not seem to be any difference in the radiopacity produced by the accumulation of pus or as a result of granulation tissue. In some instances the pus collection will cast a relatively more radiopaque shadow than would be cast by the granulation. It is only safe to infer that the obfuscation leading to radiopacity invades a particular sinus when the companion to that sinus is obviously more radiolucent. It is not certain that variations in the extent of sinus anatomy or in the structure of a cavity indicate any certain finding. The frontal sinuses may be completely absent or hemilaterally absent. They may be small or large and multilobular. In the absence of frontal sinuses the lateral plate is of great assistance in arriving at an inference.

The ethmoid sinuses are generally involved when the frontal sinuses show change. In many instances, if not in all, there is a communicating channel between the ethmoid and frontal sinuses on the same side; so that when the frontal is attacked, by gravitation, the underlying ethmoid may become infected; and, conversely, when the ethmoid is first infected the inflammatory products may extend up into the frontal sinuses. The inference of the presence of diseased ethmoids is made by comparing those on the left against those on the right.

In a relatively large number of cases the ethmoids may encircle the orbit as the layer of air cells inferior to the superciliary ridge. In other instances these air vessels may be present in the same location without apparent connection with the ethmoids. Sinuses in this location are known as supraorbital. They are subject to the same pathological changes as the other accessory sinuses and their x-ray pathology is similarly elicited.

In the study of the sphenoidal sinuses the lateral view or the oral view afford some information. In the case of the sphenoidal sinus the inference of x-ray pathology is more difficult than in the remaining sinuses by reason of the fact that there is no mate for comparison. In the changes that involve equally the entire sinus a diagnostic inference is more difficult to arrive at than when only a portion of the sinus is attacked; for in the latter case the infected sinus part can be compared to the uninfected part. Polypi can sometimes be visualized as rounded areas of whorled radiopacity extending into the sinus cavity from a pedicle attached to the bony surfaces. The patency and course of the nasal ducts can be determined by the x-ray with a probe *in situ*.

Highmore's Antrum.—This may be studied extraorally in antero-posterior and postero-anterior view or intraorally through the use of dental films. The changes affecting the antrum are not unlike those affecting the other accessory sinuses and are inferred from x-ray evidence by comparing one side to the other. The avenue of infection for the antrum is different than for the paranasal sinuses; and therefore the antrum may not be infected contemporaneously with the frontal sinuses. In the maxillary antrum any thickening of the mucus membrane may cause an increase in the radiolucency of the affected side. The greater the inequality and the more complete the obliteration of the sinus of the affected side, the more probable is the diagnosis of empyema.

Mastoid.—Three types of mastoid may be found.

These are the pneumatic, the diploic and the sclerosed. The x-ray plate of the mastoid region must be made for both sides, the x-ray pathology being arrived at by comparing the right with the left. The plates should show seven structures with clear definition:

1. The articulation of the lower jaw and the posterior border of the ascending ramus.
2. The auditory canal, about a quarter of an inch beyond the articulation of the lower jaw.
3. The air cells of the mastoid extending backward in the network from the articulation of the jaw. The air cells often extend much beyond the limit of the mastoid process. They are large in the lower part and become gradually smaller above.
4. Surrounding the auditory canal a dense area superimposed on the mastoid cells and representing the petrous bone should be visualized.
5. The outline of the lateral sinus should be visible as a radiolucent streak that courses through the posterior half of the cells.
6. The foramen magnum should appear as an elliptical orifice crossed by part of the first vertebra.
7. The pinna of the ear should be outlined either reflected from or in its natural position, depending upon the technology used.

Acute mastoiditis shows a general radiopacity of the entire region; an increased radiopacity of the petrous bone, apparent radiopacity of the lateral sinus, obliteration by radiopaque infiltration of some air cells and a haziness due to a radiolucent infiltration of other air cells. These findings must be present on one side but absent on the other. It is possible to conceive of a bilateral mastoiditis so that the relative comparison might be quite futile; but in the vast majority of cases a mastoiditis is unilateral, or if bilateral it is more intense on one side than on the other.

Chronic mastoiditis is more typically characteristic and presents:

1. Obliteration of air cells owing to radiopaque infiltration.
2. Markedly radiopaque petrous bone visualized as a triangular area with the area directed upwards and backwards.
3. The posterior part of the petrous bone presents a distinct and sharp crescentic outline which corresponds to the upper and anterior border of the lateral sinus.
4. The lateral sinus stands out distinctly markedly radioparent in contrast to the dense radiopaque structures that surround it.

INFECTIOUS INVOLVEMENTS OF CRANIAL BONE.—Bone may suffer inflammation due to osteomyelitis, syphilis, tuberculosis, actinomycosis or phosphorus necrosis.

Osteomyelitis is rarely an independent affection localized in the skull. It is more often metastatic. It occurs usually in the frontal parietal or temporal bones. The base is rarely ever affected.

Syphilis of the Skull.—Syphilis of the skull is not an infrequent manifestation. The changes produced affect the region of the face and vault and more rarely the base. When the base is involved the changes chiefly center in the sphenoid bone. Any stage of lues may affect the skull. In the early stages, tophic swellings consisting of granulation tissue accumulate between the bone and peri-

osteum on the outer surface of the frontal, the parietal, or the temporal bone. The underlying bone becomes radiolucent owing to the osteoporosis and the external table becomes perforated with radiolucent and radiopaque holes indicating canals. When the tophi heal calcification is produced with resulting sclerosis of the bone and thickening or exostoses on the surface manifested by dense radiopacity.

In the latter stages gummata may be localized in one or more places. The bone appears gnawed and osteoporotic over large areas. Later in the process bone production is stimulated and there is visualized a sclerosis of the diploë which progresses in places even to a condition of eburnation together with massive thickening of the bone.

Hereditary syphilis may manifest itself on the skull in one of three forms: (1) As an ulcerative process, much resembling acquired lues. (2) As a disturbance in the growth and union of sutures and fissures exemplified by the "saddle nose." (3) Hydrocephalic enlargement.

Tuberculosis of the Skull.—In contradistinction to syphilis, tuberculosis rarely attacks the skull. When present it invades those bones that hold air chambers, the infection seemingly extending from the mucus lining of the sinus through the periosteum into the bone. Tuberculosis may also be found on the bones of the skull usually as an extension of tuberculous infection involving the first vertebra. Two forms generally present. The first is a sequestering, the second is a progressive infiltrating form. *Actinomycosis* rather favors bones of the skull, spreading, it seems, from a decayed tooth into the jaws, into the face, and thence on to the bones of the skull. It produces its typical carious destruction resembling a chronic osteomyelitis, which indeed it is. It is characterized by its slow course and by the pronounced proliferation of bone with resulting intense radiopacity owing to the density of newly formed osseous deposit.

Phosphorus necrosis of the skull also arises from a tooth socket and produces a decay that follows the same channels as that pursued by actinomycosis. In phosphorus necrosis a chronic osteomyelitic change is induced in the bone that cannot be distinguished by the x-ray pathology from pyogenic forms of osteomyelitis.

ATROPHIC AND HYPEROSTOTIC CHANGES.—In this group the local manifestations of systemic diseases, osteomalacia, acromegaly, Paget's disease, and hyperplastic osteitis, are included; and, additionally such conditions as basilar invagination, neurotic atrophy, and basilar hyperostosis.

Senile Atrophy.—Thinning of the skull bone occurring as a wasting of osseous substance is found usually in the parietal region, the outer surface of which region assumes a trough-like depression. The osteoporosis begins in the external table, erosion of which lays bare the spongy diploë or diploëtic area.

The air chambers sometimes diminish in size (maxillary sinus) or they may increase in size (frontal sinus). The general shape of the skull in the aged presents characteristic orientation in cases of senile atrophy. In summary, the x-ray pathology of this condition, to which no great clinical significance is attributable, consists in the thin-

ning and osteoporosis of the parietal skull wall with the trough-like excavation, erosion of bone in the region of the sella turcica, enlargement of the frontal air chambers and sometimes widening of the diploë veins.

Osteomalacia.—In this condition there is an extreme and irregular diminution in the radiopacity of the skull bone (as well as the remaining skeletal bones). It is doubtful if osteomalacia is a separate disease entity, there being much dispute as to its pathogenesis. The x-ray pathology is included in the recognition of the general halisteris. The reabsorption of lime may proceed to an extent where the bone radiopacity approaches the radiolucency of the surrounding soft tissues. It resembles fragilitas ossium and osteogenesis imperfecta, both occurring in young children under one year and readily confusable with rickets.

Neurotic Atrophy.—Under this title are included those changes in the skeleton that occur in diseases of the nervous system and depend upon a disturbance of the trophic function of the latter. It is a rare condition in the skull; and although Schüller includes a discussion of this entity, as do Möbius and Furnrohr and Sudeck, there is little to be gained from the x-ray pathology of the condition.

Basilar Invagination.—The striking x-ray characteristic of this peculiar change is the upward bulging of the floor of the posterior cranial fossa in the region of the foramen magnum. Together with this change, which can best be visualized stereoscopically, there is noted also considerable anomaly in the structure of the wall of the posterior cranial fossa revealed by great thinning. The atlas and axis (epistropheus) are rudimentary, and there is some erosion of the inner surface of the skull.

TUMORS OF THE SKULL.—These have already been discussed under the various tumors in connection with the study of bones. Tumors of the hypophysis will be studied under the caption of sella turcica.

CEPHALOMETRY AND CRANIOMETRY.—It is customary to reserve the term cephalometry for those measures made on the living head, or head without removal of the soft parts, and craniometry for measures of the dry skull. A useful x-ray investigation is that under the title of "Radiographic Base Line," elaborated by Knox and Salmond. A description of the base line is taken from "Radiography and Radio-Therapeutics," by Knox, as follows:

In practice it has been found accurate for application to the various types of skull met with, though in exceptional yet still normal types its accuracy will be lessened.

A base line, which may be called the radiographic base line of the skull, is made use of. It is determined by drawing a line from the nasion, i.e. the mid-point of the suture between the frontal and nasal bones, through the center of the external auditory meatus, and continuing it to the mid-line at the back of the head (Figure 13). The length of this is measured, and on it three points are marked, at the one-third, the one-half, and the two-thirds distance from either end; usually it is most convenient to measure from the front.

Through these points perpendiculars to the base line are drawn, dividing the head into four areas, by three lines which run downwards and forwards and are intersected by the base line. The lines may be marked on the head with a skin pencil, or by thin wire if they are to be reproduced on the plate. This base line was

chosen because the nasion is a fairly constant point and easily determined; the external auditory meatus is also constant, and the whole line corresponds exceedingly well with the base of the skull.

The external occipital protuberance was avoided because it is variable and not always easy to feel, and, moreover, a line between the nasion and the external occipital protuberance does not correspond to the base of the skull as well as the one chosen.

Relations of the Radiographic Base Line of the Skull.—The following points are found on the same horizontal plane as the base line (Figure 13): (1) The lower part of the frontal sinus; (2) sphenoidal sinus; (3) apex of the petrous bone; (4) clivus of the sphenoid; (5) glenoid cavity and condyle of the lower jaw; (6) external auditory meatus; (7) jugular foramen; and (8) base of the mastoid process.

The point of intersection at the one-third distance from the nasion is at the zygomatic malar suture and corresponds in the interior with the front part of the sphenoidal sinus. The point at the one-half distance is at the glenoid fossa and condyle of the lower part of the dorsum sellæ or just a little behind it, the apex of the petrous bone. The point at the two-thirds distance is on the mastoid process, toward its posterior margin, and corresponds with the curved portion of the lateral sinus in the interior.

If in the interior of the skull a mesial base line is drawn between the ends of the corresponding base line on the exterior it will be found that the intersecting lines at the one-third and at the one-half distance correspond in both cases, but that the intersecting line at the two-thirds distance on the exterior base line corresponds to a point at the three-quarter distance on the mesial line in the interior.

Relations of the Perpendicular Lines and the Areas Defined by Them.—The perpendicular at the one-third distance corresponds with three sutures of the skull, the coronal, the squamo-sphenoidal, the speno-maxillary, in order from the above downward (Figure 13). It bisects the frontal lobe of the brain, and roughly divides the face from the hairy scalp.

The perpendicular at the one-half distance approximately corresponds at its upper end with the fissure of Rolando, and below the base line with the posterior margin of the ascending ramus of the lower jaw.

The perpendicular at the two-thirds distance bisects the parietal lobe of the brain.

These three lines divide the head into four regions, which may be called A, B, C, D, from before backwards.

Region A contains the anterior fossa of the skull with the anterior half of the frontal lobe, the orbits and the facial bones with the exception of the ascending rami of the lower jaws and the palate bones.

Region B contains the body of the sphenoid and the greater part of the sphenoidal sinus, the sella turcica and the pituitary body, the palate bones and the ascending rami of the lower jaw, the posterior half of the frontal and the anterior part of the temporo-sphenoidal lobe of the brain.

Region C contains the mastoid process, petrous temporal bone, occipital condyles, anterior half of the parietal and posterior part of temporal lobes of the cerebrum, the pons, medulla, and anterior part of the cerebellum.

Region D contains the horizontal portion of the lateral sinus, the occipital lobe and posterior half of the parietal lobe of the cerebrum, and the posterior part of the cerebellum.

As an illustration of the use of the system: To radiograph the sphenoidal sinus laterally. The system shows that the base line runs through the sinus, and that it is situated between the intersecting lines at the one-third and one-half distance. The tube is therefore arranged so that its central rays pass through the base line and between the intersecting lines.

The technique necessary in this system of measurement need be only briefly indicated.

The patient may be radiographed with the head in either the vertical or horizontal position—in other words, the sagittal suture should be parallel to the plate, a point of importance in order that a region localized on one side of the skull may exactly correspond with the similar region on the other side; for accurate work of this kind a head rest is essential.

The side to be radiographed is placed next to the plate, the opposite side being made use of for localization.

When in proper position the tube is central over the base line of one side, and the two lines will be found to coincide exactly; or if the tube is centered over the perpendicular drawn at the one-half distance, then both perpendiculars at that point on the two sides of the head will be found to coincide.

In the localization of bullets or shrapnel in the brain this system may be used in conjunction with the cross-thread method of Sir James Mackenzie Davidson. It can also be used in conjunction with the ordinary stereoscopic method, the resulting negative or prints being viewed from the point chosen before the tube was shifted to either side.

In order to facilitate the ready selection of points from which to radiograph the skull the use of a special cassette with mechanical adjustments is advisable.

It is strange that there has not been an effort to devise measures of the dry skull or measures of the living skull directly from x-ray evidence. In this connection the topic of craniometry will be discussed.

Craniometry.—It seems that precise measurements of the skull were first initiated by artists who endeavored to attain greater accuracy in their representation of the human form. Bernard de Palissy and Durer were early pioneers in these researches. In the Middle Ages there arose a dispute as to whether Galenic anatomy was based upon the study of the human body or upon those of apes; and this seems to be the determining cause in the improvement of craniometric technique. Thus, Tyson, in 1680, explains that the measurements he made of the skull of a chimpanzee at dissection were devised with the view to exhibiting the difference between this and the human skull.

Daubenton, in 1764, published a valuable contribution to craniometry; but six years later, Pieter Camper, distinguished both as an artist and anatomist, published in lecture form an account of craniometry that forms the foundation for all subsequent work in this field.

Camper, in the first place, was interested in arriving at the distinguishing characteristics between animal and human faces. This wide comparison was the first motive for craniometric investigation; and it is remarkable that among the first measurements observed, angular determinations occur. Indeed, the name of Camper is perpetuated in anthropological literature with the "facial angle"; and it is impossible to improve on the simple terms with which the artist-anatomist described the general significance of the measure. Said Camper, "The two extremities of the facial line are from 70 to 80 degrees from the Negro to the Grecian antique; make it under 70, and you describe an orang or ape: lessen it still more, and you have the head of a dog. Increase the minimum and you form a fowl, a snipe for example, the facial line of which is nearly parallel with the horizon." To this very important observation, the approach to the horizontal in the facial angle, x-rayists' attention will shortly be invited.

Broca in France and Huxley in England elaborated the science of craniometry with a genius that has yet to be surpassed.

The second aim of craniometry rests in comparing skulls of higher and lower races of mankind. To this field of research must be added the names of

Retzius of Stockholm, whose claim to distinction rests on the merit of his system of comparing various dimensions of the skull, and a classification based upon these dimensions. It should be mentioned here for convenience that the pristine aim of craniometry was to obtain from the skull reliable data having reference to the conformation or size of the brain once contained in it. This fundamental aim was for a long time afterward overlooked, much to the detriment of craniometric science.

As the measurements become more accurate, and comparisons obvious, craniometry reached into a third horizon of usefulness, that of comparing skulls of the same race, but of different sub-races. Thus, the fair and dark European were contrasted. It is in this specialized branch of craniometry that Retzius reached his highest fame. Retzius studied not any one particular angle or measure, but an expression of relative measurements, using as an index the two cranial measurements of breadth and length. A skull, Retzius ascertained, could be so proportioned that the relation between breadth and length was as three is to four, or 75 per cent ratio. This is the cephalic index. The long, or anteroposterior diameter is taken as 100; the short is correspondingly proportioned. If the short falls below 80 the skull is classed as long (dolichocephalic); if it extends 80, the skull is broad (brachycephalic). Retzius applied his system to the inhabitants of Sweden and strikingly observed a contrast between the Lapps and their Scandinavian neighbors, adding a craniometric difference to the usually observed characteristics of hair-color, stature and complexion. Broca followed these studies with a survey of Basques and Gaunches skulls.

The fourth division of craniometry deals with the comparison of prehistoric and present mankind. The methods exactly simulate those advanced by Retzius, using special modifications in those instances where only fragmentary pieces of prehistoric skull are obtainable. In this field the names of His and Rutimeyer (Switzerland), Ecker (South Germany), Broca (France), and Thurman and Davis (England), must be particularly cited. Schaalbe, Kramberger, Sollas, and Klaatsch are the more recent contributors.

As the complexity of craniometric studies increased, the number of measurements to arrive at a "diagnosis" in any given skull reached a colossal total. The more recent tendencies, therefore, became threefold; first, an attempt to coordinate the systems of measurement and strive for uniformity among all observers. In this, two attempts deserve mention, the German Anthropologists at Frankfurt, in 1882, and the Anthropometric Committee of the British Association in 1906. Secondly, a statistical collection of anthropometric data collected and compiled by Pearson. Third, the extension of craniometric studies to domestic and feral animals.*

As valuable as are craniometric studies for the purposes which called them into being, they are practically worthless to the clinician; and the sur-

geon and physician, when interested in skull measures taken *in vivo*, has had to resort to other measures, similar to dry skull measures but varying in the result, accuracy, and, to some extent, in significance. In contradistinction to craniometry (measurement of the dry skull) measures of the living head are classified under the title cephalometry. The uses for cerebral topography in surgical intervention need little rehearsal. The cephalometric methods devised for their identification, as for instance the outlining of the Rolandic fissure course, are known to all surgeons and require no further elaboration. But a phase of skull study has remained manifestly unexplored; or if investigated, the inquiries have been superficial and the inferences drawn from data manifestly seriously wanting in accuracy and discrimination. That phase is the relation of skull conformation to the various psychiatric disorders.

Lombroso, like Bovio, Ferri, and Colojanni before him, was influenced by Auguste Comte in the tendency to refer all mental phenomena to biological causes. There need be no defense for some of Lombroso's work. He studied at Padua, Vienna and Paris. He was then appointed professor of psychiatry at Pavia; then he became director of the lunatic asylum at Pesaro; later professor of forensic medicine and psychiatry at Turin, and finally professor of criminology at Turin. He made brilliant observations upon the relation between cranial conformation and mental state; but his work was confined entirely to cephalometric measures, no attention having then been given to the possibilities of x-ray exploitation. Much of Lombroso's work recalls the fantastic thoughts propounded many years previously by Gall in connection with the system of empirical psychology called by Forster phrenology, which, under a more popular garb, has just recently been reintroduced in the form of character reading and analysis, based upon facial and cranial form.

It is anthropometrically established that the various nationalities present some differences in their craniometric conformation; and that in the same nationality presenting splits in the original descendancy, each branch of racial progression shows variances characteristic for the sub-nationality. Thus, the native southern Italian, who is of psychomotor excitability, presents cranial conformations distinguishable from those of the native Hollander, who manifests normally psychomotor retardation. Now, if an Italian develops psychomotor retardation, he would likely be considered a psychic in the depressive stage; and, contrariwise, if the Hollander developed psychomotor excitability, he would be suspiciously regarded as a psychic in the manic stage. Their outward cranial (cephalometric) conformation might be nearly identical; or, as is more often the case, the manic Dutchman would show a configuration that more nearly approaches the native normal Italian; and the depressed Italian would show an outline simulating the normal Dutchman.

Several examples of this sort came under actual observation. Cases of manic depressive psychosis in Italians and Dutchmen, the Italians in the depressive stage and the Dutchmen in the manic stage. They were compared in cephalometric dimensions with the manic-depressives in both stages

*Sergi headed an Italian movement in revolt against using metrical methods in craniometry. Sergi's substitutes for the measures are not acceptable by the vast majority of those interested in craniometric study; and Sergi's adherents have not been able to sway followers from the orthodox metrical advocates.

of other nationalities. In external appearance, there could be no general conclusion arrived at in the matter of characteristic external conformation, though a tendency to likeness in outline was observed among the manics and depressives regardless of gross national or racial differences. The cases studied were in soldiers referred to mental hospitals for treatment following the late war; and the mental condition was obviously acute, though in hereditary potentiality, 98 per cent of the cases showed "nervous taint" somewhere in the progenitor file.

The cases were x-rayed in sagittal view for skull study. In this, the outer and inner tables were traced. At first, apparent parallelism between the outer and inner tables was found missing; but more scrutinizing observation revealed that the general contour of the inner table was greatly similar in cases showing the same phase of phenomenon; that is, all psychomotor excitable, though racially dis-

rived directly from the x-ray plate without the use of the patient (excepting to procure the x-ray exposure). It should be a method as truly craniometric as the study of the heart silhouette is cardiac. To this end, devised especially in connection with psychiatric needs, the following craniometric system was elaborated and applied to cases of mental patients studied in various institutions.

(To be continued.)

Medicolegal Notes.

Municipal Health Regulations Relating to Mineral Content of Water.—An ordinance of the city of Miami prohibited any person or corporation from selling or supplying to the inhabitants of the city water for human consumption which shall have been taken from wells or other sources of supply "in or without" the city limits, unless the vendor shall hold a valid permit from the city board of health. The manager of a corporation which supplied water to the inhabitants of the city, which water was taken from wells in or near the city, was arrested and charged with the offense under the ordinance of "supplying to patrons" of the corporation water for human consumption "without first securing a permit." The Florida Supreme Court, reversing a conviction, holds that municipalities acting under authority from the State may enact ordinances which are necessary for the public health, although the requirements of such ordinances impose conditions upon persons or corporations not required in contracts which they may have with the city for the particular service affected by the ordinances; but ordinances prohibiting the sale for human consumption of water containing certain elements or compounds as unwholesome or unfit for use may not establish a certain standard of mineral content and declare that water which contains a greater quantity of such minerals is unwholesome if such standard so fixed by the ordinance is not accurate.—Hyman v. Dillon (Fla.) 84 So. 666.

Cause of Hodgkin's Disease Cannot be Conjectured.—In holding that the evidence in a Workmen's Compensation proceeding disclosed no facts that would justify an inference that "Hodgkin's disease," from which the employee died, resulted from ulcerations in the mucous membrane of his nose, or that these ulcerations were caused by inhaling the fumes of hydrochloric acid used by him in his work as a tinner, the Minnesota Supreme Court said: "That acid fumes had been inhaled in soldering can hardly be considered a reason for attributing them (the ulcerations) to such fumes, for there is no evidence that they had their inception at or about the time of such inhalation, and no evidence that injury has ever resulted from inhaling such fumes under such circumstances, although all tanners frequently inhale them. It is undisputed that medical science has not yet discovered how Hodgkin's disease is produced or what causes it, and no attempt was made to show that it follows traumatic injuries or that such injuries have any part in producing it."—State v. District Court, (Minn.) 177 N. W. 644.

Preliminary Education Not Prerequisite to Examination of Graduates in Osteopathy in Wisconsin.—Under Wisconsin Laws of 1915, Chapter 438, as amended by Laws 1915, Chapter 595 (Statute 1919, Section 1435a), the Wisconsin Supreme Court holds that a graduate of a reputable college of osteopathy is entitled to mandamus to compel the State Board of Medical Examiners to examine him in the various branches of surgery in accordance with the usual course of the board, though he had not completed the preliminary education required by the statutes for examination in medicine and surgery. The preliminary education required of one applying for a license to practise osteopathy and surgery is an "education equivalent to graduation from an accredited high school of this State." The additional college course applies only to those desiring to practise medicine and surgery; consequently, in order to constitute colleges of osteopathy reputable, under the terms of this law, it is not necessary that they require of their students the college course.—State v. Wisconsin State Board of Medical Examiners (Wis.), 177 N. W. 910.

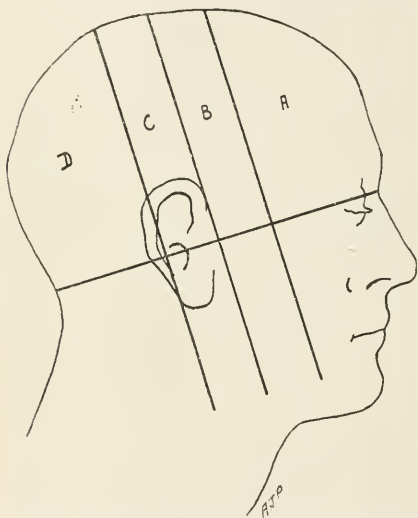


FIG. 13.—Diagrammatic representation of the Knox Salmund base line drawn from the nasion through the external auditory canal, then divided at right angles at the middle and again at the one-third and two-third points.

tinguishable from outward cranial contour, manifested a strong resemblance and even identity in inner table conformation; and, similarly, those of psychomotor retardation, while different outwardly, were closely identical inwardly.

From the first series of cases thus studied (124), it became apparent, in the effort to make comparable x-ray studies, that a truly radiographic craniometry did not exist. The so-called radiographic base line of Knox and Salmund, above discussed, was after all a cephalometric measure reproduced on the x-ray plate; and any benefit to be derived from it had to be in terms of translation from radiography to cephalometry.

Knox and Salmund's base line, and similarly Reid's and the Frankfort base line, are not veritable x-ray entities. They are cephalometric. The necessity for an x-ray craniometry is obvious. It should aim to secure accurate intracranial measures de-

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SYPHILITIC NEPHRITIS.

So many unquestioned cases of secondary syphilitic nephritis have been recorded that this renal manifestation of syphilitic infection can not be denied and it should be included among the numerous early visceral localizations of lues. It frequently occurs in the second month of the infection. Out of a total of twenty-three cases mentioned by Mauriac the renal accidents appeared during the sixth month of the infection. Of seventeen cases Dieulafoy mentions two arising in the eighth month of syphilis, two in the sixth, two in the fourth, five in the third and five in the second month, and he is of the opinion that the renal process occurs more frequently during the second and third months following the chancre. It often appears at the same time as the roseola. Descout reports a case of abundant albuminuria appearing on the fifty-third day of syphilis.

When the nephritis occurs early and is intense there is usually a massive albuminuria without any other symptom, but edema and hydrothorax have been known to occur. However, there is an early type in which the albuminuria is slight (20 to 30 centigrams per liter). The urinary toxicity, urea and extractive matter are in normal proportion and the microscope will reveal a few casts. The albumin disappears under treatment. It is nevertheless true that these early intense syphilitic nephritides with massive albuminuria are by far the most frequent.

Usually the onset is insidious, there being only some slight malaise, a general tired feeling, or a slight rise in temperature. Sometimes it is more manifest, edema appearing first. Both Jaccoud and Dieulafoy have insisted on these cases in which edema becomes the main symptom. It may become generalized at once or remain localized to the eyelids, lower limbs or external genital organs. Lumbar and joint pain or headache may appear at the same time. Fever is often absent, but when it exists it may be accompanied by digestive disturbances with nausea or vomiting. The urine, at first voided in large amount, tends to become scanty, fifty c.c. or less being passed in twenty-four hours. It is cloudy, high colored and contains albumin varying from eight to fifty or more grams per liter. The urea is decreased, while the specific grav-

ity averages from 1014 to 1020; the reaction is usually acid. Cytological examination reveals red blood-corpuscles, epithelial cells and numerous and varied types of casts. Renal permeability is not usually disturbed, but in a few cases a delay in the elimination of methylene blue has been noted. There is never any cardiac hypertrophy nor high blood-pressure.

In some cases death occurs in a few weeks, with progressive general edema, dyspnea and fluid in the serous cavities; other patients recover in a relatively short time. Syphilitic nephritis is especially serious from the rather frequent complications to which it gives rise, such as hyperacute uremic intoxication or progressive uremic accidents with edema of the glottis and lungs, asphyxia and asystolia. According to Fournier, early syphilitic nephritis is fatal in one case out of three and when it retrogresses it is only for a short time. Usually the albuminuria persists and ends in amyloid degeneration of the kidneys after a lapse of several years. Rosenstein reports 32 cases out of a total of 120 in which it was due to syphilis, while out of a total of 265 cases of amyloid change in the kidney, Wagner attributes the lesion to syphilis in 36. The process may remain latent and even be susceptible to cure. Therefore the prognosis of syphilitic nephritis must be very guarded.

When a nephritis coincides with the development of secondary luetic phenomena, the syphilitic nature of the morbid process must be regarded as possible, but other factors such as alcoholism, hepatic or gastrointestinal processes may also be active. A massive albuminuria, the daily amount varying from day to day, is one of the principal characters of specific nephritis, coupled with the presence of undoubted syphilitic infection. Mercury probably plays no part in its production, but the initiative influence of the arsenical preparations cannot be denied and many able clinicians regard them with suspicion in this respect.

DOES THE MENSTRUATING WOMAN DIFFUSE A POISON?

ACCORDING to Schick, the well-known serologist, a menstruating woman may be a veritable upas tree (*Wiener klinische Wochenschrift*, May 20, 1920, xxxiii, 19). His attention was first attracted to the subject on the occasion of receiving ten fresh, long-stemmed roses, which he had requested a female servant to place in water. On the very next morning the roses had largely withered, the petals having dropped on the table. Greatly surprised, he had summoned the servant to illuminate the mystery. She said that she had known that the roses would wither for when she was unwell this phenomenon was always in evidence. Greatly astounded, Schick began to experiment. The woman, along with a non-menstruating control, was sent to the author's gardener who cut off for each an anemone, a white crysanthemum, and a yellow helianthus. The women simply held the flowers in their hands and went to the clinic. Upon their arrival the flowers in the hand

of the menstruating woman had begun to wither and were hanging their heads. The time elapsed was but ten minutes. The blighting process was complete at the end of twenty-four hours, the petals having fallen off at eighteen hours. The flowers handled by the control subject were as fresh as ever at the end of forty-eight hours. The menstruation in this experiment was in its first day only. On the following day the tests were repeated, and flowers held in the hand of the menstruating woman showed some alteration in three minutes after she had taken them. The change consisted of a progressive drying, followed in a few hours by discoloration. The anemones were especially sensitive, and the chrysanthemums showed the greatest resistance. On the third day of menstruation the pernicious effects were but slight, and on the fourth day they had vanished, and during the entire intermenstrual period the woman showed not a trace of this mysterious power.

Schick next learned that there is a popular belief in certain strata that menstruating women have the power of withering freshly cut flowers, although many refuse to believe in it and look upon it as a mere superstition. In wineries menstruating women have been forbidden to enter, and this proscription even extends to orchards, for these women are not allowed to climb into fruit trees when in bloom and even later, lest the fruit crop should spoil. Study of this problem through the ages brings out astounding facts and beliefs. The menstruating one in an orchard can cause the insects to drop from the trees; and even in classical times there were tales of the use of partially exposed women for expelling the cantharis beetle from the trees.

The author, after extended research, was able to show that the menotoxin circulates in the blood but not in the serum; in all probability it is in the blood corpuscles or adherents to them. It must be volatile and escape by the skin or lungs. Schick thinks we are on the threshold of a great discovery, this potent volatile poison being a menace not only to the preservation of certain organic substances, but even to growing flowers. It also seems toxic to insects. In regard to unicellular organisms it can both inhibit and accelerate the proliferation of yeast. The menotoxin is regarded by Schick as something which the female organism must get rid of, and this supports the prevalent view that menstruation is a depurative phenomenon.

PRINCIPLES OF HORMONE THERAPY.

DESPITE the large literature of this subject, an account of the principles underlying the exhibition of internal secretions, rather than their mere indications, should be timely, and such a one by Professor Ascher of Berne has just appeared in the *Schweizerische medizinische Wochenschrift* for November 18, 1920, i, 47. Therapeutics as a branch of applied science devoid of empiricism is the least developed of any of the so-called medical sciences. As Bleuler says it gives free scope to "autistic thinking." The introduction of hormones into therapy does something to make the latter study more scien-

tific, and may mark a turning point of the greatest significance. The secretin of Bayliss and Starling is the first of the actual hormones to serve as a pivot for building up the hormone principle. Secreted in a certain region it is absorbed into the blood from which it is able to activate the functions of one or more special organs. The number of true hormones from this viewpoint is not large. Next to secretin chronologically comes adrenalin which can be synthetically prepared. Thyroxin, the hormone of the thyroid gland, has recently been shown to be a triple iodized indol derivative of adrenalin. The active principle of the hypophysis appears to be a series of biogenic amines. Only secretin of this "big four" has resisted all attempts to solve its intimate chemical nature. Thus far we are not in position to speak with authority on the nature of the hormones of other ductless glands. In reality we cannot even prove the existence of hormones in the pancreas, parathyroids, gonads, etc., because we must first isolate a principle which measures up to the known hormones in being albumin free, in being ferment free, etc. The active principles present may belong under some different class of substances. But for convenience we may speak, for example, of the testicular hormone in connection with the work of Steinach, which is of the most revolutionary character.

Hormones, including those so termed by courtesy, are either general or specific. Secretin is of the latter type and the author in the same class places cholin, which, formed in the intestinal wall, acts upon the ganglia of the mesenteric plexus and thereby presides over the activity of the smooth muscle of the intestine. In addition and considered purely as a drug, cholin has quite a varied physiological action, but plays no added physiological role in nature. Adrenalin is a general hormone which, by activation of the sympathetic nerve fibers, is able to influence nearly every organ in the body. Further, according to circumstances, it can both excite and inhibit action. In severe asthma it relaxes muscle spasm, although commonly supposed to produce contraction of smooth muscle. The double action is not paradoxical because the sympathetic fibers themselves are both excitatory and inhibitory. Even more sweeping in its activities is the thyroid hormone, and the mere enumeration of its purely physiological activities is bewildering to the student. Intermediate between secretin and cholin on the one hand and adrenalin and thyroxin on the other are the hormones of the hypophysis, thymus, spleen, and pancreas.

When we remove a portion of a goiter and rid the subject of the syndrome of hyperthyroidism we are practising negative hormone therapy. This is the surgical, straightforward type, practised by Kocher in his strumectomies for many years. Cushing has done the same work on the hypophysis of the acromegalic, while extirpation of the spleen for hemolytic icterus also belongs here. Still another instance is removal of the thymus, in addition to the thyroid, in Graves' disease. Positive hormone therapy in its most essential form is seen in surgical grafting of the thyroid, gonads, and adrenals.

This kind of work is difficult and attended with numerous failures and as a general resource must give place to feeding.

But the oral administration is limited largely to the thyroid and hypophysis, other gland preparations being more or less unsatisfactory when so given, and even the hypophysis is not in the class with the thyroid. The intravenous method is generally applicable and is the method of choice with adrenalin, while the latter may also be given intramuscularly. Pituitrin is given hypodermically with complete satisfaction.

Since all hormones are toxic in large amounts if not in small, the dosage is a delicate matter. A little excess of adrenalin can unfavorably influence the respiratory center and also cause extrasystole and even heart flutter. There is a factor termed by Hering the "disposition" which must be reckoned with, for variations in the latter require modification of the dose. This disposition is seen only in the tissues upon which the hormones act. Only in this manner can we explain why a given drug, as atropine, will in the same condition produce opposite effects, stimulating in one subject and inhibitory in another, the dose being the same. It is not worth while to pass the subject along by speaking of idiosyncrasies. There is some concrete explanation; perhaps in the case referred to, the presence or absence of cholin in the intestine.

ANNUAL REPORT OF THE SURGEON GENERAL OF THE UNITED STATES PUBLIC HEALTH SERVICE.

To those who think of the United States Public Health Service in terms of wartime and post-bellum activities, it may come in the nature of a surprise to be reminded by the Surgeon General that the report for 1920 is the forty-ninth annual report of the service, covering the one hundred and twenty-second year of its existence. The report includes the activities of the service along the lines of scientific research; domestic (interstate) quarantine; foreign and insular (maritime) quarantine and immigration; sanitary reports and statistics; marine hospitals and relief; venereal diseases; inspections; and public health education.

When one realizes, from looking over the report, that the manifold activities of the service include items varying from the disposition of "picture brides" seeking admission to the country before the completion of uncinariasis treatment in Japan, medical work among detained I. W. W. and other unwelcome guests, to the reconstruction and rehabilitation care of the sick and wounded ex-servicemen, and the conduct of the new public health education service, it is not to be wondered at that among the needs chronicled is the urgent necessity for provision by the Congress of Legislation which will provide adequate and suitable personnel. Perhaps a careful perusal of this report, would deter certain over-zealous denizens of Capitol Hill from spending funds on another of the already long list of doubtfully useful "investigations." The service,

it would seem, deserves to be helped and not hindered in its efforts to carry its old burdens plus all the new ones left it as a heritage of war.

A CASE OF WILSON'S DISEASE.

CASES of this comparatively recently discovered affection are not so well known that an outline of a new one should not possess considerable interest for the average reader. Söderbergh in the *Deutsche Zeitschrift für Nervenheilkunde* (abstract in the *Schweizerische medizinische Wochenschrift* for November 25, 1920, i, 48) gives an account of a boy of 14 who first presented salivation and then eruptions. Nine months after supervention of the former, he complained of headache and occasional vomiting, followed by dysarthria, tremor of the hands, and rigidity of the muscles of the face and four limbs. This state of the muscles of the lower limbs affected the gait. Dysphagia is the next symptom mentioned. The tremor with paresis involved the tongue, dysarthria became pronounced, and speech became slow and monotonous. The movements became slow with synkineses, there were a fine tremor with agitation in the upper extremities, pigmentation in the skin and margins of the corneae, defective teeth, palpatory enlargement of the liver and spleen, transitory ascites, defective development of the genitals, etc.—in fact a typical Wilson's disease. The two last named symptoms had not before been placed on record. The author in discussing extrapyramidal movement-disturbances insists that these display better static than dynamic functioning; that the muscular hypertonia is really dystonia and that the increased knee jerks are only apparent—that is, are due to rigidity and absent when this subsides. The general muscular rigidity is partly direct and partly associated. Pathological skin and soft-part reflexes are responsible in part for the dystonia.

CHRONOLOGICAL RELATIONS OF EPIDEMIC ENCEPHALITIS AND INFLUENZA.

BAUER and Mayor have incidentally worked out these relationships in an article on encephalitis in the *Revue médicale de la Suisse romande* for October, 1920, xl, 10. There was a pandemic of influenza in Europe during the period 1709-1712, and it was in the latter year that the first episode of encephalitis was recorded. In 1846-1848 there was also a pandemic of influenza which ravaged Europe, and in 1846 Dubini described what seems to have been the myoclonic form of encephalitis. During the pandemic which raged in Europe from 1889 to the early nineties, the disease *nona* appeared in Italy and Austria. In all of these cases influenza seems to have preceded the brain disorder or at least did not follow it; but during the last pandemic the "sleeping sickness," as it was then called, seems to have preceded the grippe, for it began in the winter of 1916-17, while the influenza did not gain headway until the Spring of 1918. At least this is true of the cases seen in Vienna by Economo and Pribram. But we must remember that a large fraction of the incidence of the encephalitis, and especially its global diffusion, distinctly followed the influenza, appearing in the winter of 1918-19.

Moreover it is certain that the onset of the influenza pandemic goes back beyond the Spring of 1918, although how far we cannot state. Encephalitis appeared in Europe outside of Austria in the winter of 1917-18, when its appearance was noted in both France and England. The Swiss authors are not disturbed by the apparent reversal of priority in the last appearance of the two maladies, for it is not at all inconceivable that influenza was active for a long time before the great outbreak in May 1918.

COMPLICATED NEOPLASTIC AFFECTIONS.

THE French Association for the Study of Cancer has recently been devoting its energies to investigations into tumors of the mixed class and rare neoplasms in general, as appears from a report of a recent session in *La Presse Médicale* for December 8, 1920, xxviii, 90. Hartmann and Renaud report a case of mixed or associated cancer and tuberculosis of the breast. This was the clinical and microscopic diagnosis, but study of sections failed to locate Koch's bacillus. The safe explanation was the autonomy of both conditions, but it is of course possible that the cancer process somehow caused the formation of pseudotubercles in the connective tissue. Masson and Wolf presented collectively two cases of plasmocytoma. In one a tumor of a rib propagated itself to the vertebral column, while in the other there were growths in the cranium, pharynx, and vertebrae and also in the liver. In both subjects the growths all consisted of plasma cells only. The second case at least would ordinarily be termed a sarcoma which could be styled plasmosarcoma. Lecène presented a specimen of cancer of the corpus uteri, which in some sections was a cylindrical and in others a pavement epithelial cancer. The association points to heterotopia of squamous cells in the mucosa of the cavum uteri. Milian, who sought to cure a lymphangioma of the abdominal wall with undosed x-rays, appeared to have transformed it into an ulcerated and vegetating lesion which gave rise to metastases in the regional lymphnodes. These metastases were of the same nature as the parent growth. Thus far no melanotic tissue had been seen, but in a local recurrence there were islets of melanoma.

CARATÉS OR PINTA.

THIS familiar affection of intertropical America is described from the latest data by Neveu-Lemaire in *La Presse Médicale* for October 16, 1920, xxviii, 75. The names denote one and the same malady, a mycosis which produces a variegated discoloration of the skin akin to that of tinea versicolor. It was named by Alibert in 1820 the endemic spots of the Cordilleras. The spots are known in certain countries as caratés with the addition of the particular hue—violet, red, blue, yellow, white, or black. The color varies with the natural color of the skin of the native, which may be white, red, or brown or black. The term *pinto* or *mal de los pintos* refers to the painted or mottled appearance of the subject. The word *caraté* suggests a mask, and the affection begins as a rule on the face, where it is very conspicuous. The disease progresses until the body is nearly covered and gives off an offensive odor. Cure

with parasitic remedies is difficult but the body remains indelibly stained. In Colombia 4 per cent. of the natives are attacked. The northern limits are in southern Mexico and the affection is present as far south as Venezuela and Ecuador, while exceptionally it follows along the Andes as far as Chile. Naturally it flourishes in the whole of Central America and has been seen in some of the Antilles as Hayti and Martinique. Some striking peculiarities are the absence of any one particular fungus (for several forms of tinea as well as the *Aspergillus* may be concerned in the individual case), and the noncontagious character of the malady which, however, may be artificially inoculated. Certain insects are suspected of transmitting the disease. The latter is readily avoided by cleanliness, including the wearing of shoes.

News of the Week.

Bill Providing for Five War Hospitals Passes.—The House, on February 7, passed a bill to expend \$12,000,000 for the construction of five hospitals to care for wounded soldiers in different parts of the country, and an additional \$500,000 to convert into hospitals the barracks at Fort Walla Walla, Wash., and Fort McKenzie, Wyo. The bill carries a provision authorizing the Secretary of the Treasury to enter into an agreement with the Commission for Military Hospitals for the State of New York to lease the hospital building on Creedmoor rifle range on Long Island. This hospital, the construction of which has been provided for by the New York State Legislature, will cost the State \$3,000,000. The Federal Government will pay an annual rental of \$300,000 and will use the hospital for the treatment of gassed soldiers. The bill does not designate the location of the hospitals, but provides that one shall be built in the Central Atlantic Coast States, one in the Great Lakes region, one in the Rocky Mountain States, and one in Southern California. The Senate also has ratified this bill. It, however, makes a total appropriation of \$18,000,000 available through amendments attached to the Sundry Civil Bill. One of these amendments would appropriate \$12,500,000 for five new hospitals, the location to be decided by the Surgeon General of the Public Health Service and the President, and the other would provide \$6,100,000 for the care of disabled veterans through improvements or new construction of Public Health Service Hospitals.

Madame Curie to Visit America.—Madame Marie Curie plans to come to this country in May and make quite an extended visit, according to an announcement made by Dr. Francis Carter Wood of the Crocker Memorial Cancer Research Laboratory, chairman of the committee which is to receive Madame Curie. During her stay here Madame Curie will receive a gram of radium with which to experiment, the gift of a number of American women now engaged in raising the Madame Curie Radium Fund. Only women will be permitted to subscribe to this fund. Women's committees are being organized in New York, Boston, and Pittsburgh who will have charge of contributions to the fund.

Relief Unit Reaches Poland.—The medical unit of fourteen American Jewish doctors, headed by

Dr. Harry Plotz, which was sent out by the Joint Distribution Committee for American Jewish Relief, Arrived in Warsaw on February 6.

Red Cross Supplies Are Given to China.—The Shanghai Branch of the American Red Cross has completed the distribution of more than \$500,000 worth of medical and hospital supplies to mission dispensaries and hospitals in all parts of China. The materials given away were mostly those left behind in Siberia when the American Red Cross was withdrawn. Among the supplies were five complete sets of surgical instruments, many of which might not be obtainable in Chinese markets.

Harvey Society Lecture.—Dr. A. N. Richards, Professor of Pharmacology, University of Pennsylvania, will deliver the seventh Harvey Society Lecture at the New York Academy of Medicine, Saturday evening, Feb. 26, 1921. His subject will be "Kidney Function."

The Association for the Prevention and Relief of Heart Disease, elected at its third annual meeting, held on February 7, the following members to the board of governors: For a term of five years, Drs. T. Stuart Hart, John W. Brannan, Robert N. Halsey, Charles Hendee Smith, and E. G. Stillman; for the term of one year, Mrs. Alfred E. Hess.

Western Electrotherapeutic Association.—The third annual meeting of this association will be held at the Little Theater, Kansas City, Mo., under the presidency of Dr. B. B. Grover of Colorado Springs, on April 21 and 22, 1921. Further information and programs can be obtained from the secretary, Dr. Charles Wood Fassett, 115 East 31st Street, Kansas City, Mo.

Health Officials Take Action Against Typhus.—The discovery that immigrant ships have brought to the Port of New York 38 cases of typhus fever within a week has aroused Federal, State, and city health officials to action. Following the discovery of twenty cases of typhus fever among the steerage passengers of the Italian steamship *San Giusto* from Trieste and Naples, on February 11, Dr. Leiland E. Cofer, Health Officer of the Port, ordered the vessel to remain at anchor off Quarantine until sufficient time has elapsed to determine whether other passengers have been infected with the disease. Several other steamships are being held at Quarantine for the same reason. Steamship companies booking immigrants at Trieste, Naples and other ports are to be warned by health authorities here that it will be wise to exercise the utmost vigilance. American consuls in Italy have been instructed to refuse clean bills of health to vessels whose medical inspection has not been satisfactory. The New York City Health Department has arranged with Major General Robert Lee Bullard, Commander of the Department of the East, for the use of the United States Army vermin-exterminating plant at Hoboken for the disinfection of immigrants. A fumigation order has been issued requiring vessels from certain ports to be fumigated on arrival every voyage, from other ports every four months and from still others every six months. The typhus cases from both the *Presidente Wilson* and the *San Giusto* are being cared for on Hoffman Island. The Health Department has issued a bulletin to the physicians of the city describing the

symptoms of typhus fever, which they are urged to keep in mind so that cases may not be overlooked. The announcement is now made that vessels arriving at the Port of New York will be held in quarantine until the expiration of twelve days from the date of their departure from the home port. If we are to go back to a medieval quarantine why not make it the full forty days so as to be etymologically correct? It would be no more absurd.

Dr. Abraham L. Wolbarst has removed his office to 792 Lexington Avenue, New York City.

Dr. William H. Stewart has resigned as director of the Department of Roentgenology of the Brooklyn Diagnostic Clinic.

Dr. Franklin H. Martin, secretary-general of the American College of Surgeons, recently sailed for South America for the purpose of familiarizing the surgeons of the South American countries with the work of the American College of Surgeons and inviting them to pursue their studies in this country instead of in Europe.

Charitable Bequests.—The will of Mrs. Eloise L. Breese Norrie makes bequests of \$1,000 each to the New York Skin and Cancer Hospital, Woman's Hospital, St. Mary's Free Hospital, Society for the Relief of the Destitute Blind, and the Society for the Prevention of Cruelty to Animals.

The Medical Section of the American Life Convention will hold its eleventh annual meeting at the Elms Hotel, Excelsior Springs, Mo., March 16-18, 1921. The chairman of the Medical Section is Dr. F. L. Truitt and the secretary Dr. F. L. B. Jenney of Chicago.

Legislation Aids Fight Against Disease.—The Senate at Albany has passed a measure introduced by Senator John J. Boylan which aims to remove the \$80,000 limit on expenditures the New York City Health Department may incur in excess of its appropriation to ward off contagious and infectious diseases. The bill was supported by Health Commissioner Royal S. Copeland as a result of his apprehension that the plagues of Europe may gain a foothold in this country. The passage of the measure by the Assembly is practically assured.

New York May Abolish the Drug Board.—Two bills, one introduced into the Senate by Senator George Fearon and the other into the Assembly by Miss Marguerite Smith, propose to abolish the State Department of Narcotic Drug Control. The bills provide for a bureau in the State Department of Health to carry on the work and also amend the present State narcotic drug law to make it conform more closely to the Harrison Act.

Schick Test Used in Buffalo and Canandaigua.—The February *Bulletin* of the State Department of Health reports that in all private institutions having a large number of child residents the Department of Health of the City of Buffalo is using the Schick test to determine which children are susceptible to diphtheria and is immunizing those found to be nonimmune. It is expected that in the near future the same preventive measures will be used in the public schools of that city. In Canandaigua the test is being applied to all school children presenting cards signed by their parents giving the necessary permission.

Jamestown, N. Y., to Install Municipal Milk Plant.—The citizens of Jamestown have author-

ized a bond issue of \$150,000 for the construction and equipment of a milk pasteurizing and distributing plant to be operated by the city. It is planned to have each can of milk brought to the plant tested separately, and to pasteurize all milk except grade "A" milk from tuberculin tested herds. The milk will be handled under the best sanitary conditions from the time it reaches the plant until it is delivered to the consumer. It is believed that by the elimination of the duplication of effort in delivery a great saving in the cost of handling will be effected whereby the consumer will be benefited.

Clinics Consolidate.—Plans are being worked out for the consolidation of the Clinic for Functional Reeducation, the Demilt Dispensary, the Institute for the Crippled and Disabled, and the Park Hospital. The organization resulting from the affiliation of these institutions will be known as the Reconstruction Hospital.

New Heart and Tension Clinic.—Through its president, Dr. Louis Faugeres Bishop, the Good Samaritan Dispensary announces that it has opened a heart and tension clinic which is to be conducted along unique lines. Everyone accepted for treatment is to have a complete technical examination, including an orthodiagram, an electrocardiogram, a polygram, a uranalysis, a blood count and Wassermann test, also a month's observation of blood pressure, hygienic and therapeutic tests. A small fee will be charged for the service. It is believed that in this institution, which has been in existence for ninety years and treats sixty to seventy thousand people a year, there is an opportunity to carry on a good work in the prevention and relief of heart troubles, and that by giving a complete examination to all who desire it many conditions will be discovered in their early stages that are now overlooked.

The Eye Sight Conservation Council, of which L. W. Wallace of New York City is president, is initiating a nation-wide campaign to acquaint the public with the importance of eye care and to urge universal eye examinations of school children, industrial workers, and clerks in offices and stores. The organization invites the cooperation of all existing agencies concerned in any degree with the movement for better vision, particularly the ophthalmologists of the country.

Rural Locations for Physicians.—The New York State Department of Health announces that the following towns in New York State should be added to the list of communities where medical service is inadequate or lacking: Brushton, Franklin County (for further information write Mr. George W. Harris, Brushton, N. Y.); Burke, Franklin County (write Mr. George Smith, Burke, N. Y.), and Richville, St. Lawrence County (write Mr. Frank Beaman, Richville, N. Y.).

Obituary Notes.—Dr. LUIS FERNANDEZ CRIADO, a graduate of the College of Physicians and Surgeons in 1879, died at his home in New York City on February 7. He was a member of the New York Academy of Medicine.

Dr. JOHN L. BORSCH, who was born in Bavaria, and for thirty years practised ophthalmology in Philadelphia, died at his home in Atlantic City on February 9, at the age of seventy-five years. He was the inventor of rimless eyeglasses, and pat-

ented the kryptok bifocal lenses and the full back reform artificial eye. He was also the first oculist in America to use oval astigmatic lenses.

Dr. WILLIAM M. WELCH, chief consulting physician on contagious diseases at the Municipal Hospital in Philadelphia, died on February 8, at the age of eighty-three years. Dr. Welch was a graduate of the University of Pennsylvania, in 1857, and was later clinical professor of medicine in the Graduate School of Medicine of the university. He was formerly president of the Medical Society of the State of Pennsylvania.

Dr. FRANK PROAL HATFIELD, a graduate of the Long Island College Hospital, in 1899, died suddenly following an operation for appendicitis, in St. Joseph's Hospital, Far Rockaway, N. Y., on February 5, at the age of forty-nine years. He was visiting surgeon at St. Joseph's and the Rockaway Beach hospitals, and physician at St. Malachi's Home.

Dr. GABRIEL HARRISON PARKHURST, formerly of Brooklyn, died at his home in Allendale, N. J., on January 29, in his eighty-fifth year. He was graduated from the Castleton Medical College in 1860.

Dr. BURR BURTON MOSHER of Brooklyn, N. Y., died from the result of injuries received in a motor car accident nearly a year ago, on January 31, at the age of fifty-four years. He was graduated from the Long Island College Hospital in 1890. He was surgeon-in-chief to the House of Giles the Cripple, consulting physician to the Wayside Home, assistant surgeon at the Brooklyn Eye and Ear Hospital and the Orthopedic Dispensary.

Correspondence.

"A MESSAGE OF HOPE."

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—In the MEDICAL RECORD for February 5, the President of the American Society for the Control of Cancer suggests the above title as one that could be well used in regard to the work of the Society, which has been in existence almost eight years.

The Good Book says "Hope deferred maketh the heart sick," and it is difficult to see wherein that Society, or others of similar name, have offered any hope either to those already afflicted or to the millions of human beings who would be glad to know how they may escape cancer. For the name of the Society indicates a desire to control the dread disease, and surely "control" should include prevention, which is always more important than an attempt to cure. As far as can be learned from this address or from all the publications of the Society, the only purpose, however, seems to be to incite every one to a surgical operation, both when a well defined tumor has been formed, and also upon the discovery of a mole, or wart, or nevus, which the surgeons choose to call and remove as precancerous; whereas millions of such exist on human beings without resulting in cancer, unless the person has carcinoma, or the dyscrasia of cancer. For we must remember that the local lump or lesion to which the name cancer is given is only the product or result of a long-continued systemic error.

A careful study of the United States yearly Mortality Tables would convince any one of the futility of such a proceeding. Under wise and careful medical treatment the mortality of tuberculosis has *fallen* nearly 30 per cent. since 1900, while that of cancer, under surgical management, has actually *risen* nearly the same 30 per cent. in that period.

It is a lamentable fact, also disclosed in the same tables of statistics, that in the year 1915, which directly followed the crusade of certain over-zealous surgeons throughout the country, propagating such ideas, that there was a *rise* in cancer mortality which was actually more than *double* the average rise during the preceding five years! There could hardly be any other cause that could produce such a result in a single year. It is strange indeed that such blindness should affect the medical profession, and through them the laity, when it is acknowledged now by the surgeons that 90 per cent. of those once attacked by cancer die therefrom. A recent study of the death statistics of the Board of Health of New York City* has revealed the really alarming fact that during the period from July 1, to December 31, 1920, the deaths from cancer had *actually exceeded* those from tuberculosis by 22—2691 to 2669, and this in spite of radium aiding surgery. Is it not time to call a halt, and see if we are on the right track in regard to our understanding and treatment of cancer?

The trouble all along has been that studies on cancer have been made too much on animals, and too little along the lines of careful clinical observations of human beings, in all their relations of life—forgetting Pope's admonition that "the proper study of mankind is man."

Led by honest, industrious, intelligent, and capable pathological laboratory workers, clinicians have regarded cancer as a local disease, whereas it has been abundantly shown and declared by any number of good clinical observers, surgeons as well as physicians, that is a constitutional disease, quite as much as are gout and many other affections. In the latter a derangement of tissue cells takes on an inflammatory form or character, and in the former (cancer) a neoplastic one, both of them from an erroneous pabulum, a faulty blood and lymph stream. Exactly why this is so we may perhaps never know; indeed we now know not much more about the actual pathogenesis of gout than we do about that of cancer, but experience has taught us how to reach the former by correct dietetic, hygienic, and medicinal measures, and many of us have learned the same about cancer, with gratifying results. It is quite as rational to excise a gouty toe, a syphilitic gumma, or a tuberculous lesion as it is to expect really to cure the carcinosis by the simple removal of the offending tumor, or *product* of the disease. And yet the writer referred to distinctly says in two places that cancer is not a blood disease.

It would be interesting to hear from the members of the Society for the Control of Cancer as to what they claim has been accomplished by any of the Societies toward the "control of cancer." While some active surgeons may claim a higher percentage of so-called cures, for a few years, than others, some of the best men have declared that they do

nothing to cure the disease permanently, but only attempt to remove the offending lesion—and we all know in what an enormous proportion of internal cancer there is recurrence, or a fresh development of lesions. (Cutaneous epithelioma is excluded from our study, for obvious reasons.) The immediate result of the surgical procedure may be, or perhaps generally is successful, but those of us who have had much to do with the disease for many years, know full well in what a very large proportion of cases there is distressing recurrence, either soon after the earliest possible operation, or later, even many years thereafter—simply because no measures are used to overcome the real, basic cause of the disease.

The immediate aims of the Society, as quoted by the writer from Greenough,* who has charge of enlightening the Eastern States, are to attack the cancer problem along four lines: "(1) The education of the public as to the early symptoms of the disease. (2) The instruction of the medical profession as to the actual facts of this serious situation, to bring about earlier diagnosis. (3) The promotion of investigations on the part of surgeons, in regard to more effective means of operative treatment. (4) The promotion of investigations in the laboratory in regard to the causes of cancer, and of methods of treatment other than by operation."

The first and fourth of these contain germs of truth which must be accepted by all. Unquestionably the sooner the early symptoms of cancer are detected the more chance there is for the patient, possibly surgically but most certainly medically. For when the system is thoroughly saturated with what is sometimes called the cancer virus (which does not exist) that is, when metastases have formed in lymph glands and other tissues, surgeons and even x-ray and radium experts acknowledge that there is little or no chance of curing the disease permanently. But with minute and proper dietetic, hygienic, and medical treatment not only can early lesions be made to disappear, but metastases yield, and the cancerous habit is overcome, and the patient remains well indefinitely, provided the proper course is pursued indefinitely.

Hope is certainly engendered when the patient knows this, and the fear of the knife and its unfortunate results are taken away, and when this becomes widely known many will seek proper medical aid with the first possible suspicion that cancer may develop. Thus, the public should most certainly be educated to look out for this, and be so instructed that they will be able to recognize its very earliest manifestations.

But this is not all in regard to the "control of cancer" for which this and other similar Societies should exist. At present its efforts relate in a small measure to some possible benefit or control in individual cases, but do not look at all towards its racial control—for statistics from many countries show unquestionably that cancer mortality is increasing steadily, even as was tuberculosis before 1900, until intelligent medical activity had effected its control and reduced its death rate nearly 30 per cent.

*Greenough: *New York Medical Journal*, October 16, 1920.

*Bulkeley: *MEDICAL RECORD*, January 29, 1921.

What shall be said of the 80,000 new cases of cancer developing each year in this country, to make up for the 80,000 deaths from this terrible malady? How does the American Society for the Control of Cancer propose to check the steady advance of this cruel enemy? Not a word of this occurs, as far as I know, in any of their publications, and I have read all that I could obtain. What also in regard to the about 300,000 sufferers from cancer now existing in the United States? For with the estimated length of life, at from 3 to 5 years, of these patients, from the beginning to the fatal issue, there are probably fully that number now affected, which number must be increasing yearly with the continued increase in mortality.

The fourth mentioned object of the Society does contain a germ of hope, when it speaks of seeking "the cause of cancer and methods of treatment other than by operation." Surely after all that has been written in regard to the failure of laboratory investigations to add anything to the practical knowledge of the treatment of carcinosis, and all that has been written by careful clinical observers and investigators in regard to the real, basic, internal causes of cancer, and the reported favorable results from following just the right line of treatment, there should be no question as to the advisability of urging the medical profession and laity to follow the lead of this star of hope, and not hark back to the cry for more surgery, with its sad record of the past. An eminent pathologist has recently remarked "the day of cancer surgery is past. There is nothing in it." And Ewing,* from a pathological standpoint distinctly states, regarding cancer of the breast, "There can be no doubt that operation shortens life and aggravates the terminal suffering in the great majority of recurrent cases," which I have long observed from a clinical standpoint.

Moreover, in regard to cancer in general, Dr. J. Aebli† has twice reported in regard to cancer mortality in Switzerland in a manner which should attract attention. He presents the statistics from 1900 to 1915, and compares the life duration of cancer patients operated on with those not operated on, estimating the expectancy from the very first symptom. From these it would appear that operative treatment either reduces the life expectancy, or else that it has such a slight influence that it may be regarded as negligible. And all this is based not on cases submitted to any definite line of dietary or medicinal treatment, but to those simply left alone under ordinary medical care. As so many know, if these unoperated cases had been cared for according to the present well established lines of treatment the contrast would have been very startling.

L. DUNCAN BULKLEY, M.D.

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*Ewing: *Neoplastic Diseases*, 1919, p. 522.

†Aebli: *Schweitz. med. Wochenschrift*, Oct. 14, 1920.

Bone of Vesalius Discovered by Radiography.—Laquerrière states that the Vesalian bone is a supernumerary bone which lies at the base of the fifth metatarsal. In his opinion it is not always a supernumerary bone, for in some cases it appears to be an ununited abnormal epiphysis. In either case one should know about this bone, for to one ignoring its existence it would pass as a fracture.—*Le Presse Médicale*.

INCREASING RESTRICTIONS ON MEDICAL PRACTICE.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—The difficulty experienced by Dr. Beverley Robinson in getting a little laudanum for his own use is as nothing compared to the difficulty he will have in getting a little brandy if the Volstead act is engrafted upon the statutes of New York.

Under this law, which the Governor has requested the Legislature to pass, a physician cannot prescribe an alcoholic beverage for himself even though he is given a "license" to prescribe it for others. Unless in an emergency he can find a physician or is attended by one he might in some remote region pass away for want of a few ounces of "eau de vie," even if it were at hand in unlimited quantity for others who know how to get it without a "prescription."

I am informed on good authority that one dealer at least who has made a fortune by the illicit sale of liquor and who was anxious to retire with his gains before he was caught, is prevented from doing so by those from whom he obtains his supplies. All attempts on his part to close out his business are frustrated by those from whom he obtained his wares by their constant renewal of his stock despite his efforts to restrain them. Who these purveyors are is not difficult to imagine. The current news of the day will afford a clue to their identity.

MEDICUS.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, January 21, 1921.

Discussion on the Interim Report of the Consultative Committee of the Ministry of Health.—At a special general meeting of the West London Medico-Chirurgical Society held in London on Jan. 14, last, the Interim Report of the Consultative Committee of the Ministry of Health was discussed. The discussion was opened by Dr. F. J. Lloyd, who pointed out the importance to the whole profession of the subjects dealt with in the Report. The Report was largely the development of the Cavendish lecture in 1918 on the "Future of the Medical Profession" delivered by Lord Dawson of Penn. Dr. Lloyd made special reference to the benefits that "team work" would give to the public and the help that the general practitioner would receive from it. He strongly recommended the profession to concentrate their efforts to procure by this means all the help that modern research could give. He pointed out that in this direction the medical profession in Great Britain was not so up to date as such countries as Switzerland, America, and France. So far as the hospitals were concerned he was strongly in favor of the retention of the voluntary system as opposed to State control. He suggested that the retention of the voluntary system would constitute the best possible "war memorial" to those that had fallen. It would require the united and concentrated effort of the medical profession and public to ensure the salvation of the voluntary system. Lieutenant-Colonel E. M. Wilson was opposed to State Control of the hospitals, and considered that a great deal might be done to relieve the financial position of the hospitals by instituting

some system of voluntary contributions from the patients. This system was already at work in some of the hospitals and had proved very satisfactory. He thought that contributions according to the financial position of the patient was better than a "flat-rate" system and he hoped if some such scheme was adopted that the hospitals might thus avoid the necessity of State aid which must necessarily involve some amount of control in the management. Dr. I. Orr said the first question to be considered was whether the medical treatment provided for the people of this country was sufficient. The examination of recruits during the war showed the great amount of preventable disability which existed, and it was largely on account of this finding that the Ministry of Health was established. The Consultative Committee had the duty of advising the ministry as to the best methods for preventing the continuance of this serious state of affairs. The Dawson Report was the result. He thought that the scheme proposed would cost an enormous sum of money, and it was the duty of the profession to consider whether it should be adopted in whole or part. The President, Dr. E. J. McCann said there appeared to be a general desire to see the voluntary system of hospital administration continued in Great Britain. He held that State control should be strenuously opposed as it would not make for the advancement of science. In his opinion "team work" was essential if the patients were to obtain the maximum benefit from scientific medicine. He thought that the scheme mapped out by the Ministry of Health would be very costly and that the tax-payers would refuse to contribute the money. He pleaded for the establishment of maternity hospitals and centers without delay, and pointed out the grave necessity for these in the country.

Attention was drawn to the point mentioned in a previous letter that while the scheme sketched in the Interim Report was perhaps utopian and even somewhat grandiose, it was for the public benefit that it had been drafted. Some parts of the Report should be carried into effect at once, notably the establishment of maternity centers.

The Electron Theory in Percussion.—Probably most medical men in America know something about Abrams' electron theory in percussion. The pith of this theory is that he has shown that percussion is influenced by visceral tonicity and that the latter varies with reference to the posture of the patient to the points of the compass. He has also shown that a disregard of the electronic mechanism of the organism may conduce to errors in percussion when the organism is short-circuited. Sir James Barr of Liverpool, is a firm believer in this theory, and in the *Medical Press and Circular* of Jan. 26, in his customary emphatic and breezy style, explains the theory and dilates upon it. He has himself put the principles enunciated by Abrams to practical test with very considerable success, especially in the diagnosis of cancer, and states that in his opinion the methods are effective at the very inception of diseases and thus at a time when they are amenable to treatment. He holds that Abrams' greatest achievement, because most widely applicable, has been in the early diagnosis and treatment of tuberculosis.

The editor of the *Medical Press and Circular* entirely agrees with Barr as to the diagnostic value of percussion and rightly remarks that it depends essentially upon the physician's power of interpretation and this is a variable quantity. However, he does not permit himself to criticise the electron theory of percussion.

The Early Recognition of Tabes.—An argument is going on in the correspondence pages of the *Lancet* between certain authorities on syphilis as to whether syphilis is really absolutely curable. Dr. E. Farghar Buzzard had this to say on the subject: "We are all asked 'How long must I go on with treatment before I am cured?' For many years my answer had been 'For the rest of your life.' I am never consulted about a primary chancre, if so, my advice would be the same." In short, he does not believe that syphilis is ever perhaps absolutely cured or rather that in any one case a practitioner is justified in making a definite statement that the disease is cured. Dr. John Donald, on the other hand, makes the dogmatic statement that if a patient first comes under treatment while the blood is still negative (it is here the Wassermann test is of prime value), if he then receives the usual course of 606 and mercury, the disease will be knocked out. Dr. Buzzard in answer to Dr. Donald says: "If you take a hundred cases of syphilis and treat them all according to the standard methods of the day you are justified in believing that a certain proportion will have been cured, but you cannot honestly tell any single one of these patients that his disease has been eradicated." Dr. E. T. Burke of Manchester, strongly supports and corroborates Dr. Buzzard and further points out that the Wassermann test is far from being infallible. He too says that the most that can be done is to tell the patient that he is non-infectious. To get a patient to this stage is comparatively easy, but having reached this stage, and having obtained a negative blood Wassermann, it is certainly not justifiable to stop all treatment and give the assurance that aortitis, aneurysm, or central nervous system syphilis are now impossible. Dr. Burke makes the unqualified statement that as a test of cure the Wassermann reaction is treacherous, perhaps worthless. The only real test is an undoubted reinfection, but many of the reported cases are merely recurrences. The majority of medical men who have had considerable experience in dealing with syphilis are more likely to agree with Drs. Buzzard and Burke than with Dr. Donald, and to be on the safe side it is better for the individual who has contracted syphilis to be treated at intervals throughout life. If this course were more frequently pursued there would be fewer cases of locomotor ataxia.

Progress of Medical Science.

Boston Medical and Surgical Journal.

February 3, 1921, clxxiv, 5.

1. Medical Journals and the Campaign Against Cancer. Frank J. Osborne.
 2. Foreign Bodies as a Cause of Appendicitis. S. A. Mahoney.
 3. Some Instances of Diverticulitis of the Sigmoid Opening into the Bladder. A. L. Chute.
 4. Observations on Cancer of the Rectum. Ernest A. Wells.
2. Foreign Bodies as a Cause of Appendicitis.—S. A. Mahoney, from a digest of the literature of the sub-

ject, finds that pins compose 55.5 per cent. of all cases of true foreign bodies found in the appendix. Out of a list of seventy-four cases of true foreign bodies pins occurred in forty. The natural supposition that pins would be found mostly in the appendices of women was not substantiated in this investigation, the majority having occurred in men. Fruit seeds were next in frequency, having been found in seven out of the seventy-four cases.

New York Medical Journal.

February 5, 1921, cxiii, 6.

1. Endocrinasthenia. William W. P. Garretson.
2. Endocrine Exhaustion. George Howard Hoxie.
3. Internal Secretions. D. M. Kaplan.
4. The Corpus Luteum of Menstruation and Pregnancy. W. H. Morley.
5. Two Remarkable Cases of Testicle Implantation. G. Frank Lydston.
6. The Role of the Endocrine System in Internal Medicine. A. S. Blumgarten.
7. Disorders of the Internal Secretions in Children. Murray B. Gordon.
8. The Effect of the Thymus and Mammary on Menstruation. Adolph Jacoby.
9. The Thyroid Gland and Thyrotoxicosis. A. Wiese Hammer.
10. The Management of Toxic Goiter with Radiation. J. Thompson Stevens.

1. **Endocrinasthenia.**—William W. P. Garretson points out that the interrelation between the nervous system and the endocrines is a very potent factor in the production of reciprocal expressions of dysfunction, hence in the treatment of the so-called functional disturbances of the nervous system, the balancing of endocrine dysfunction is quite essential before one can obtain a curative reaction from psychotherapeutic procedures. It is in relation to this field of work that his interest in endocrine function and therapy was primarily stimulated. Large groups of patients referred to the neurologist, whose symptomatology is not consistent with the usual etiological objective evidence, in whom no organic disease is discernible, and who complain mainly of subjective symptoms, one has been prone to consider victims of psychic traumata and repressed complexes, and one finds in the vast majority that such is the case. The elimination of the psychic irritant, however, is only a small part of the problem. The continued assault of the psychic irritant will not express its symptomatology until it has been sufficient to undermine the balance of the endocrines, and after its removal the return to normal health will not occur until the endocrine readjustment is effected, and if this important phase of therapy is neglected, recurrent and continued symptoms will obtain. Endocrinasthenia not only occurs as a result of exhaustion reactions, expressed through the nervous system, but is always present as a sequel to every disease process, and more particularly the acute infections. All toxic states exhaust the glands of internal secretion, and the degree of infection and toxemia depends entirely upon the quantitative and qualitative balance of the hormones. That to which one has loosely referred as body resistance is dependent upon this balance. Endocrinasthenia invariably begins with exhaustion symptoms expressed through one gland primarily, and subsequently by compensatory efforts other glands of the chain inject into the symptomatology disturbances produced by their dysfunction, and thus the entire chain may become so fatigued as to produce a generalized endocrinasthenia. It frequently occurs that in this compensatory effort on the part of other glands to aid the exhausted member of the group, one of the compensating glands may become hyperactive and in its overaction produce a chemically perverted hormone. This is always the case in hyperthyroidism. In analysing such a case one should determine by a detailed history which member of the group was originally assaulted, and thus sequentially the subsequent glandular dysfunctions created by the primary imbalance may be determined. In supplying the patient with the gland substance to meet the deficiencies of the primarily exhausted gland, the balance may thus be scientifically and accurately adjusted. In profound asthenic states of long standing it is often essential to use more than one gland substance. Four illustrative cases are cited.

8. **The Effect of the Thymus and Mammary on Menstruation.**—Adolph Jacoby deduces from his study of the subject that the inhibition of the ovary alone is

not sufficient to influence menstruation, as is shown by the failure of the extract of thymus alone to cause any change; that the extracts are quite effective in the control of menstruation in the majority of cases; that the combined extracts act better than either alone. This is to be expected, as it is rare to have a disturbance of the internal secretions involving only one gland; and just as infrequent to have the disturbance corrected by the administration of a single suitable extract.

10. **The Management of Toxic Goiter with Radiation.**—J. Thompson Stevens states that metabolism tests show that at least ninety per cent. of the toxic goiters can be cured by proper roentgen therapy. Radiation properly carried out is at present the method of choice in many of the medical centers throughout the world. It does not disfigure the patient for life, it is decidedly less dangerous, and the results are at least as good, if not better, than those obtained by any other method. The danger just mentioned refers to high tension shock. Many of the patients who are referred for radiation are those that are too ill to withstand operations and those that have had operative failures. The results obtained in these cases only serve to prove that radiation is the best method in properly selected cases. An outline of the possibilities of both surgery and radiation should be presented to each patient suffering with toxic goiter. They will generally select radiation.

Journal of the American Medical Association.

February 5, 1921, lxxvi, 6.

1. The Future of Private Medical Practice. Frank Billings.
2. Ulcer of the Jejunum Following Gastroenterostomy. J. Shelton Horsley.
3. Transfusion of Citrated Blood. Max H. Hoffman and Harold C. Haben.
4. Interpretation of Wassermann Reaction of Blood Serum in Mental Diseases: Indications for Antisiphilic Therapy. J. Allen Jackson and Horace Victor Pike.
5. Experimental Transmission of Yellow Fever: Cases Occurring in Vera Cruz in 1920. Together with the Isolation of Leptospira Icteroides. P. Perez Grovas.
6. Stools and Their Relation to the Feeding in Infants. Joseph I. Grover.
7. Prolonged Anuria: Report of a Case. A. J. Scholl, Jr., and G. S. Ford.
8. Gastric Analysis: I. Fundamental Principles. Martin E. Rehfuess and Philip B. Hawk.
9. Mental Disorders in Children Following Epidemic Encephalitis. Sylvester R. Leaby and Irving J. Sands.
10. Pruritus of Anaphylactic Origin: Report of Two Cases. Milton B. Cohen.

2. **Ulcer of the Jejunum Following Gastroenterostomy.**—J. Shelton Horsley begins the discussion of this subject with the statement that ulcer of the jejunum following gastroenterostomy is caused by gastroenterostomy, and holds that even the most ardent advocate of this operation must admit the causal relation. But the manner in which the operation causes the ulcer has been the subject of various interpretations. The probable explanation is that the changed physiology in the jejunum caused by the gastroenterostomy weakens the resistance of its tissues, and that traumas or nonabsorbable sutures that are easily taken care of elsewhere cannot be borne here. The writer holds that there is a distinct field for gastroenterostomy, and gives the indications for this operation and for pyloroplasty: 1. When there is cicatricial stenosis of the pylorus and duodenum so marked that the duodenum cannot be returned to normal, but no bleeding, gastroenterostomy gives excellent results. 2. When there is a subacute perforation of the duodenum with such extensive leucocytic infiltration that its walls will not hold sutures, eventually stenosis is almost certain to occur. Here the tissues will not hold sutures, and pyloroplasty should not be done. 3. In obstruction of the pylorus from inoperable malignant growths, gastroenterostomy is, of course, the proper operation. In most of the other cases, whether the ulcer is located in the body of the stomach or elsewhere, or when pyloric stenosis is confined to a narrow band of tissue, pyloroplasty is indicated. Occasionally the location of the ulcer demands pylorotomy. When the ulcer is in the duodenum and is an inch or more from the pylorus, excision of the ulcer transversely and suturing of the wound in this direction, as practised by Judd, gives excellent results. In such a location the ulcer may be treated without reference to the stomach or pylorus. Horsley has performed twenty-four pyloroplasties by his technique since

the first one in April, 1918. During this time he has performed four gastroenterostomies, one operation of Judd for duodenal ulcer $1\frac{1}{2}$ inches from the pylorus, and two pylorotomies. All of these operations were for ulcer except two of the gastroenterostomies, which were for cancer. He believes that this represents about the correct proportion of pyloroplasties to gastroenterostomies. Of the twenty-four pyloroplasties, three deaths occurred in the first twelve cases. Postmortem revealed the stomach and pylorus in excellent condition. Probably none of these deaths would occur at present. There were no deaths in the last half of the series. For the first few months after a pyloroplasty, the results are similar to those after gastroenterostomy. It is only as the length of time after the operation increases that the advantages of the pyloroplasty begin to appear.

4. Interpretation of Wassermann Reaction of Blood Serum in Mental Diseases.—Jackson and Pike hold that from the standpoint of syphilis as the exciting cause of mental diseases, individual cases fall most naturally into two groups: (1) Cases which, while showing a strongly positive reaction of the blood serum, do not present clinical, neurological, or spinal fluid serological evidences of neurosyphilis; (2) cases which, irrespective of the Wassermann reaction of the blood serum, show clinical, neurological, and spinal fluid serological signs of syphilis of the central nervous system. In Group 1 he places three types of cases: (a) psychoses in which syphilitic infection antedates the development of mental disease; (b) psychoses in which the mental disease antedates the syphilitic infection, and (c) epilepsy, mental deficiency, and psychopathic constitutional inferiority, with syphilitic infection either hereditary or acquired. Cases of representatives of the two groups are reported, and the following conclusions are drawn: (1) A positive Wassermann reaction of the blood serum alone indicates nothing further than that the individual has come in some manner in contact with syphilis, either hereditary or acquired. It does not mean that the mental disorder from which he suffers is due to syphilis. (2) A diagnosis of neurosyphilis should be based on definite serological signs and spinal fluid reactions, irrespective of the readings of the blood serum. (3) Psychoses in which there is a positive Wassermann reaction of the blood serum, but showing no other serological, neurological, or clinical evidences of syphilis do not demand antisyphilitic treatment for the reason that such treatment will not modify the mental condition; furthermore, neurosyphilis is seldom, if ever, superimposed on a well developed psychosis. (4) General systemic syphilis as shown by a history of infection, clinical signs, and positive Wassermann reaction of the blood serum should be treated as such, but not with the view of favorably influencing the psychosis. (5) Antisyphilitic treatment avails nothing in well advanced cases of general paresis or tabes dorsalis. (6) Cerebral, cerebrospinal, and spinal syphilis are amenable to treatment and antisyphilitic therapy should be pushed to the limit. (7) Successful treatment of neurosyphilis resolves itself into the early recognition and therapeutics of the infection, and lies largely in the hands of the general practitioner and syphilographer; all syphilistics should be kept under routine observation for a period of at least ten years in order that vigorous treatment may be instituted at the first signs of involvement of the central nervous system.

3. Amputations: The Effect of War Knowledge on Teaching, Practice, and After-Care.—Edred M. Corner states that experiments with light metal limbs conducted at St. Thomas's Hospital have been most successful, showing that about 90 per cent. of thigh amputations can advantageously be fitted with light metal limbs, with which men are able to work with less fatigue and more satisfaction. It has been found that men fitted with light metal artificial limbs could be more easily and perfectly instructed in the use of their stumps. They learn more easily. In some cases helpful treatment has been given by hypnosis. After-treatment is necessary in most cases—in such a form as return to work without undue delay. Pains and other troubles may recur and then they seem to be more definite than they were formerly. Patients should not be kept in hospitals or homes, but should be sent back to work and healthy surroundings.

5. A Consideration of the Postoperative Mortality of Appendicitis, Especially in Children.—Herbert M. Brown emphasizes the great importance of operation at the earliest possible moment after the commencement of the attack, preferably during the first 24 hours, while the infection is confined within the appendix. But when the patient, a child, is seen for the first time by the surgeon during the third, fourth, fifth, or sixth day, when the infection has spread beyond the appendix and a localized abscess is formed, the alternatives are immediate operation or delay until the second week (when there is considerable immunity to blood infection). He thinks the safer, though certainly not easier, course is to wait, although if anything untoward results the surgeon will probably be blamed for his Fabian tactics. Appendix abscesses very rarely burst into the peritoneal cavity if the patient is kept at rest in bed, on scanty and easily absorbable diet, and the bowels are not disturbed by aperients. During the second week the abscess may be opened and drained with the minimum of danger. But if it is decided to operate at once during the dangerous period it is absolutely essential that nothing but the introduction of a drainage tube into the abscess cavity should be attempted, with no swabbing, no handling, no interference of any kind, and, above all, no removal of the appendix. The latter may be safely done many weeks later when all infection has subsided. The great danger of blood infection occurs especially in children; adults appear to have a far greater power of resistance, but to them, too, the same rule should apply. In cases where there is general peritoneal infection, when the appendix is perforated or gangrenous and free in the abdominal cavity, it should always be removed with as little disturbance as possible, and free drainage to the bottom of the pouch of Douglas with a large drainage-tube, provided, of course, with the Fowler position. It is not justifiable in such case to delay operation, at whatever stage of the disease the patient is seen.

7. A Note on Psychotherapy in General Practice.—W. Thomson Brown has used psychotherapy based on neuro-induction (as opposed to hypnosis or neuro-conduction) since December, 1919, in general practice, as far as the requirements of a busy middle and working-class practice have permitted. He has found it curative in many conditions and also useful in promoting anesthesia for minor operations, dental extractions, and obstetric cases. Three illustrative cases are cited.

The Lancet.

January 15, 1921, cc. 3.

1. A Statistical Investigation of Records of Treatment and Blood Examination in 13,721 Cases of Malaria. J. Pratt Johnson and Kenneth Gilchrist.
2. Three Cases of Influenzal Pneumonia with Septicemia and Extensive Membranous Colitis. E. Cronin Lowe.
3. Amputations: The Effect of War Knowledge on Teaching, Practice, and After-Care. Edred M. Corner.
4. Adolescent Albuminuria in Relation to Life Assurance. R. Hington Fox.
5. A Consideration of the Postoperative Mortality of Appendicitis, Especially in Children. Herbert M. Brown. With Bacteriological Report of Blood in a Fatal Case, by H. M. Cade.
6. Two Unusual Cases of Small Intestine Obstruction. W. H. Ogilvie.
7. A Note on Psychotherapy in General Practice. W. Thomson Brown.

British Medical Journal.

January 15, 1921, i, 3133.

1. An Address on the Part of the Practitioner in the Treatment of the Pre-Operative Stage of Enlarged Prostate. J. W. Thomson Walker.
 2. The Teaching and Study of Human Anatomy. Richard J. A. Berry.
 3. A Note on the Use of Antigonococcal Serum. Frances Ivens.
 4. Albuminuria in Relation to Life Assurance. F. Parkes Weber.
 5. On the Action of Certain Special Preparations on Malarial Parasites and Their Employment in the Treatment of Malaria. Major J. Pratt-Johnson, Major Kenneth Gilchrist, and Captain Hay-Michel.
1. An Address on the Part of the Practitioner in the Treatment of the Pre-Operative Stage of Enlarged Prostate.—J. W. Thomson Walker calls attention to the fact that the risks to which a patient suffering from

enlarged prostate, whether he be submitted to operation or treated without operation, is exposed are not confined entirely to the urinary organs. There are gastrointestinal, pulmonary, circulatory, nervous system, and urinary risks. In discussing with the patient the question of operation as opposed to catheter life, the following points are suggested as worthy of consideration: (1) Enlargement of the prostate is a progressive disease, the rate of increase of which cannot be foretold. (2) As the prostate enlarges, the patient grows older, and is less able to withstand the effect of uremia or sepsis, or the effects of a severe operation. (3) When the symptoms become acute, much damage has already been done to the kidneys; and although improvement may follow operation, much of the damage is permanent. (4) Some adenomatous prostates become malignant. (5) The mortality of catheter life is higher than that of prostatectomy. (6) A very large proportion of the cases of enlarged prostate treated by catheter are forced eventually to undergo operation. (7) The prognosis in such cases is much graver than if the operation had been performed without a period of catheter life. (8) A large proportion of the deaths after prostatectomy are due to the sepsis caused by pre-operative catheterization or to the back pressure and renal inefficiency due to delay in submitting to operation.

5. On the Action of Certain Special Preparations on Malarial Parasites and Their Employment in the Treatment of Malaria.—Pratt-Johnson, Gilchrist, and Hay-Michel detail the results of investigations carried out at No. 4 General Hospital, S.A.M.C., Roberts Heights, during 1917-19 on malarial patients invalided from the German East African campaign. The majority of the cases were of a severe type, associated with marked anemia and debility, numerous relapses occurring in hospital while under quinine treatment (25 to 30 grains daily). Of 8,788 hospital cases, 61 per cent. showed benign tertian parasites in their peripheral blood, 23 per cent. malignant subtertian, 16 per cent. both benign tertian and malignant subtertian parasites. The conclusions drawn from the study of these cases follow: 1. Neosalvarsan, salvarsan, neokharsivan, kharsivan, galy, administered intravenously, may be employed with safety in the treatment of all forms of malaria, provided the doses and methods recommended and the precautions to which attention is called be fully observed. 2. These preparations, in the doses recommended (neokharsivan, neosalvarsan, 0.45 gram; salvarsan, kharsivan, 0.3 gram; galy, 0.2 gram), exert a marked parasitocidal action on the benign tertian parasite, thick blood smears showing numerous parasites usually becoming negative within twenty-four to thirty-six hours. 3. These preparations have no definite parasitocidal action on any stage of the malignant subtertian parasite. When used in addition to quinine, the action of the latter is intensified and the progress toward recovery is much more rapid. 4. Generally speaking, the tonic effect of these preparations is well marked in all cases of malaria; anorexia, lassitude, and debility soon give way to a feeling of well-being, while tachycardia and shortness of breath, consequent upon anemia and cardiac dilatation, rapidly improve. Splenic enlargements disappear with remarkable rapidity. 5. The employment of these preparations is recommended, in addition to quinine treatment, in chronic resistant infections and malarial cachexia. Three or four injections at weekly intervals are recommended. Freedom from relapses cannot be promised even after numerous intravenous injections. In regard to the preparation of the solutions and technique of administration, the usual methods are followed in each case. 6. Soamin exhibits no parasitocidal action on the parasites of either benign tertian or malignant subtertian malaria. Its beneficial action is confined to the breaking down of the resistance of chronic infections to quinine. 7. Tartar emetic has no demonstrable effect on the sexual or asexual forms of the parasites of either benign tertian or malignant subtertian malaria, and exerts no influence on the clinical course of the disease. The most rapid and certain method of eradicating crescents from the finger blood is adequate quinine treatment (30 grains daily) and arsenic. 8. Inunctions of mercury and antimony ointment do not appear to exert any therapeutic action on malaria.

Southern Medical Journal.

December, 1920, xiii, 12.

1. Syphilis as a Problem in Group Diagnosis. Albert Keidel and Joseph Earle Moore.
2. The Circulation in Infectious Diseases. Garnett Nelson.
3. The Practical Importance of the Effort Syndrome in Civil Practice. H. R. Carter, Jr.
4. Diarrhea Resulting from Biliary Insufficiency. William Howard Lewis.
5. Herpetic Sore Throat. John Zahorsky.
6. Yellow Fever: Its Distribution and Control in 1920. W. C. Gorgas, H. B. Carter and T. C. Lyster.
7. The Relationship of Alcohol to Modern Health Ideals. Eugene Lyman Fisk.
8. The Laboratory Phase of Public Health Work. W. H. Seaman.
9. Bone Tumors: Benign Bone Cysts and Osteitis Fibrosa: X-Ray, Gross and Microscopic Features. Joseph Colt Bloodgood.
10. The Role of Obstructive Lesions of the Ureter in the Production of Recurrent or Persistent Pyelitis. J. N. Baker.
11. Abnormal Uterine Bleeding. Reinhard E. Wobus.
12. Fee Splitting. S. H. Hodge.

2. **The Circulation in Infectious Diseases.**—Garnett Nelson classifies the effects of infectious diseases on the circulation as follows: (1) Actual secondary infection of the muscle, valve, or membranes. (2) Hyaline degenerative changes in the muscle. (3) Degenerative arterial processes. (4) Heart strain and exhaustion from prolonged rapid action. (5) The more or less material changes in other organs due directly to a failing circulation. Certain controlling factors contribute especially to the frequency of these infections. These are particularly age and the specificity of certain germs. Three points are of especial importance in recognizing the circulatory complications, namely, persistent rapid pulse, a pulse whose rate is accelerated too much with too trifling a stimulus or exertion and fails to slow down promptly; the various forms of arrhythmia; and persistent low systolic pressure.

4. **Diarrhea Resulting from Biliary Insufficiency.**—William Howard Lewis, during a period of over three years' clinical service at the Mayo Clinic, encountered one case of extreme diarrhea of the "fatty" type which responded remarkably to the feeding of bile salts. At the Harbin Hospital (Rome, Ga.) four identical instances have been met with in a total of over 700 cases coming under observation. The discovery of this group within a period of eight months suggests that it is not an uncommon condition in that section of the country. Provisionally, for lack of a more definite term, the writer designates this condition as diarrhea due to biliary insufficiency.

Gazette des Praticiens.

November 15, 1920, xxvii, 498.

Relation of Intestinal Fermentation to Arteriosclerosis.—Lemoine has been impressed with two features in respect to arteriosclerosis. The first is the presence in arteriosclerotics of intestinal fermentation, while the second is the unusually large bulk of the stools. The first of these is known to the profession, but the second seems to be unknown. In well-marked arteriosclerotics the act of digestion seems to increase the malaise. This has led to the recommendation of small and frequent, nontoxic meals. Among the disturbances which one seeks to prevent by feeding are dyspnea, migrainous attacks, and insomnia. When these are present the intestinal functions will be found to be disturbed, and, the author believes, the consequence is the absorption of a poison which affects especially the nervous system. The presence in the urine of indican and urobilin in these subjects is an index of this absorption. In dieting these patients milk is freely used, and the author believes unwisely. It is taken in large quantities at times, and favors constipation and bloating. Given because of its supposed freedom from toxic matter, it leads to increased indican in the urine, and if there is albuminuria it aggravates that condition. The author replaces the milk and egg diet with a vegetarian regimen and with good results. The custom of giving white meats is also deprecated, these being equally harmful with the red, being difficult to digest and too rich in cholesterol. According to Chauffard this substance furnishes the makings for the deposits in the vascular walls.

Book Reviews.

PRACTICAL MASSAGE AND CORRECTIVE EXERCISES. By HARTVIG NISSEN. Fourth Revised Edition. Philadelphia: F. A. Davis Co., 1920.

In May, 1889, the author published his work on "Swedish Movement and Massage Treatment," which went through further editions, and he has also written at least two other books on the same subject before the first appearance of the present work in 1916. The fourth edition of the latter may therefore be said to sum up all his previous teaching with the experience of forty-five years of practice, over thirty of which seem to have been in the United States. The present volume contains among other addenda the most essential aspects of applied anatomy. The book is larger than at first sight appears, with 225 pages and 67 text figures. While much less in bulk than some of the pretentious works on massage it appears to cover the subject successfully, there being 28 chapters.

HANDBOOK OF PULMONARY TUBERCULOSIS. ITS DIAGNOSIS, PROGNOSIS, PREVENTION AND TREATMENT. By JEFFERSON DEMETRIUS GIBSON, M.D. Denver: The Denver Scientific Publishing Co., 1920.

The author's numerous honors published on the title page show manifold activities including membership in the regular and homeopathic national societies, physiotherapeutic and radiological national societies, etc., while he once filled the chair of physiology in a dental college. The cuts are chiefly of skiagrams of the chest. The work is thoroughly scientific and under the head of treatment nothing seems neglected which could benefit the patient, while stress is laid on the various electrical currents and on electrically generated ozone. Deep x-rays are used on deeply placed tuberculous lymph-nodes. Sero-immunization is also recommended but apparently less against the tubercle bacillus than the auxiliary microorganisms. The x-ray, however, is the better immunizer. The climatic problem is partly solved by the author's residence in Denver and but little is said under this head.

AUTO-EROTIC PHENOMENA IN ADOLESCENCE. By K. MENZIES. New York: Paul B. Hoeber, 1920.

This little volume, devoted to the psychology and psychopathology of onanism, has a preface by Dr. E. Jones, the psychoanalyst. The masturbator is considered from the viewpoint of the most modern psychopathology. In addition to the leaders in the realm of psychoanalysis, writers on sexual life like Havelock Ellis and those on sexual neuroses including the Americans Sturgis and Hühner, are freely quoted. The book hardly lends itself to review within a small compass but may be studied by those interested.

THE DUODENAL TUBE AND ITS POSSIBILITIES. By MAX EINHORN, M.D., Professor of Medicine in the New York Post-Graduate Medical School. Philadelphia and London: W. B. Saunders Co., 1920.

The author introduced his apparatus and technique to the profession in 1908. The method was known incidentally as catheterization of the duodenum, with the aim of testing directly the pancreatic function and secretion. Auxiliary dilatation of the pylorus was developed later. Swallowing the so-called duodenal bucket with its withdrawal string was introduced at the same period. The original tube was eventually supplied with a pump to facilitate aspiration and x-ray control was added. Since 1910 the technique has remained about the same, so that the author has had nearly ten years experience with the perfected technique. At the same period duodenal alimentation was also introduced. As an outgrowth of diagnostic dilatation of the pylorus, therapeutic dilatation has been developed. The duodenal tube has also been greatly lengthened in the attempt to reach the jejunum. This innovation is too recent to permit of positive generalizations.

AN EPITOME OF HYDROTHERAPY. By SIMON BARUCH, M.D., LL.D. Consulting Physician to Knickerbocker and Montefiori Hospitals. Philadelphia: W. B. Saunders Company, 1920.

In the absence of textbooks on the use of hydrotherapeutic measures, including the author's earlier and more comprehensive work, one can welcome the appearance

of this volume. Every practitioner should read it and study the application. Such measures as the cold compress and the wet sheets, with the various forms of sprays and douches, hot and cold, give a welcome addition to the weapons with which practitioners can fight disease. These methods teach the application of heat and cold and supply an active means of doing something to help the patients which both they and their friends insistently demand. This is a psychological effect which practitioners value highly. The chapter on Sunstroke is, perhaps, unnecessarily diffuse and that on installations might have been reserved for an architect. But, as the subtitle says, the book is intended for architects as well as for physicians and nurses. Hydrotherapy is valued in America and Dr. Baruch's previous work did much to place it in its proper position. To deal with inflammation and hyperpyrexia, hydrotherapy is invaluable: but, like all powerful remedial agents, it must be properly applied. Otherwise it will be justly neglected, as it has been in England. Dr. Baruch has done much to restore hydrotherapy to the position which it justly deserves.

THE ESSENTIALS OF HISTOLOGY, Descriptive and Practical, for the Use of Students by Sir EDWARD S. SCHÄFER, F.R.S., Professor of Physiology in the University of Edinburgh, formerly Jodrell Professor of Physiology in University College, London. Eleventh Edition. Philadelphia and New York: Lea and Febiger, 1920.

When a book has passed through eleven editions in thirty-five years, it is evident that it has a place of its own in the esteem of both teachers and students. This volume is not intended to enter into all the details of the science, but it is meant to give all essentials and to supply the directions for the microscopic examination of the tissues. All that experience has proved to be of value is included, while at the same time modifications can be included according to the experience of individual teachers. There are fifty separate lessons, each devised to last about three hours, and these are clear in instruction and include all details required for the essentials of the study of microscopic anatomy. It is quite one of the best books on the subject and has been carefully and regularly brought up to date.

THE SYMPATHETIC NERVOUS SYSTEM IN DISEASE. By W. LANGDON BROWN, M.A., M.D., F.R.C.P. (Lond.), Physician with charge of Outpatients, St. Bartholomew's Hospital, Physician to the Metropolitan Hospital. New York: Oxford University Press, American Branch, 1920.

This book is based on the Croonian Lectures before the Royal College of Physicians of London in 1918. Giving the main plan of the autonomic nervous system, the author tries to illustrate its relations to a few large groups of disease, such as those of the endocrine glands, some affections of the digestion and circulation, and glycosuria. The book deals also with the effort to understand the emotional response of the sympathetic nervous system and the influence of emotion on structure. Thus there is entry here for the study of the unconscious mind and the observation of the war-neuroses and their effects. The main thesis is that stimulation of the sympathetic and its coadjutors means the spending of reserves, with exhaustion as the result of a prolonged drain. The autonomic system acts as a whole, save when dissociation is one of the phenomena of disease and strain. The sympathetic system is not subject to, and must remain free from the control of the will. Our will can exercise restraint and we may deaden the emotion, but it cannot prevent the response, once evoked. Hence the author hopes to see the powers of tenacity and endurance evoked in the emotional response as a part of character developed by training. This sounds like the psychological mixture which the author expressly wishes to avoid. His clinical experience is so large that he deals completely with pathological processes in the effort to prove his thesis, and the result is a most suggestive volume which is entirely abreast of medical research. The sympathetic system is essentially the governor of function and the instant we are confronted with this we have to deal with emotions and their effects, both physiological and psychical.

Society Reports.

SOUTHERN SURGICAL ASSOCIATION.

Thirty-third Annual Meeting, Held at Hot Springs, Va., December 14, 15, and 16, 1920.

THE PRESIDENT, DR. WILLARD BARTLETT OF ST. LOUIS, MO., IN THE CHAIR.

(Concluded from page 244.)

Life Expectancy Following Radical Amputation for Cancer of the Breast, Based on a Clinical and Pathological Study of 218 Cases.—Drs. W. E. SISTRUNK and WILLIAM CARPENTER MACCARTY of Rochester, Minn., found by studying the results obtained in 218 cases that 51.8 per cent. of the patients operated on, one of each two patients were living three years after operation. Seventy-five and six-tenths per cent. of the patients in whom the glands were not involved, three of each four patients were living at the end of three years, and 35.6 per cent. of the patients with glandular involvement, about one of each three patients, were alive at the end of three years. At the end of five years 39 per cent. of the patients operated on, about two of each five patients, were alive; 65.1 per cent. of the patients in whom the glands were not involved, about six of each ten patients, were alive five years after operation, and 21.9 per cent. of the patients with glandular involvement, about one of each five patients, were alive at the end of five years. Thirty-six and seven-tenths per cent. of the 218 patients operated on, about one of each three patients, was alive from five to eight years after operation; 63.9 per cent. of these died within five years after operation. Age seemed to have a definite bearing on the results to be expected following operation; 41.7 per cent. of the patients over fifty years of age were alive from five to eight years after operation, while only 31.8 per cent. of those under fifty had lived for a corresponding time. The immediate hospital mortality from operation for cancer of the breast was less than one-half of 1 per cent. In their experience the prognosis had not been affected by the complete removal of small growths for microscopical diagnosis before the radical operation was performed. When local recurrences were found following operation metastases were demonstrated in other regions in 60.9 per cent. of the cases, six of each ten patients. In their experience nearly all patients who developed a recurrence of the malignancy following operation died from the disease.

The Diagnosis of Breast Lesions at the Exploratory Incision.—Dr. JOSEPH C. BLOODGOOD of Baltimore said the propaganda of education on cancer had had its effect. Women conscious of trouble in a breast now sought advice quickly. His records showed a rapidly increasing large number of patients who, after examination, had apparently no discoverable local condition in which experience taught that operation was necessary. The per cent. of benign lesions had rapidly increased. For these, when exploration had ruled out cancer, local removal was sufficient. Far more important, the number of cancers of the breast in the early stage was largely increased. In the majority of these the diagnosis could only be made at the exploratory incision, and the best permanent results were obtained by the immediate complete operation after the exploratory incision had revealed the cancer. The mistake that should not be made was the incomplete operation for cancer. If this was possible in one clinic, it should be possible in others. The records of the Surgical Pathological Laboratory of the Johns Hopkins Hospital demonstrated that since 1889, a period of 31 years, the mistake of performing an incomplete operation for cancer of the breast had been made five times by Dr. Halsted and the surgeons operating or trained in his clinic, and this mistake had been made but once since 1900. The mistake of performing the complete operation for cancer and then, after pathological examination and reexamination, coming to the conclusion that the lesion of the breast was not malignant, was the mistake that would be made and had been made in a varying per cent. of cases by the surgeons in this group. Up to 1910 it averaged about 10 per cent. From 1910 to 1915, associated with increasing number of very

early lesions, the per cent. increased to 20. The actual per cent. from 1915 to 1920 had not yet been worked out. The avoidance of the fatal mistake should be the first business of the surgeon, because this increased the probability of death from cancer. In this very early stage the probability of a cure should be 80 or more per cent. The avoidance of the second mistake diminished the number of women from whom one or both breasts were removed unnecessarily. There was no unsurmountable obstacle to any surgeon and his associates to develop the art and science which would enable him to recognize breast lesions in which operation was not indicated and for which, after the exploratory incision, excision of the local lesion was sufficient, bearing in mind that when in doubt the complete operation for cancer should be performed. The first requirements of surgeons today was to eliminate the mistake of performing an incomplete operation for cancer. A follow-up system would reveal this, and it was practically the only check. When cancer of the breast was incompletely removed there was rapid local recurrence, with the rarest exceptions within one year. When the breast only was removed for cancer there might be a longer period before the involved axillary glands became palpable. It made no difference how the diagnosis was made at the exploratory incision. One might cut into the tumor and inspect it; one might cut the local lesion for inspection. The surgeon might train himself to be his own pathologist, or he might associate with him a trained pathologist. The second point was far more important as to whether the final decision should rest upon the frozen section only. His own studies, which began in association with Dr. Halsted in 1892, agreed with his view at that early time, that in the vast majority of lesions of the breast the gross inspection of the local lesion was as important as the examination of the frozen section, and in many, especially in certain benign lesions, a more reliable conclusion could be reached. When cancer was distinct in the gross it was equally distinct in the section, but many tumors, especially the encapsulated benign adenoma and many of the cysts, had in the gross almost pathognomonic signs of benignancy, while frozen sections revealed pictures difficult to distinguish from possible early malignancy. This conclusion had been confirmed by submitting many sections to a large number of pathologists. He had in his laboratory numerous distinctly encapsulated adenomas of different types. The operator had removed the tumor only, basing his conclusions on the encapsulation. There had been no recurrence and these patients had been followed from recent periods to twenty-eight years. Yet, when sections from such tumors were submitted to pathologists, a diagnosis of malignancy or "suspicious of malignancy" had been made in a varying per cent. of the cases. At the recent meeting of the American Medical Association in New Orleans, he described the blue-domed cyst as a distinct gross entity, sufficient to indicate the removal of the cyst only. In this group sections from the wall of the cyst and surrounding breast submitted to a group of pathologists resulted in the same conflicting reports. The same was also true of the cyst containing a benign papilloma, of the non-encapsulated diffuse areas due to tubercular mastitis without abscess or caseation, of chronic mastitis in lactation without gross pus formation, of the rare cases of chronic interstitial mastitis not associated with lactation, of the nonencapsulated areas of lipoma containing inflammatory areas. Now that women were seeking advice early after the first discovery of trouble in one or both breasts, the actual number of women who might lose one or both breasts unnecessarily was becoming very large, and must be seriously considered. The evidence that they should have one or both breasts removed to protect them from cancer was no greater than in any other woman of the same age who was unaware of any trouble in the breast, and for this reason did not come under observation. Unfortunately, at the present time there was a difference of opinion apparently among surgeons of large experience, first, as to the indications for operation. For example, in discharge from the nipple when there was no palpable lump. The view Dean Lewis and himself took was that operation was not indicated. Others thought that this discharge was a sign of a precancerous lesion and that the breast should be removed. Second, what was a

palpable lump? His experience taught him that some surgeons had failed to improve their tactile sense to keep up with the demands for distinguishing a lump which was really not an indication for operation. What should be the surgeon's attitude when multiple indefinite lumps were found in both breasts? There was also a difference of opinion as to the methods of exploratory incision and the most reliable way of distinguishing a benign from a malignant lesion. The whole question of chronic cystic mastitis and its relation to malignant disease needed revision. From his studies the danger of cancer had been exaggerated. These questions would be fully brought out in an article to be published in the *Archives of Surgery* on "Chronic Cystic Mastitis" and in a second article on "Discharge of Blood from the Nipple."

Dr. WILLIAM CARPENTER MACCARTY of Rochester, Minn., said that the surgeon was the only man who could show us cells as they really were, and he was the only man who was doing it. As to the early diagnosis of cancer, if we as clinicians would educate people to come to us in what we called the precancerous stage or condition, we must be able to differentiate a precancerous condition from one that was not precancerous. At the present time, in the Mayo Laboratory, 20 per cent of all the tumors of the breast must, of necessity be diagnosed by the microscope, which meant 80 per cent. only could be possibly diagnosed grossly, and he might say 80 per cent. of these figures was the percentage of gross diagnostic efficiency in the hands of individuals who had done nothing else for the last fifteen years but to see and examine pathological material. If the surgeon, who only occasionally saw these cases, possessed that diagnostic efficiency, he should be greatly surprised. That percentage ten years from now would probably be forty, because the longer this question was studied the smaller the lesions became, and today in the Mayo Laboratory they studied every breast where there was the slightest suspicion, where the tumor was not so that one could immediately see it five or six feet away. These specimens were studied with the microscope to improve diagnostic efficiency. What did that mean? It meant we were picking up much smaller carcinomata than we had ever picked up before, and he knew in his own experience he had missed many carcinomata of the breast because they were small, and he relied absolutely on gross diagnosis.

Dr. HENRY O. MARCY of Boston said that while he was in Edinburgh many, many years ago, Dr. Bennett declared to him his conviction that cancer was first local and probably was disseminated through the lymphatics, and that as a consequence it was of the greatest importance to operate early with great care in order to remove all glandular enlargements. The general teaching up to this time had been that cancer was a constitutional disease, and that operation at the best was only a palliative measure of relief. Convinced of the correctness of Dr. Bennett's opinion, he had since surgically fought cancer as a fire department did fire, with the conviction of having saved many lives. In one of his earlier studies he made cultures from material carefully taken from mammary growths. It was not difficult to differentiate a coccus which in repeated cultures bred true, but he failed to reproduce them by inoculation in animals. At this time he became aware of the sad experience of one of the younger members of the profession, who had developed a malignant growth of the face requiring frequent dressings. On one of these occasions unintentionally he rubbed his own face and inoculated a small abrasion. This was thought little of until later, when it spread rapidly and cost him his life prior to that of his patient.

Dr. J. SHELTON HORSLEY of Richmond, Va., said that if cancer was chiefly, if not entirely, caused by the contact of manure with tissue, as pointed out by Dr. Ochsner, it would be difficult to explain why cancer in the rectum, which was in contact with autogenous manure, was not universally fatal. It was also difficult to explain why it was that cancer in the stomach appeared to be much more common than cancer of the rectum. The contents of the stomach under normal conditions were practically sterile. If the general types of cancer or malignant tumors were included, it would be difficult to explain why sarcoma of bone was not due to tissue contact with manure. It was also true

that carcinoma of the breast occurred in a locality which certainly in the male was not ordinarily exposed to the atmosphere and in which to some extent it was protected. It was certainly far more protected than the face. It was also true, as statistics showed, that cancer of the buccal surfaces in the Indian was much more common even without the use of the pipe. Cancer following the chewing of the betel nut or smoking a pipe was a comparatively sterile condition.

Dr. CHARLES H. MAYO of Rochester, Minn., said that he was very glad the ladies were present during the presentation of this symposium on cancer, because he fully believed the presence of women would do more to disseminate such knowledge among the people than this entire body of surgeons. If communities were educated in regard to certain things, people would not only ask for them but demand them. Much of the work that had been done to advance medicine in the past had been accomplished by educating the people. That was the reason so much had been accomplished with tuberculosis and with the question of the prevention of infectious diseases, and now came the question of cancer. As had been shown, we had increased wonderfully in our ability to control cancer because the people had been educated to come early. Personally, if he had cancer of the breast, he would rather have a poor surgeon operate on him early than the best surgeon possible to operate on him late.

Dr. JOHN G. CLARK of Philadelphia said that where a carcinoma of the uterus had been taken out, one might still find carcinoma cells. Recently he had an interesting case along the line of curability of these cases. Some three and a half years ago a woman presented herself with carcinoma of the vagina, which was totally inoperable. She was sent in for radiumization by Dr. Stewart, of Wilkes-Barre, Pa. He gave a light dosage of radium because he was afraid of producing a fistula in the bladder or rectum. For three months she was very ill in bed. A year from that time, very much to his surprise, she came to see him at the request of Dr. Stewart, and in the center of this carcinoma there were very definite carcinoma nests. He was afraid to apply radium further. She went home. She returned this fall. He took out from that identical spot more tissue, had it examined, and found it absolutely free from carcinoma. In other words, it was the strongest argument he had found in favor of the use of radium. However, he took the same position that had been enunciated here today, namely, that if a case was still operable, he would operate, but he was finding fewer and fewer operable cases.

Dr. R. C. COFFEY of Portland, Ore., said, with regard to the transportation of cancer cells during operation, that within the past month he had had four cancer growths in abdominal wounds which he made personally within the last year in cases in which the growth had not occurred so far at the point from which the cancer was removed. This must be an extraordinary series but this occurred in three of them that were at the hospital at this time for treatment. In each of these cases it was during operation that the cancer growth was broken down. One was a cancer of the stomach attached to the pancreas, but there was no evidence at the present time, which was nearly a year ago, of involvement or recurrence in the stomach. In another case the cancer was located in the sigmoid flexure. He only removed a portion and left a colostomy opening. At the point of removal there was no recurrence in the intestine, but there was a recurrence in the wound about two inches below the point where the intestine was brought out. Another was a cancer of the uterus in which the organ was removed, the abdominal wall being infected, but no recurrence at the point of operation. Another was a case of extensive malignant cyst which he was unable to remove because of its attachments to other organs. He opened and packed with gauze and applied 100 milligrams of radium. There was no recurrence of the cyst, but an extensive growth appeared in the abdominal wound.

Dr. THOMAS S. CULLEN of Baltimore, Md., said that a number of years ago, while he was collecting statistics of cancer of the breast, he felt very gloomy as to the outlook. Through popular articles written by Samuel Hopkins Adams on the subject, after visiting Baltimore, Chicago, and Rochester, and analyzing the

subject as thoroughly as he could, great good was accomplished. These articles appeared in the *Ladies Home Journal* and other magazines and were copied in many other journals. As an example, a committee of the American Medical Association, as a result of the *Ladies Home Journal* article, learned from Dr. LeGrand Guerry, Columbia, S. C., that he had received in five weeks six early cases of cancer of various organs. The medical profession should in every way support the excellent work of the American Society for the Control of Cancer.

Dr. E. G. JONES of Atlanta, Ga., stated that if the malignant condition was on the left side instead of the right, of those abdominal aortic lymphatic glands which received drainage from the various viscera, only those which lay on the aortic side received kidney drainage. These same glands likewise received drainage from the inguinal glands, and from the sex glands and from the abdominal parietes. It was a source of comfort for surgeons to know this.

Dr. WILLIAM B. COLEY of New York City believed with Dr. Mayo that many of these tumors seemingly benign were potentially malignant. If we took sarcoma, we knew 50 per cent. of them had an antecedent local trauma. We had there something developed which was exactly in harmony with what we knew developed in disease of known germ origin, like tuberculosis. There was a large number of cases of bone tuberculosis that started with antecedent trauma.

Relaxation of the Vaginal Outlet; Is the Obstetrician Responsible?—Dr. LUCIUS E. BURCH of Nashville, Tenn., stated that relaxation of the vaginal outlet was caused by overstretching of the levator ani muscle and a lack of tone following labor. It was impossible for the obstetrician to determine at labor whether the muscle would regain its normal function or not. All lacerations following labor should be immediately repaired for the purpose of preventing sepsis, remembering that it would not prevent relaxation if the levator was overstretched. The condition was easily cured at secondary operation by bringing together the overstretched muscle in the median line by interrupted sutures.

Kraurosis Vulvæ and Inguinal Adenitis.—Dr. FRANCIS REDER of St. Louis stated that in kraurosis the histological changes were situated in the dermis and usually presented a general atrophic process involving the entire vulva, with marked contraction of the vaginal orifice. Not infrequently the glans clitoridis and the labia minora had disappeared and the ostium vaginae had become narrowed to such an extent that an attempt to introduce the index finger, if at all possible, was the causation of great pain. Some cases frequently showed atrophy of the mons veneris with complete alopecia. A patient afflicted with this disease was often a great sufferer, and not only was coitus very painful, but the itching and burning were frequently almost unbearable. The assumption that the pathological process of kraurosis vulvæ could be accepted as an inherent primary disease appeared to him still strongly lacking in corroborative evidence. A critical analysis of the clinical picture of pruritus and leucoplacic vulvitis disclosed so many features in common with kraurosis that the inference could be made that kraurosis was an expression of a severe degree of these lesions, and that without pruritus and leucoplacic vulvitis there would be no kraurosis. Some investigators recommended in the more pronounced cases of kraurosis with dyspareunia an incision widening the vaginal outlet. He would advise against this procedure as it had little to recommend it. It had no beneficial influence upon the condition, and did not prevent a subsequent contraction of the ostium. Reverting to the two cases with infiltrated cancerous ulcers and metastases in the inguinal glands, a radical excision was made in each instance. The operation pertaining to the inguinal dissection required a technique of much delicacy and was somewhat severe. An operation of this character could not be a satisfactory one unless all inguinal glands were removed, especially important ones situated deeply around the femoral vessels. Such a dissection required the division of Poupart's ligament. The relief these patients were free from any of their former suffering, with no evidence of any recurrence. The operations were performed respectively nine and eleven months ago.

An Analytical Study of 50 Cases of Ureteral Stricture and Pyelitis.—Dr. J. N. BAKER of Montgomery, Ala., stated that of the 50 cases, 39, or 78 per cent., were unilateral; 26, or 52 per cent., occurred on the right side, and 13, or 25 per cent., on the left; 11 of the 50, or 22 per cent., were bilateral. It would thus be seen that the ratio of incidence of the right sided lesion as compared with the left was as 2 to 1, and that of bilateral to unilateral the incidence was as 1 to 4.5, approximately. Points of importance in differentiating between these two lesions were the following: (1) Careful microscopic examination of a catheterized specimen of urine. (2) Absence of marked right-sided abdominal rigidity when the lesion was retroperitoneal. The acutely inflamed appendix rarely failed to produce demonstrable rigidity in the lower right quadrant. (3) Hyperpyrexia pointed to infection within the kidney pelvis, rarely to the appendix. (4) The Murphy sequence of onset of symptoms when the lesion was appendiceal, that is, pain, nausea, vomiting, elevation of temperature. In 49, or 98 per cent., an appreciable obstruction could be demonstrated at some point within the ureter above its entrance into the bladder by means of the wax bulb implanted upon the catheter. In 35, or 70 per cent., the obstruction was from 3 cm. to 6 cm. above the bladder opening or within the broad ligament area. In 12, or 28 per cent., the obstruction occurred from 9 to 12 cm. at or near the pelvic brim. The only case in the series failing to reveal ureteral obstruction was that of a child of 13 with bilateral pyelitis. The frequent occurrence of symptom-producing lesions of the urinary tract in the female demanded an exact diagnostic study before resorting to surgery. These lesions were largely dependent upon infections of a hematogenous origin, the primary foci of which must be diligently sought out and removed before permanency of cure could be hoped for. Both clinical experience and experimental studies tended to incriminate tonsils and teeth as the chief offenders. Not only were strictured conditions of the ureter of more frequent occurrence than had been generally supposed, but their presence, by mechanically impeding drainage, constituted an important factor which must be reckoned with in the effort to clear away subacute or chronic infections of the urinary tract.

The Surgical Treatment of Acute Pelvic Infections in Women.—Dr. F. G. DUBOSE of Selma, Ala., said that failure to remove the focus of infection rendered the operation relatively valueless; the source remaining, it was to be expected that the fury of the infection would increase and the involvement of contiguous structures and remote metastases would most certainly result. Pelvic debridement was urged in that pyogenic membranes with infected tubes, uterus and ovaries should be removed. Gauze packs over denuded pelvic surfaces to stop oozing and to hinder capillary absorption, thus limiting further extension of the infection. Eroded or denuded intestinal surfaces were peritonized or overlaid with the omentum. Rubber dam covered the gauze packs and the pelvic operative field, minimized the formation of adhesions, and drained freely and continuously. The gauze and rubber ends were brought out through the lower end of the incision and transfixed with a safety pin. The abdominal incision was closed in layers and snugly around the drains. The dressings over the incision should be voluminous and changed as often as soiled to keep up capillary suction. The results which had followed this plan were: The saving of life, shortening to a marked degree the post-operative period of recovery, the elimination of a prolonged morbidity, the relatively earlier restoration to health, and the resumption of the normal activities of the woman.

An Estimate of the Value of Local Anesthesia in the Surgery of To-day.—Dr. WILLARD BARTLETT of St. Louis read a paper of which the following were the conclusions: "(1) It is to be definitely understood that ether by the drop method is the anesthetic of choice in our clinic for major surgery in general, and local anesthesia in some form for minor surgery. But we go much further than this, hence an attempt has been made in this address to deal with the large number of special considerations, which do not fall into either one of the above-mentioned classes. (2) One must always keep in mind that local anesthesia has definite limits which

are not to be transgressed. I have attempted to make many of them clear. (3) I believe that with increasing experience and better training we shall some day have to establish indications for general anesthesia rather than for local, as is the common experience today. It will then seem no more reasonable to anesthetize the entire organism for a strictly local operation on it than it does at the present time to bind or splint the entire body for an injury to an extremity. (4) Surely no one will advocate the use of local anesthesia to the point of interfering with the smooth and rapid conduct of a surgical procedure. (5) It may be safely stated that the anesthetization should never be larger than the operation. For example, one should not under ordinary circumstances attempt a radical breast operation, nor, it seems to me, any one of the larger abdominal procedures which involve both sides of the midline, under local anesthesia alone. (6) The operator will have to train himself especially for this work if he expects to be successful in it, although in a busy clinic it is unquestionably the correct plan to have one associate who has this phase of surgery wholly in his hands. (7) There is, to my thinking, a very definite field for the local anesthetist. I am sure that such an individual should play a role similar to that which is well known in general anesthesia. His services ought to be in demand by the surgeon who makes only an occasional use of these methods, or by one who is not temperamentally suited to the acquirement of them. I have been so fortunate as to profit by the accomplishments of my assistants, Dr. Samuel F. Wenneman and Dr. William Murray Winn, to whom I am indebted for most of my local anesthetics in recent years, to say nothing of much of the enthusiasm which I have acquired for this subject."

Laryngeal Function in Thyroid Cases.—Dr. E. S. JUDD of Rochester, Minn., thought it might be said in conclusion that (1) the functional results following thyroidectomy as concerned both phonation and respiration were extremely good; (2) the disturbance which sometimes followed immediately after the operation was temporary, and normal function would be restored in from a few days to a few weeks, and (3) there was a very small group of patients who, following thyroidectomy, had a bilateral abductor disturbance which was slow in onset, but was very persistent. He had been unable to work out the cause of this condition, but believed that it might be due to the contraction of a scar, to a peculiar type of trauma to the nerve, or to some form of toxemia.

Ulcer of the Jejunum Following Gastroenterostomy.—Dr. J. SHELTON HORSLEY of Richmond, Va., said that the cause of jejunal ulcer after gastroenterostomy was the pouring of acid gastric juice directly into the jejunum, which was physiologically fitted for only alkaline contents. He called attention to the fact that similar changes in other viscera produced marked symptoms, such as the changing of urine to an alkaline medium, producing cystitis, and even a great reduction in the acidity of the gastric juice gave rise to symptoms. Doubtless many ulcers after gastroenterostomy did not come to operation, and for every jejunal ulcer that was formed there were probably many instances of irritation and hyperemia of the jejunum which were not sufficiently severe to produce ulcer and yet did cause symptoms. The generally accepted treatment of jejunal ulcer after gastroenterostomy was to disconnect the gastroenterostomy and do a pyloroplasty. If a pyloroplasty had been done in the first instance, the jejunal ulcer would have been avoided. A jejunal ulcer that occurred on the mesenteric border of the jejunum opposite the gastroenterostomy was reported. The technique of his pyloroplasty was referred to and slight changes in the technique of the previously reported operation were noted. There was a brief report of cases done by his pyloroplasty. Gastroenterostomy was indicated when there was complete stenosis of the pylorus, where the results after gastroenterostomy were always satisfactory. The reason for this was discussed. Gastroenterostomy was also indicated when there was extensive leukocytic infiltration around a subacute perforation of the ulcer, and, of course, where there was inoperable carcinoma. Attention was called to the fact that the good results of pyloroplasty as compared with gastroenterostomy only showed up with the increase of time.

Adhesions about the pyloroplasty as from a diseased gall-bladder caused more symptoms than when a gastroenterostomy was done. For this reason care must be taken to remove a diseased or adherent gall-bladder to cover the raw surface with omentum or fat, and to have the patient lie on his left side as much as possible for several days after operation.

Surgery of the Gall Bladder.—Dr. T. CASEY WITHERSPOON of Butte, Mont., believed it was fair to state that, in the early period, when no prohibitive coincident malady existed, the removal of the gall-bladder was not only justifiable but should be done by the surgeon. In the later period when gallstones or chronic inflammation obstructed the flow of bile there could still be no question as to the advisability of a radical procedure, conjoined always with careful exploration of the common duct insuring its patulousness. In conclusion, the chief plea which he wished to make was for early operation, one which was not only made easier and safer for the patient by reason of there being no complicating factors, but one which would often save from many distressing ailments, local and remote, which could not be fully relieved if the disease was allowed to run on in the blind hope that medical treatment could bring about a cure.

Report of a Large Ovarian Cyst in an Infant Seven Months of Age.—Dr. WILLIAM A. DOWNES of New York City said that the report of a single case of ovarian cyst in an infant was presented partly to call attention to an unusual condition, but more especially for the purpose of making a plea for earlier operative interference in the surgical diseases of infants and children. In the case here reported a swelling of the abdomen was noted at birth which steadily increased in size, but it was not until the seventh month that a surgeon was consulted. The history of the case was as follows: G. P., born February 13, 1920. Admitted to the Babies' Hospital September 24, 1920, with a history of enlargement of the abdomen, present since birth. Full term infant, normal delivery, weight nine and a half pounds. During the first three months the baby suffered from colic, and occasional loose stools with mucus. Took feedings well and did not vomit. General condition continued good and infant seemed well in every way except for the increasing enlargement of the abdomen. The abdominal distention was thought to be due to Hirschsprung's disease until x-ray examination demonstrated a normal intestinal tract. Examination on admission to the hospital showed the patient to be well developed and well nourished. Bright, not fretful, and apparently comfortable in spite of the enormously distended abdomen. Chest measured 15 inches, abdomen 24 inches, length 25 inches. Weight 17 pounds. Abdomen symmetrically enlarged. A definite fluid wave and fluctuation easily made out. Dullness extended over entire abdomen and into the flanks. On rectal examination a pedicle could be felt anteriorly and to the left. Antioperative diagnosis, ovarian cyst. Operation September 24, 1920, lower right rectus incision. No free fluid in peritoneal cavity. Large moderately thick-walled cyst. Trochar introduced and two and a half liters of clear straw-colored fluid withdrawn. Pedicle size of little finger springing from left cornu of uterus ligated with No. 1 plain catgut. Right tube and ovary normal. Abdomen closed in usual way. Convalescence uninterrupted. Discharged from the hospital October 7, 1920, cured. Pathological examination by Dr. Martha Wollstein showed simple ovarian cyst. No evidence of malignancy. December 3, 1920, mother reported that the baby appeared normal in every way and was gaining in weight rapidly.

Gastric and Duodenal Ulcer.—Dr. CHARLES H. MAYO of Rochester, Minn., believed that the accident of peptic ulcer was rare and represented but a fraction of 1 per cent. of the findings of general necropsies. In the aggregate, however, the condition occurred in thousands of persons, many of whom apparently never suffered from symptoms of gastric origin; others did not appreciate their symptoms. When acute and chronic bleeding, perforation, and mechanical obstruction were the main diagnostic points of ulcer, hemorrhage was relied on in making the diagnosis. These symptoms lost their importance as diagnostic ability improved. Peptic ulcer was more common in males than in females, the proportion being 3 to 1. The proportion of gastric to

duodenal ulcer was approximately 1 to 4, as shown by reports from the Mayo Clinic, where from January 1, 1906, to January 1, 1920, operations were performed on 1,191 patients with gastric ulcer and on 4,532 patients with duodenal ulcer. In a series of 638 patients with gastric ulcer observed in a five-year period, 28 had multiple ulcers. Peptic ulcer was undoubtedly developed by a combination of local chemical effects, possibly causing prolonged vessel spasm or claudication, a counterpart of Raynaud's disease or scleroderma, or by direct interference with the circulation through infarction emboli of bacteria, chemically and mechanically active in the tissues and thereby lowering the local resistance to the action of digestive fluids. The relation of pepsin and acid had always been recognized as associated with the development of these so-called peptic ulcers. The medical treatment of gastric ulcer in an exacerbation during waking hours was directed toward controlling and lowering the acidity by dilution or neutralization of gastric contents at regular periods. Some surgeons performed gastroenterostomies because of symptoms, as, for instance, digestive reflexes, abdominal and even spinal, without positively determining the presence of ulcer. To the discredit of surgery it was necessary in a number of cases to cut off and close the gastroenterostomy which was made, although no ulcer was present. The surgeon, on the other hand, appeared to discredit the internist, as he never saw an ulcer in the early stage unless it had perforated or was causing hemorrhage. He thus might exaggerate the danger of ulcer. Although the patients might have passed years in the active care and treatment of their stomachs, the gastric trouble was reflex in origin. In a study of the results of 647 operations performed in the Mayo Clinic on 738 patients with calloused ulcer of the stomach from July 1, 1914, to July 1, 1919, the average mortality was 3.2 per cent.; there was more than double the average mortality in 2,734 operations performed in the same period on 2,720 patients with duodenal ulcer. Many ulcers believed to be benign and excised showed the presence of a carcinoma in a limited area of the margin. Balfour, on the theory that malignant cells were much more vulnerable to heat than normal cells, suggested and developed a slow destruction of ulcer by perforation with the cautery and immediate closure and gastroenterostomy. In 89 operations performed in the Mayo Clinic for hour-glass stomach the operative mortality was 7.4 per cent. The sleeve resection of the central portion of the stomach, usually with gastroenterostomy, was performed. If there was recurrence, the lower half was removed at the second operation, the narrowed proximal portion being united to the jejunum, and sometimes to the duodenum. As a rule, the same type of union of the stomach with the duodenal end or the jejunum was made for extensive ulceration and thickening and for local cancer in the pyloric region after resection of the stomach. Gastrojejunal ulcer was an unfortunate condition which occurred in a small percentage of patients who had been primarily relieved by gastroenterostomy. The present small percentage of these cases could be markedly reduced by avoiding the use of permanent suture material for the brief period demanded in the ordinary case of gastroenterostomy. Graham, in an investigation of 438 cases of duodenal ulcer, found that from the standpoint of the patient 70 per cent. who survived the operation considered themselves well following gastroenterostomy, 27 per cent. improved, and 3 per cent. unimproved. The future condition and length of life of patients with peptic ulcer were problems recognized by insurance companies in considering the applications of those who had had operations for ulcer. Hunter, actuary of the New York Life Insurance Company, in an investigation at the Mayo Clinic of the results of operation in a large series of cases of gastric and duodenal ulcers found that the average death rate for the four-year period after operation in patients with gastric ulcers was slightly more than three times the normal, while in patients with duodenal ulcer it was, if anything, slightly less than normal. The series consisted of 2,431 patients, all but 108 of whom were traced.

Appendicitis and the Rubber Glove.—Dr. ROBERT T. MORRIS of New York City said that in the third or pathological era of surgery the rubber glove had ap-

peared and had become established in the ritual of surgical work. The rubber glove lessened the tactile sense and stood in the way of some of the nearest work which was sometimes desirable in appendicitis with adhesions. More bacteria fell into a large incision from the air than were carried in by a properly prepared hand minus the glove. Working through short incisions by the sense of touch in cases suitable for that method of treatment belonged to the fourth or physiological era of surgery in which the patient was given home rule; in other words, turned over to his own protective resources with the least degree of surgery which would suffice for the purposes of the moment. He believed that the rubber glove had its place in standardized surgery, but a loophole must be left in hospital rules in cases in which hospital authorities in their commendable zeal for standardization made the wearing of rubber gloves obligatory in all operative work, otherwise hospital rules would stand in the way of the best surgery in some cases.

Local Anesthesia in Kidney Surgery.—Dr. CARROLL W. ALLEN of New Orleans said that in regard to the technique of local anesthesia in kidney operations, the patient was laid on the table in the proper position, but the table was not broken, or the Lillenthal bridge raised, until the kidney was ready to be exposed, as this position, if maintained too long, might be uncomfortable. A skin wheal was made about the center of the proposed incision, through which a long needle fitted on a large syringe was entered; this was passed upward slowly under the skin along the proposed line of incision, injecting as the needle was advanced to the interval between the eleventh and twelfth ribs. The needle was next partly withdrawn and directed downward along the proposed line of incision beneath the skin infiltrating the entire distance down to the crest of the ilium. The needle was then directed downward from the skin surface to reach the lumbar fascia, which was recognized as the first plane of resistance in the deeper parts. The attempt should be made to reach this fascia just at the outer margin of the quadratus lumborum muscle. This was pierced by the needle at about three points an inch or more apart and the tissues beneath the fascia infiltrated. Having completed the above injections, the skin was next infiltrated intradermally with a small needle and syringe. This was purposely left to the last and this slight interval, after the deep injections had been made, allowed them a slightly longer time to saturate the tissues. This skin injection could be omitted if the subcutaneous injection had been made just beneath the skin, but if this was done in stout subjects an additional injection should be made in the subcutaneous tissues at a slightly lower level. The incision was made next the entire length of the field and carried down to the lumbar fascia. The twelfth nerve was then injected high up, just under the twelfth rib. This nerve was a large trunk, larger than the other intercostals, about one-eighth of an inch in diameter, and ran obliquely downward across the field. At two inches from the spinous process of the vertebrae it lay about one inch below the rib; from this point it followed the outer edge of the quadratus lumborum lying in close contact to it beneath the lumbar fascia as far down as the crest of the ilium. It should be injected high up, proximal to the field. The long needle was next passed inward through the lumbar fascia and the cellular tissue and fat around the kidney lightly infiltrated. All bleeding points were ligated, the table broken or the bridge raised. This interval allowed time for the last made injections to diffuse. The lumbar fascia was divided close to the edge of the quadratus lumborum, the twelfth dorsal nerve was exposed and should be protected. The finger was slipped in over the surface of the quadratus muscle toward the vertebral column and the long needle passed in alongside of it, and the tissues just to the side of the vertebrae and in front of the transverse processes were lightly infiltrated at three or four points up and down the spine. It was here the rami communicantes which came forward from the spinal nerves joined the sympathetic chain alongside of the vertebrae. These nerves carried sensory fibers to the abdominal plexuses. The bodies of the vertebrae were easily palpated and the structures lying on it, the aorta and vena cava. The cellular tissue and fat around the kidneys was then opened and

delivered into the wound. If the kidney was to be removed, bisected, or the operation involved its hilum, a light infiltration was necessary around the vessels, but this was not needed if the operation was limited to its cortex. This additional infiltration was necessary as all arteries carried sensory nerve fibers. On the renal arteries they came from the plexus on the aorta. This completed the technique, and when done in a methodical way was quite quickly executed.

The Semi-Centennial of the Introduction of Antiseptic Surgery in America.—Dr. HENRY O. MARCY of Boston recounted in an interesting manner the early history of antiseptic surgery and his first acquaintance with Lister, who explained to him in a painstaking manner his methods, with a demonstration of the results of his operative procedures. At that time the speaker was impressed with two cases of resection of the elbow joint in strumous children, probably tuberculous infection. The wounds were without pain or swelling, and the little unfortunate patients showed slight evidence of suffering. At about the same time he became acquainted with Keith and Sir Spencer Wells, who laid great stress on strict cleanliness in surgery. After speaking of the work of other eminent surgeons of Edinburgh and London he had seen, the essayist reviewed the work of eminent American surgeons at that time, particularly that of Van Buren, Stephen Smith, Marion Sims, T. Gaillard Thomas, Henry J. Bigelow, etc.

Postgraduate Medical Study in France.—Dr. SAMUEL LLOYD of New York City contributed a paper on this subject in which he stated that every year a considerable number of the students at the New York Postgraduate School came to him for advice in regard to where they should go in Europe to pursue their investigations. In the past he had been sending them to the different clinics in Germany and Austria. He was hoping that in the future it might be possible for him to advise them to go to Paris, and that he might be able to place before them a comprehensive scheme together with definite information in regard to questions of cost and of time required. A short time ago he received a synopsis of the courses which had now been organized for postgraduate work. These courses were given in considerable detail.

Preliminary Ligation of the Common Iliac Artery in Hip Joint Exarticulation.—Dr. FRED W. BAILEY of St. Louis reported a case of preliminary ligation of common iliac artery in hip joint exarticulation. In reviewing the literature the remarkable persistence of Morand, of France, was referred to. In 1729, fifty years before hip joint amputation was considered safe enough to put into actual practice by Kerr, of Southampton, Morand made repeated efforts before the Royal Academy of Surgery, of Paris, to secure recognition of his idea, that exarticulation was possible without immediate death. He died before Kerr's original effort, but lived to see his suggestion accepted by the Academy. Attention was called to the successful application of this surgical step at the hands of Larrey, the Emperor's noted surgeon, during the Napoleonic period, and of the final adoption of his joint disarticulation as a justifiable procedure where removal of the limb was indicated. The unusually high mortality, nevertheless, ranging from 90 per cent. to 55 per cent., was attributed to shock, hemorrhage and sepsis. Halsted's admirable "Review and Report Upon the Effect of Ligation of the Common Iliac Artery on the Circulation and Function of the Lower Extremities" was cited as a proof that it was possible to safely control hemorrhage incident to disarticulation by temporary or permanent interference with the common iliac current. Trendelenburg and Wyeth, who greatly improved the former method, were successful in a fair majority of instances by the use of transfexion pins to control the tourniquet. Deaver, Senn, and others applied the same principle of tourniquet control by various effective methods. McBurney, through the incision that bore his name, practised temporary manual compression of the common iliac with excellent results. Dr. Barney Brooks, in 1920, ligated the common iliac preliminary to hip joint disarticulation following previous amputation of the high in an emergency. Prevention and relief of shock were so dependent upon preoperative precaution, operative technique, and postoperative care, that

they were not discussed in detail. Sepsis was dismissed with the statement that it was a contributing cause of death so seldom during this age. When death from shock or hemorrhage followed so formidable a procedure it usually occurred before serious infection had time to make itself known, even though it were present to an alarming degree. Emphasis was placed upon the value of eliminating primary blood loss and shock following the original trauma before disarticulation was attempted and of re-establishing the resistance of the patient before proceeding with the operation. In cases requiring disarticulation at the hip, on account of malignancy in which the soft tissues were invaded, it was advisable to resect the involved muscle plane. This could not be safely or quickly done when a tourniquet was applied and was an indication for primary control of the blood current before operating, as a preliminary step. Reference was made to Walter Brashar, who, in 1806, performed the first disarticulation at the hip in this country, also to the admirable collection of statistics and report of 53 instances of hip joint amputation during the Civil War rehearsed in detail by Lieutenant-Colonel George A. Otis. The struggle to swing the formidable operation of hip joint exarticulation toward the safety column had met only with a measure of success one might rightfully expect from improved asepsis and surgical finesse. The death rate was still too high, and the control of hemorrhage and consequent diminution of shock by means that most assuredly did not increase the danger, was a logical aspiration. In cases in which the margin of safety was narrow and wherein loss of blood and augmented shock could not be tolerated, as well as in malignancy, preliminary ligation of the common iliac was advised. Such complete control of stump hemorrhage was thus obtained that the application of six to ten hemostats was sufficient to assure a dry field. Muscle planes could be gently approximated with negative tension without fear of oozing or of threatening the viability of the stump. He reported the case of a boy, 13 years of age, with a small cell sarcoma involving the right femur. The technic of the preliminary ligation and subsequent exarticulation was recited in detail. Both cases reported by Dr. Brooks and the author made an uninterrupted recovery. The technique of the ligation was remarkable only because of the ease with which the vessels were exposed and the operation concluded. Exarticulation at the hip joint was a hazardous procedure because of two factors. (1) The injury or disease making the step necessary had already seriously handicapped the patient. (2) Hemorrhage, shock, and sepsis in the presence of lowered vitality invited disaster. The logical solution, therefore, was (a) to refrain, unless forced by emergency, from further trauma until recuperation, compatible with safety, was complete; (b) replenish by blood transfusion the depleted circulation, and re-establish as far as possible the physiological activity of the sufferer; (c) control hemorrhage and therefore save time and shock by the five-minute procedure of preliminary ligation of the common iliac, and finally, treat operative shock before it developed by preventing all blood loss, nerve and tissue trauma, and prolonged anesthesia. It was in the belief that the steps suggested herein were directed toward safety, and were unfriendly to high mortality, that the case was reported.

Delayed Transplantation of Long Pedicled Flaps.—Dr. V. P. BLAIR of St. Louis said that the loss of a large cutaneous flap in a reparative operation was, at least, an embarrassment to the surgeon, and from the patient's viewpoint might approach perilously near to a tragedy. Good luck or shrewd judgment might carry one successfully through his earlier experiences when later he was confronted by a series of situations that called for explanations. The reason for this was that in the later work one had attempted bolder projects that could not be carried through on simple lines. Of the several precautionary measures to which one might resort in order to insure the vitality of a long pedicle flap, he would present the plan of delaying the transfer of the flap and, to give emphasis to his point, would present a series of incidents and one or two disasters that illustrated the advisability for these precautions. The cutaneous flaps made on young male adults and older men with healthy florid complexions had the most energetic circulation. Women, especially when pale or

flashy, had less energetic circulation in pedicle flaps, while in those made on children it was still more feeble. When death of a flap occurred, it was directly due to venous congestion dependent on inadequate return. In a pedicle flap whose base was at a lower level than the tip, blood return was assisted by gravity and stagnation was less likely to occur than when the tip was at a lower level than the base. In making a pedicle flap, about the vitality of which there was the least doubt, most of the uncertainty could be dispelled by dividing the operation into several steps—first, outlining the flap, raising it from its bed and immediately suturing it back into the same bed, after controlling all bleeding. The flap was allowed to remain there for a week or ten days before transferring it to its new position. At this later period either the circulation through the base had become vigorous or, if any part of the flap had died, the line of demarcation was already established. If the transfer was delayed more than two weeks, excessive shrinkage of the flap occurs and also the circulation through new vascular connections in the bed lessened the energy of the circulation through the base. In planning excessively long flaps they might first be made with a base attachment at each end and by repeatedly contracting the pedicle at one base adequate circulation might be established through the other base.

Books Received.

The MEDICAL RECORD is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.

PRÄKTIKUM DER KLINISCHEN CHEMISCHEN, MIKROSKOPISCHEN UND BAKTERIOLOGISCHEN UNTERSUCHUNGSMETHODEN. By Dr. M. KLOPFSTOCK and Dr. A. KOWARSKY. 518 pages with illustrations. Published by Urban & Schwarzenberg, Berlin and Vienna.

HYGIENE OF COMMUNICABLE DISEASES. By FRANCIS M. MUNSON, M.D. 793 pages with illustrations. Published by Paul B. Hoeber, New York.

ANAESTHETICS. By DUDLEY WILMOT BURTON, M.D. 548 pages with illustrations. Published by P. Blakiston's Son & Company, Philadelphia, Pa.

THE FORM AND FUNCTIONS OF THE CENTRAL NERVOUS SYSTEM. By FREDERICK TILNEY, M.D., and HENRY ALSPOP RILEY, M.D. 1020 pages with illustrations. Published by Paul B. Hoeber, New York.

INTRODUCTION TO GENERAL CHEMISTRY. By H. COPAUX. 195 pages with 30 illustrations. Published by P. Blakiston's Son & Company, Philadelphia.

THE 27TH ANNUAL REPORT OF THE MANAGERS AND OFFICERS OF THE CRAIG COLONY. 84 pages with illustrations.

THE HUMAN ATMOSPHERE. By WALTER J. KILNER, M.D. 300 pages with 64 illustrations. Published by E. P. Dutton & Co., New York.

THE ELEMENTS OF PRACTICAL PSYCHOANALYSIS. By PAUL BOUSFIELD, M.D. 276 pages. Published by E. P. Dutton & Co., New York.

A TEXT-BOOK OF MATERIA MEDICA. By HENRY G. GREENISH, M.D. 568 pages with 250 illustrations. Published by J. & A. Churchill, London.

THE DIFFICULTIES AND EMERGENCIES OF OBSTETRIC PRACTICE. By COMYNS BERKELEY, M.D. and VICTOR BONNEY, M.D. 809 pages with 309 illustrations. Published by P. Blakiston's Son & Co., Philadelphia.

HANDBUCH DER SPEZIELLEN CHIRURGIE DES OHRES UND DER OBEREN LUFTWEGE, Bd. II, H. 6. By Dr. L. KATZ and Prof. Dr. F. BLUMENFELD. 365 pages with illustrations. Published by Curt Kabitzzsch, Leipzig.

JEWELS FROM THE ORIENT. By LUCY SEAMAN BAINBRIDGE. 125 pages with illustrations. Published by Fleming H. Revell Company, New York.

REPORT OF THE SURGEON GENERAL, U. S. ARMY, TO THE SECRETARY OF WAR, 1920. 755 pages. Government Printing Office, Washington.

THE BASIS OF PSYCHIATRY. By ALBERT C. BUCKLEY, M.D. 447 pages with 79 illustrations. Published by J. B. Lippincott Company, Philadelphia.

Therapeutic Hints.

Raised Blood-Pressure.—Sir Richard Douglas Powell, discussing the symptoms and treatment of raised blood-pressure, gives the following recommendations for anginal symptoms with severe dyspnea: Nitrate of amyl inhalations, and morphine and atropine subcutaneously, are the best remedies, the latter with due precautions. Oxygen inhalations are of great value in such cases. It will not infrequently be found that flatulent distention of the stomach starts the symptoms, and he is accustomed to recommend such patients to keep at hand a phial containing 5i of aromatic ammonia, 5i of tincture of cardamoms, ℥ ii of trinitrine solution, ℥ xv each of spirit of ether and of chloroform, and gr. xv of bicarbonate of soda in 1½ oz. of water, the phial to be marked in three divisions or "sips," one to be taken on threatening symptoms, the second in five minutes, and the rest if necessary, while the doctor is being sent for.—*The Practitioner*.

Scarlatina.—Goldstein advises against meddling some treatment and overtreatment in scarlatina. Among other details of treatment, in all septic cases and in cases threatened with uremia, he mentions the use, subcutaneously and even intravenously, of large amounts of sterile decinormal salt solution, as advised by Forchheimer, E. P. Carter, and others. The object is to dilute the poison circulating and as a mechanical aid to diuresis and the elimination of toxins. It is possible that in the severe toxic cases much might be gained by such measures if adopted early. In the vast majority of cases with slight sore throat, little fever, and only mild constitutional symptoms, all the treatment necessary will be isolation, rest in bed, diet and nursing, local care of the nasopharynx and skin, and the administration of an alkaline mixture as follows:

Sodii citratis.....5iii
Syrupi 5iv
Liq. potassii citratis
Liq. ammonii acetatis. . . .aa q. s. ad. 5iii

M. Sig.: One teaspoonful in sweetened water every two or three hours.

The Care of Snake-Bites.—G. C. Graves, who practised in the tropics for a number of years, suggests the following care of snake-bites: Immediately after a person has been bitten by a poisonous snake, the bitten limb should be surrounded by a tightly drawn bandage or handkerchief, as close to the bite as possible and between the trunk and the wound. The wound made by the fangs of the snake should then be freely incised with a knife and sucked. There is no danger in sucking the wound if there are no cracks or sores in the mouth or on the tongue. Do not cauterize the wounds. Do not administer alcohol in any form, or ammonia internally. The bitten person should now be removed to the nearest hospital and given antivenomous serum. This serum is a scientifically proved remedy and to be effectual must be used early, say within the first few hours after being bitten. It is the endeavor to keep a supply of this specific serum in each hospital so that all bitten persons may receive proper treatment.—*Indianapolis Medical Journal*.

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THE RELATION OF THE MEDICAL PROFESSION TO THE COMMUNITY.*

By GEORGE GRAY WARD, JR., M.D., F.A.C.S.,
NEW YORK.

It is with a deep sense of appreciation of the honor you have conferred upon me by electing me your President that I arise to make my inaugural address to you in accordance with the mandate of our By-Laws.

The honor of being chosen to preside over an organization of nearly 3000 members representing the largest local medical society on this continent is a great compliment for which you have my heartfelt thanks, and I also appreciate in no small measure that you have not only conferred upon me a great honor, but a greater responsibility, which I approach with trepidation as I fully realize my deficiencies; however, the responsibility shall be met squarely with a zealous, honest effort to perform the duties of the office for the best interests of all to the extent of my ability.

The Medical Society of the County of New York, with its history of 127 years of service to the community, has a great heritage of which it may well be proud, and which should serve as a stimulus to meet the duties of the hour, which at no time throughout its long existence have been more urgent and serious than at the present day.

It is perhaps well for us to occasionally refresh our memories as to our duties by recalling the objects of this Society as written in our Constitution. They are "to aid in regulating the practice of medicine and surgery in the County of New York, and to aid in securing the enforcement of the laws relating thereto, to contribute to the diffusion of true science, particularly the knowledge of the healing art, and to assist in the preservation of the public health." Of the four objects thus outlined, three are related to legislative and legal matters and sanitation, and one to the scientific education of the profession.

It is thus apparent that this Society has important functions other than the scientific, and in that way differs from the usual medical organization. It is the one society in the community that is in close relation to the public through its activities in aiding State and county officials in regulating the practice of medicine and in enforcing the laws pertaining to it, and in education on matters of public health.

*Inaugural address of the President of the Medical Society of the County of New York, delivered January 24, 1921.

It is evident then that the relation of this Society to the community is of paramount importance. We must appreciate that this community, which we commonly speak of as the "public," has a different angle of view on medical subjects than our own. As Oliver Wendell Holmes says in his advice to the young practitioner: "This same community is very intelligent with respect to a great many subjects, but with regard to medicine it is hopelessly ignorant and never finds it out." But we must follow Holmes' advice and "take the community just as it is, and make the best of it." We can make the best of it, in my opinion, by instituting educational measures, and while it is a long road to travel, the results are commensurate with the efforts expended. You cannot force the community by legislation to exercise sound common sense in medical matters any more than you can force a horse to drink when you lead him to water.

During the 127 years that the Medical Society of the County of New York has been in existence, the practice of medicine has made marvelous progress. In that time the healing art has emerged from the Dark Ages of mysticism, superstition and empiricism to the broad daylight of scientifically demonstrable truths. Concomitant with the progress in scientific medicine there have occurred equally startling changes in the economics affecting the practitioners of medicine. Even to the casual observer there is a trend of events that, like the handwriting on the wall, points a warning that socialization of the profession and State medicine are at our very threshold. We are confronted not only with a threatened socialization, but with a tendency to paternalism which I believe is detrimental to the independence of scientific thought and action, that is undemocratic and therefore un-American. It behooves the profession then to act in unity through its organizations such as this one, to combat the various agencies which through misguided zeal or for personal aggrandizement are attempting to destroy all that has been gained by the profession of medicine in the centuries of progress toward the highest ideals. I believe that this can be best accomplished by united, persistent, and aggressive efforts to educate the public as to the real status of scientific medicine. We can then more efficiently fight such unsound doctrines as compulsory health insurance, health centers, and other paternalistic measures with which the community is threatened. I wish to record my hearty indorsement of the position of my predecessor, Dr. Chetwood, on compulsory health insurance. I believe with him that it is a pernicious and unsound measure in any form that it has been presented for legislative action up to the present time, and that it is wrong fundamentally

because it separates people into classes, which is contrary to democratic principles.

Let us outline the duties of our Society that we may more clearly see the road we have to travel in order to efficiently fulfil our functions. The Society has to perform its duty to the physician and its duty to the public.

Its duty to the physician may be subdivided into educational and legal relations. The educational relation is provided for in the scientific program which is arranged for each monthly meeting, and which should be of such character as to bring before the members authoritative data on the most advanced knowledge of medicine and should as far as possible cover all fields in such practical form as to be of most benefit to the general practitioner, and consequently to the general public. The legal duty of the Society to the physician is to safeguard his rights by keeping a careful watch on all pending legislation that may affect the profession or concern the public health, and to use its influence to see that the laws relating to the practice of medicine are properly enforced, and that a high standard of professional requirements shall be maintained. The Society should protect its members to the extent of its ability whenever they may be threatened with imposition or fraud.

The duty of the Society to the public is also both educational and legal. The public should be educated as to the economic value of medicine as a whole and to the status of scientific medicine by suitable lectures and propaganda on matters of public health. The broad problems relating to sanitation, tuberculosis, cancer education, pre- and post-natal care, the water supply, the safeguarding of milk, functional re-education, venereal propaganda, reformatories, the care of the insane, etc., are of equal importance in the education of the laity and of the physician. In spite of the fact that we are always suspected by the laity of having ulterior motives, it is necessary that the profession themselves shall be the leaders in medical economics and in making constructive efforts to safeguard the public health, or else the people at large through their elected representatives will attempt to regulate and direct legislation on such matters of which they are not competent to judge without the guidance of the medical profession. Constructive and not destructive policies should be our aim.

The most serious menace, in my opinion, to the public welfare is the continual pounding at the door of the rights and privileges of legalized medicine by those who seek these privileges without proper education. I believe that the state regulation of the practice of medicine should have uniform requirements of knowledge from all who would practise the healing art under whatever flag they wish to sail. There must be no avenue of entrance to the right to safeguard human lives except that of education. This attempt to break the barriers will be an ever present menace, therefore eternal vigilance must be the price of safety.

The educational measures that are needed by the public are varied. I believe that the most important of these is concerning the true status of scientific medicine, and that this education should begin in the schools. Our public school teachers are as a rule utterly ignorant of the simplest laws of

animal life, and we could make no better beginning than to provide a course of lectures on the broad principles of biology, physiology, and sanitation for our public school teachers. Here is work for our Public Health Education Committee.

A proper appreciation by the public of its responsibility and duty to the hospitals of the community is an urgent matter that cannot long be ignored unless the high standards which we are proud to believe have been maintained in our institutions must cease, or retrogress to an inadequate care of the sick.

They should be taught that hospitals are not business ventures but charitable organizations, and as such must depend on the public to *regularly* do its share toward the maintenance of institutions by which it is directly benefited. No one has felt the present high cost of commodities and service more than the hospitals, and it is the cause of much anxiety to trustees. The failure of the public to live up to its duty in this regard should concern this Society, and the need of educational propaganda is evident.

There is also a need for the education of the hospitals themselves. I mean especially the governors or trustees who are responsible for the proper performance of the functions of the hospital. Hospital trustees stand in the same relation to a hospital as trustees do to a trust fund, and they therefore should see that they get efficient results for the money they expend. They can only do this when they insist upon as careful an audit of their medical and surgical results as they do of their finances.

I have spoken much concerning the duty of this Society to the profession; what about the duty of the members to the Society? It is the duty of each member to see that those physicians in the county who are eligible, but who are not members, should lend their aid to form a united profession by joining the Society, especially at this time when state medicine, paternalism, bolshevism, and chiropractors, osteopaths, and their like are so rampant. Approximately 40 per cent. of the practitioners of medicine in this county, presumably eligible, are not members of the Society. No physician can afford not to be a member of his county society. Membership implies the hall-mark of good standing in the medical profession of the community.

We reached a milestone in the history of the Society this past year when we adopted a new constitution and by-laws. We are to be congratulated on this important step, which will facilitate the work of the Society and maintain its dignity and that of the profession, while at the same time it allows a proper and free avenue for any member to present or bring forward matters for the interests of all, as is fitting in a democratic organization.

The principal changes are:

First—The Comitia Minora has been made more democratic by the addition of four new members elected by the Society, namely, the Chairmen of the Committees on Civic Policy, Membership and Legislation, and the Assistant Treasurer.

Second—The creation of a Committee on Civic Policy whose function is to study those questions which determine the relation of the profession to

the commonwealth, and to advise the Comitia Minora and the Society on such matters, so that we may have carefully weighed and thoroughly digested opinions on which to base our actions.

Third—Citizenship or declared intention of citizenship is necessary for membership.

Fourth—That the routine procedure for stated meetings requires that motions which affect the general policy of the Society shall be presented in writing, and shall be referred to the Comitia Minora for consideration and advice, for the reason that the dignity of the Society and of the profession necessitates that precipitate action on superficially considered motions should be avoided, and that the meetings of the Society should be conducted with proper decorum.

I wish here to deprecate the practice of so-called "heckling" that has sometimes occurred, as it is usually indulged in for no real purpose other than the self exploitation of the "heckler," and cannot but obstruct business and reflect discredit on the Society as a whole.

Our thanks are due to the special committee who have labored so efficiently for the perfection of the new constitution and by-laws for the good of the Society.

May I say a word as to the need of always keeping before us the danger of contaminating our profession with commercialism? It is incompatible with the high ideals which we love to consider as an indispensable part of it. Utilizing the helpless ignorance and fears of patients to extract money from them is rank dishonesty and I am afraid is far too frequent a practice.

I also wish to call attention to an evil that I fear still exists in our midst. I mean that practice which is commonly known as "fee splitting." The work of the American College of Surgeons in combating this pernicious custom is so well known to you that it is unnecessary for me to say more than that it is the duty of this Society to use its every effort and influence to stamp it out, for the honor and dignity of our profession. I sincerely hope that the Society will go on record as opposed to this practice and will make such regulations as will not permit any member to remain in the Society who is guilty of the same.

In conclusion, let me remind you that the prestige of the Society depends upon the integrity, ability, and loyalty of the individuals who compose it, and if we wish to maintain it and also uphold the dignity of the profession in order that it shall not fall from the proud position it has occupied since the time of Hippocrates, as a result of the humanity, charity, and ever readiness for unselfish service for the public weal which has come to be associated with the name "physician," it is essential that we must keep before us as our duty the advancement of scientific truths, the abhorrence of the taint of commercialism, and strenuously fight for high ideals of conduct, and the honor and personal integrity of our members, remembering, as Browning says:

"The common problem, yours, mine, everyone's,
Is—not to fancy what were fair in life
Provided it *could* be—but, finding first
What *may* be, then find how to make it fair
Up to our means—"

48 EAST FIFTY-SECOND STREET.

DIAPHRAGMATIC HERNIA.

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SINCE the advent of the x-ray and fluoroscope, the diagnosis of diaphragmatic hernia is an established fact, and many cases are reported in recent literature. The subject of this paper is a patient who was admitted to the service of Dr. F. P. Solley, at the Knickerbocker Hospital, through whose courtesy I am enabled to make this report, in which the diagnosis was made clinically, and confirmed by autopsy.

REPORT OF CASE.—P. D., male, 46 years old, blacksmith by trade, walked into the hospital November 3, 1920, complaining of severe pain in his left chest, cough, dyspnea, and great weakness. The pain was situated over the precordium, entire left lateral and posterior chest, and had come on suddenly about twenty-four hours prior to admission. It was increased by deep respiration, and relieved by shallow breathing. The pain was constant, sharp, and accompanied by non-productive coughing; dyspnea and great weakness came on soon after the pain, causing much distress to the patient. Family history was negative. Patient, in his past life, had had all the diseases of childhood, a chronic cough for the past seven years, and shortness of breath accompanied by weakness for two years prior to admission. He had imbibed heavily all through his life. His appetite had always been good, bowels periodically constipated.

Physical Examination.—General: The patient presented good muscular and bony development with fair nutrition, but appeared acutely ill, his face wearing an anxious look, covered with perspiration, showing cyanosis around the lips and ears. There was marked dyspnea.

Head and neck: The eye reactions were normal; tongue dry and tremulous; teeth poor; otherwise no abnormalities.

Chest: The thorax showed a marked depression of the lower third of the sternum, the left side appearing to be enlarged, but presenting a diminished excursion. Apex beat not seen. Litten's absent on both sides. Fremitus greatly diminished on left side. Apex impulse not felt. On percussion, the left chest was tympanitic throughout except in its upper third. Respiratory sounds and spoken voice were greatly diminished. Succussion sign, to which the patient himself referred, was present, but was not of the pure metallic quality that one finds in hydropneumothorax. It was rather a lawless splashing, such as commonly occurs after drinking large quantities of fluids. No gurgling sounds were heard. The right chest showed an occasional rale at its base. The heart could not be definitely percussed; sounds were rapid and irregular, of poor muscular quality, distant, and best heard in the median line. No murmurs were audible.

Abdomen: Below the level of the costal margin presented tenderness and rigidity in its upper median portion. The liver was 8 cm. below the rib line; spleen not felt.

Extremities and reflexes: Normal. No lymphatic enlargement noted.

The diagnosis of strangulated diaphragmatic hernia was made.

Course of the illness: On admission the temperature registered 99°, pulse 116, respiration 26. The pulse was regular, but extremely weak and thready. Respiration very difficult. About four hours after admission the patient vomited brownish fluid and continued thus at frequent intervals until he died, twenty-four hours after admission. Temperature continued normal, pulse and respiration gradually increasing toward the end. Dyspnea and vomiting were very distressing. X-ray examination showed a uniform shadow through the entire left chest, with heart slightly dislocated toward the right.

Necropsy: Male subject, showing a deformity of the

sternum, characterized by a marked depression in its lower third. Upon opening the thoracic cavity the left lung was found to be compressed, occupying the apical cavity only. There was generalized fibrosis; no crepitation, indicating little or no function. Apex was adherent. The remaining portion of the chest cavity was occupied by the stomach, markedly distended, the splenic flexure of the colon, about two inches of the transverse, and two inches of the descending colon, covered with a portion of the omentum, as shown by the two accompanying diagrams.

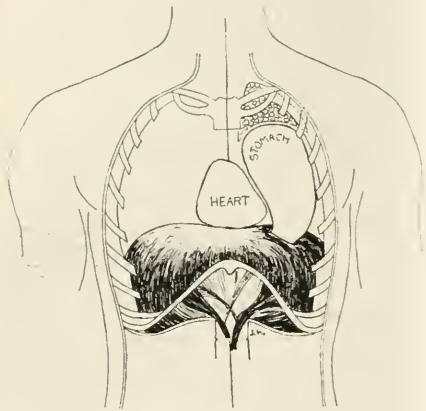


FIG. 1.—This shows the heart in the median line, the stomach occupying the left chest cavity and remnant of the left lung.

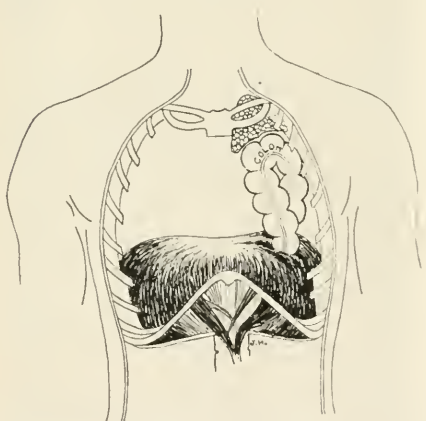


FIG. 2.—Shows splenic flexure with a portion of transverse and descending colon situated behind the stomach, as shown in Fig. 1.

The stomach was greatly distended, filled with gas and about 300 c.c. of a dark brown fluid. It was folded upon itself in such a way that the esophageal opening and pyloric ring lay in the diaphragmatic opening, the pylorus showing signs of strangulation. The splenic flexure, with about two inches of the transverse and descending colon, were situated posteriorly. The left dome was poor in musculature and very thin. In the left lumbar costal area was a smooth-edged opening, lined with a tendon-like structure, which blended into the surrounding tissues and admitted five fingers freely. The hernia was in a sac formed by peritoneum and pleura. The liver was found to be enlarged, smooth, firm, and upon section showed extensive fibrosis. Gall-

bladder and ducts were normal. The heart was found exactly in the median line, was not enlarged, and without gross pathological changes. The other viscera were apparently normal.

Most writers divide diaphragmatic hernia into the following types: (1) True congenital; (2) False congenital; (3) True acquired; (4) False acquired; (5) Diaphragmatic eventration.

The true type has a distinct sac, consisting of either peritoneum or pleura, or both. The false hernia of the diaphragm, is devoid of sac. Etiologically, congenital hernias of the diaphragm, whether true or false, are due to imperfect development of the diaphragm; just what causes may be at work to prevent the closure of the dome, is not as yet definitely established. The true acquired types herniate along the course of one of the natural openings in the diaphragm, the esophageal, aortic, or that of the vena cava; occasionally they pass through the space of Larrey or the foramen of Bochdalek. In rare cases, this type of hernia may follow the absorption of a diaphragmatic gumma.¹ False acquired diaphragmatic hernia is usually due to stab wounds, crushing blows against the abdomen or thorax, and other trauma. Diaphragmatic eventration is simply due to thinning out of a portion of the dome of the diaphragm, which gradually elongates, forming a pouch which receives the viscera.

Location: By far the greatest number are located on the left side. Lacher² collected 276 cases, and found 225, or 81.5 per cent. on the left, and 42, or 15 per cent. on the right side. This ratio seems to hold good for both the congenital and the acquired types. The liver, in combination with the diaphragm, is the protecting factor on the right side, the right dome being anatomically much stronger than the left. The openings on the left side offer themselves as a natural way for a hernia, facilitated by the negative pressure in the thorax, and the esophageal opening is the one most frequently involved. Vogel³ states that the openings of vena cava and the aorta never have been the seat of a hernia. This is probably due to the fact that the former is protected by the liver, and the latter by the thick crura diaphragmatica and its situation posteriorly. According to Lacher,² the opening is more apt to be in the muscular than in the tendinous part of the diaphragm. The size of the opening varies, from a small aperture, to a complete absence of diaphragm, as in a case reported by Spessa.

Contents: The organs most frequently involved are the stomach, colon, omentum, small intestine, and spleen, in the order named.

As regards the sex, the acquired type is more frequent in males, while the congenital occurs with equal frequency in both sexes.

As to the age, the greatest number of hernias of the diaphragm occur during the first year of life, all these being congenital and frequently accompanied by other anatomical malformations.

Symptoms: These will often depend upon the length of time during which the hernia has formed, and the organs present in the dislocation. There may be none at all, or else the symptoms may be very indefinite, the patient suffering from mild attacks of indigestion, vague pains in the thorax for a long period, either until he dies from some inter-

current disease, or until the hernia strangulates. Dyspnea, as in our case, may be a prominent symptom; there may be attacks of coughing, with pain in the chest over the precordium, accompanied by dizziness and weakness. Hemoptysis may occur. Abdominal pain, singultus, or difficulty in swallowing, accompanied by vomiting, may also occur during distention. Constipation alternating with diarrhea is a frequent symptom. Alarming symptoms develop with great distention of the viscera, or strangulation, which, according to Vogel,¹ takes place in about 15 per cent. of cases.

Physical Signs: These will depend upon the size of the hernia. None whatever may be found. The patient may show some deformity, as in this case. The affected side may present diminished excursion, Litten's phenomena may be absent and apex impulse seen dislocated to the right. Fremitus is diminished or absent. On percussion, tympany is elicited, breath and voice sounds may be diminished, or entirely absent. There may be succussion, or rough gurgling or splashing sounds in the thorax. Heart dislocated. The abdominal signs may be those of tenderness or rigidity, in varying degree.

Differential Diagnosis: Chest conditions, such as pneumothorax, hydro- or pyo-pneumothorax, sub-diaphragmatic abscess, must be excluded. This usually is not difficult, if an x-ray examination can be made.

Prognosis: This should be very guarded, in view of the ever impending danger of strangulation; it depends largely upon the size of the opening, the mode of life, and the occupation of the patient.

Treatment: Aside from alleviation of the pain, surgery alone can avail. Thoractomy will be the operative procedure chosen, whenever the true condition is recognized. The hernia is reduced, and the diaphragmatic opening sutured, or if this is not possible the omentum may be sutured to the margin of the opening. In cases where an abdominal diagnosis only has been made, laparotomy will be the operation employed, and if the hernia cannot be reduced from below the operative procedure should be extended to an attempt to reduce it from above, by means of a thoractomy.

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2. Lacher: *Deutsches Arch. f. Klin. Med.* Leipzig, 1880-81, xxvii, pp. 268-321.
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260 WEST SEVENTY-SECOND STREET.

THE HISTORY OF THE DISCOVERY OF DUODENAL INTUBATION.

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WHEN I first experimented with duodenal intubation twenty-five years ago (*Johns Hopkins Medical Bulletin*, April, 1895; *Archiv für Verdauungs-krankheiten*, 1896) I used the method for physiologic study of the bile and pancreatic juice. Some later workers on duodenal intubation, whose first publications did not appear until fourteen years after my original paper, would like to make it appear that I did not succeed in obtaining duodenal con-

tents, or that the pancreatic juice which was obtained was drawn, not from the duodenum, but from the stomach. Any unprejudiced worker who reads a description of my method can see that the method requires the emptying out of the stomach and distending it with a rubber balloon, which had a guide at the lesser curvature, through which the duodenal tube glided. It was impossible to get duodenal contents from the stomach under such conditions. Every gastroenterologist who has worked at all seriously and consecutively with the passing of stomach tubes, knows that it is an exceedingly rare thing to obtain pancreatic juice or bile from the stomach of a normal man or even of the patient. In paying attention to the frequency of this occurrence, I find it occurs about once in a hundred and sixty patients, and then there is, as a rule, some anatomical reason for it. I first worked with normal men.

In the mind of anyone who is not prejudiced, this could not be a criticism of my first method, which, as I have distinctly stated, was only one for experimental purposes. F. Kuhn, who had devised a method of his own for entering the duodenum, visited me in Baltimore, in 1899. His method consisted of the use of a very flexible, thin steel spiral tube, which was pushed through a thin stomach tube. He had become very dexterous with this instrument (see F. Kuhn, *Archiv für Verdauungs-krankheiten*, 1898), but advised me to try a long thin rubber catheter containing no metal spiral tube within it.*

Neither Kuhn nor I published anything about the use of long, soft rubber catheters in entering the duodenum, and which depended on the normal peristalsis of the stomach for entering the duodenum rather than upon some mechanical artifice or the *vis a tergo* of the manipulator.

I am under the impression that Kuhn published something about it in Germany, and believe I owe it to his brilliant work to make this statement in acknowledgment of his many years of experimentation on duodenal intubation. Owing to the vicissitudes of the war, I have not been able to come in contact with Kuhn to ascertain the journal and the date of his publication of this work.

In the *Archiv für Verdauungs-krankheiten*, Vol. XVII, 1911, page 482, I outlined the history of this promising method up to that date. This article contains some criticisms I made of Einhorn's statement that before the publication of his article in the *Internationale Beitr. zur Physiol. u. Pathol. d. Ernährungs Störungen*, Vol. 2, 1911, the only method of obtaining duodenal fluid consisted in the production of fistulas.

I consider that his brief mention of Kuhn's work and my own in Vol. XV of *Archiv für Verdauungs-krankheiten*, are inadequate and inaccurate. He says that we had only "attempted" this duodenal intubation. He should have added that we were successful. My efforts and those of Kuhn to perfect this method extended over a period of several years—as may be seen from the date of my first report, April, 1895, in *Johns Hopkins Hospital Bulletin* and in my text book on "Diseases of the

*Fenton B. Turck had succeeded by simple rubber tubes in entering the duodenum; the method seemed promising.

Stomach," 1897. That these efforts actually were crowned with success does not exclude the possibility that subsequently another man could discover a more practical method.

It was the express purpose of my study on duodenal intubation, which was published in *Archiv für Verdauungs-krankheiten*, in 1896, that it should serve as an incentive to other workers. For in the series of subsequent workers in this special technical field Einhorn is not the second in historic order of those clinicians who have occupied themselves with experimentation and perfection of the technique of duodenal intubation, but, as we shall soon become convinced by the chronological sequence of the dates of publications on this subject, he is but the fourth.

It is not ingenuous to throw doubt on the work of a fellow investigator by stating, twelve years after the date of publication of his original work, that Einhorn did not know whether he (J. C. Hemmeter) obtained duodenal juice or not.

Einhorn writes as if I made only one single experiment, whereas the articles in the *Johns Hopkins Hospital Bulletin*, April, 1895, and also in my text book on "Diseases of the Stomach," 1896, prove that the original method was the result of several years of experimentation.

In a little book, entitled "The Duodenal Tube and Its Possibilities," published in June, 1920, Einhorn goes over the history of duodenal intubation as he views it, but he still cannot reconcile himself to the fact that I obtained the duodenal contents by my original method in 1895, fourteen years before Einhorn published anything about his methods. He gives as references of my work an article in *Archiv für Verdauungs-krankheiten*, 1897, vol. 2, page 85.

It can be readily proved that I publish nothing whatever in those archives in 1897. The article in question was published in 1896, vol. 2, page 85, of the *Archiv für Verdauungs-krankheiten*, but even this date is not the first of my publication of duodenal intubation. The very first publication of this subject by me will be found in the *Johns Hopkins Hospital Bulletin* for April, 1895. Maurice H. Gross and I. W. Held, in a book entitled "The Therapeutics of the Gastrointestinal Tract," translated from the work of Carl Wegele, give the correct historic sequence of these publications, on page 255 of their work.

The article in the *Johns Hopkins Bulletin* represented a report of a demonstration before the Johns Hopkins Medical Society, and it is the first public announcement of any idea to reach the duodenum in a systematic manner. I expressed the hope at that time that later experiments would simplify and perfect the method.

Einhorn states (last column, page 19, of his little book on the duodenal tube) that one cannot obtain a mold of any particular stomach so that the rubber bag will tally exactly with the shape of the stomach and, therefore, he says it is impossible to say whether the opening of the groove in the bag, which is to serve for a guide to the duodenal tube along the lesser curvature, is readily opposite the pylorus. To this I would reply that our first experiments were on animals and the second series on normal human beings, and that the capacity and size of the stomach was ascertained before the stomach-shaped rubber bag was introduced; in

other words, a large stomach required a large intra-gastric bag and a small stomach a small bag.

In the description of Kuhn's method, Einhorn is equally severe as of my own method, forgetting that Kuhn and myself were pioneer workers, and that we expressly stated that we hoped our methods would later be improved upon.

Einhorn's publications of 1908 in the *New York Medical Journal*, and 1909 in the *MEDICAL RECORD*, do not concern the reaching of the duodenum with a rubber duodenal tube, but they are experiments to estimate the permeability of the pylorus. This was done by threading beads and little bags containing dimethylamidoazobenzol agar to indicate the change of reaction when the thread holding the beads passes through the stomach or into the duodenum. The beads are inclosed in a gelatine capsule and given to the patient; six hours later they are withdrawn and inspected, at a time when there is presumably free hydrochloric acid in the stomach. The string may have two such capsules, ten inches apart. If after they are withdrawn both beads are in the stomach, the agar will in both cases be red. If one bead is in the stomach and the other in the duodenum, the stomach bead will be red and the duodenal bead will be yellow. Einhorn then went on to devise the duodenal bucket. All of these are ingenious contrivances for which Einhorn is famous, but his duodenal tube was not published until 1910.

It is evident from the publication of Maurice Gross that in May, 1909, he had used a duodenal tube in the outdoor department of the Roosevelt Hospital in New York, and in September, 1909, that he succeeded in obtaining duodenal contents. The testimony of Drs. W. G. Lyle and Eleanor Parry, and M. G. MacNevin, bear him out in this claim, but on Jan. 8, 1910, Maurice Gross published his first article on that subject in the *New York Medical Journal*. At that time Einhorn had not yet published his article on the duodenal tube of his design.

Gross sought to facilitate the passage of the tube through the pylorus by gravity, for he placed the patient on the right side and weighted the end of the tube with a little ball, which was the first design of this kind.

M. E. Rehfuss had this same idea in mind (M. E. Rehfuss: A Modified Gastro-Duodenal Tube, *New York Medical Journal*, Aug. 22, 1914) when he made the capsule end of his duodenal tube heavier. Einhorn criticises this method also, claiming that the heavy end of tubes, like those of Rehfuss, Maurice H. Gross and B. Vincent Lyon, exert undue pressure on the gastric or duodenal mucosa. Also that the big openings allow coarser food particles to enter the tubes which are apt to clog it. However, in these experiments no such coarse food particles are used, at least not as a rule. In fact, we must be prepared to look forward to various modifications and improvements of the duodenal tube; we will eventually reach a tube which will be so perfect that the devices of all the clinicians I have mentioned will appear simply as intermediate stages in the development of this technique. More recently Palefsky, J. Buckstein, and Jutte have already added valuable improvements to this technique.

Scientific progress can be favored only if it meets with a warm, sincere appreciation and with an ingenious sympathetic and just regard for the work

of those who have preceded us. To meet the work of all previous workers with one criticism or another is an evidence of a spirit of contentiousness which is a hindrance to progress. Above all things a clinician must be sincere enough not to criticise a method which he has not tried himself, nor even personally witnessed as carried out by the originator. That there are imperfections in the pioneer methods of clinical technique is evident in all fields of medicine and surgery where clinical pathfinders have first blazed a way for a new method of diagnosis.

There are curious contradictions in Einhorn's reply (in *Archiv für Verdauungs-krankheiten*, 1911). For instance, on page 362 (tenth line) he asserts that "Hemmeter and Kuhn obtained fluid by direct tubing from the duodenum." On the following page his opinion has already changed, for he says (on page 363, third line) that "Hemmeter has not yet proved that he was really in the duodenum with his instrument."

Einhorn supposes that the fluid was extracted by suction of the tube from the stomach, a supposition which betrays an ignorance of the method, quite apart from the fact that the duodenal contents flowing back into the stomach never show such pronounced diastatic, proteolytic and lipolytic powers as my figures show in that article.

I have reported in the same pages that my method could not be carried out at all if the stomach was not previously completely filled with the intra-gastric balloon. This has been the sole object of the balloon method to fill the stomach completely so that the canal running through the lesser curvature could not lead elsewhere than into the duodenum. The stomach must first be washed out before it is filled out with the balloon. It is impossible that any fluid could be drawn up from the stomach after his procedure. (See Hemmeter textbook, "Diseases of the Stomach," third edition, pages 56 and 57.)

In the *Archiv für Verdauungs-krankheiten*, No. 1, page 363, Einhorn says that pure duodenal fluid without admixture of gastric juice can be obtained by his method. If he means the fluid which may happen to have collected in the duodenum at the time of the test, I will not dispute his contention. But that is not what I mean. Pure pancreatic juice is the most powerful factor, and that is not obtained "over night"; it is secreted only after previous physiological stimulation of the normal chemical processes in the stomach and controlled by the vagus.

The chemico-dynamic and nervous influences which dominate the gastric, duodenal, pancreatic and liver secretions are in every way so wonderfully delicate and reciprocally adapted that even the slightest deviation from the normal of any of the chemical, dynamic or nervous phenomena is accompanied by irregularities. The knowledge of these phenomena is so far advanced that today it is doubtful whether one ever finds quite normal conditions in the analysis of the stomach test meal. Absolutely pure pancreatic juice is obtainable only by inserting cannulas into the pancreatic duct (J. P. Pawlow). All duodenal juice must contain a mixture of bile, succus entericus and pancreatic juice and sometimes gastric juice.

Einhorn is not the only one who has published

a method of duodenal intubation in which the peristaltic stomach itself aids the instrument. M. Gross of New York wrote me that he invented a duodenal tube based on nearly the same idea before Einhorn. His report of the tube appeared in *Journal of the American Medical Association* (1910, vol. 23, p. 4).

F. Kuhn described fourteen years ago and carried out measurements and dilatations of the pylorus and I have never asserted that the method of Einhorn, Gross, Kuhn or of anyone else has anything in common with my first method.

It is a source of pleasure to me that four other workers have pursued the study of the duodenum, and no one has criticised my method so severely as I did myself in the *Archiv für Verdauungs-krankheiten* in 1896, where I explicitly stated that mine was only a tentative method, intended chiefly to incite others to take up this study. The very fact that I took up with Kuhn's method later on, as Einhorn correctly narrates, shows that I hoped it would be an improvement upon my own. Kuhn visited and spent some time at my clinic at the University of Maryland, and we both observed that very small rubber catheters, when introduced alone, and not containing the Kuhn metal spiral inside of them, would slip through the pylorus occasionally, and as he desired to publish this method, an improvement on his own, I have not published it myself.

As illustrating the rapid advance which the discipline of duodenal intubation is making, I call attention to an article on "Intubation and Visualization of the Duodenum with the Duodenal Tube," by I. O. Palefski, in the *Journal of the A. M. A.* for Dec. 4, 1920 (vol. 75, p. 1547). Palefski here states and illustrates the various sizes, shapes and weights of the ends of five different duodenal tubes designed by five different clinicians, the weight of the ends varying from 33 to 105 grains. He omits two other modifications of the tube and Buckstein's interesting study on "Delineation of the Intestines by Means of the Duodenal Tube," of this latter author's own design.

Einhorn has contributed so many valuable new conceptions to medicine, and his mind is so resourceful, his inventive power so marked for the designing of new mechanical contrivances that facilitate diagnosis and treatment, and he has met with so much appreciation by his fellow workers, that it is regrettable to find in his booklet on the duodenal tube nothing but criticisms for the inventions of his coworkers in the same field, and that these fault-findings are not based on a personal experience with these instruments, but simply from deductions formulated after a process of speculating about them.

The whole question of the history of the discovery of the duodenal tube might be left to a natural sequence of chronology, because the question now is, not, "who has invented this or that duodenal tube," but the most important question is, "In whose mind, and when, did the idea of intubating the duodenum, and therefore, the intestine, systematically, first originate?"

Spallanzani, who was born in 1729, nearly 200 years ago, was the first to make animals swallow metal tubes closed by a grating at each end, in order to allow the freer entrance of fluid, and he sometimes used hollow spheres made of two hemi-

spheres screwed together, the walls being freely perforated. These tubes or spheres he filled with meat, bread, or bone. He recovered them from birds and other animals by making them reject these contrivances through the mouth; but he also made animals swallow pieces of meat and the like, so attached to threads or wire, that he could, after a while, withdraw them from the stomach. (*Lectures on the History of Physiology by Sir M. Foster*, 1901, p. 213). This was the beginning of the use of silk strings for obtaining information concerning the stomach contents, bloodstains, etc.

A great deal more has still to be learned. The instruments or the duodenal tube of various designs should be worked out in clinical practice with a view to determining which is the most practical and which is the least harmful tube. The weights at the end of the duodenal tube which Palefski described have no other purpose than to accelerate and facilitate the passage through the pylorus.

I have found with almost all of these ends to duodenal tubes that the metal end itself may be sufficient to draw a certain amount of blood from the capillaries of the duodenum in individuals who gave a negative string test on two occasions before this duodenal tube was introduced. Inasmuch as a silk string can pass through the pylorus eventually, the weight of the end of the tube may quicken the process of intubation, but in certain conditions of nervous pyloric spasms, which may be induced by this very procedure, the metal end itself may be the cause of this small amount of blood. The question is, then, not "*which tube enters the duodenum most quickly?*" but "*which enters it most safely?*" At present I am using a tube which is constructed entirely of rubber. If it takes longer than the metal ended tube, I instruct the nurse to introduce it the evening before I want to make my duodenal observations. I use the tubes with metal tips also, but only in cases where I feel quite sure that all diagnostic methods directed toward exclusion of pyloric spasm and pyloric obstruction have been exhausted.

I wish to express a word of warning concerning the introduction of the intestinal tube too far down into the intestine and attempting to pull it back through the stomach. In one case, a condition of intestinal obstruction was superinduced in my experience, which gave every indication of a traumatic invagination. In all such cases where over 75 cm. of tube have been introduced, the tube should not be withdrawn through the mouth, but be permitted to pass out through the rectum. No matter how gently the withdrawal through the mouth is done, in a patient that is in a highly vagotonic condition, local intestinal spasms can be produced, and if the clinician pulls against these localized intestinal constrictions, one part of the ileum may be pulled up into a higher and wider part of the ileum. This is not a frequent occurrence, fortunately. I have observed it only once, but consider it a duty to report this occurrence.

Einhorn means to suggest that I gave a demonstration of the first method of duodenal intubation in 1895 before the Johns Hopkins Hospital Medical Society and also published the new method in the *Archiv für Verdauungs-krankheiten* in 1896, and in the various editions of my textbook on "Diseases of the

Stomach," and also in the two volume textbook on the "Diseases of the Intestines," and did not assure myself that the end of the duodenal tube was in the duodenum. He keeps on implying that the alkaline juice containing trypsin, amyllopsin and steapsin, which I withdrew, was not obtained from the duodenum, but from the stomach of the person under observation. My clinical studies were carried on for over one year in many normal subjects and demonstrated before my classes before I published a word about them. By the very nature of the method (lavage of stomach as a preliminary step, then complete filling out of the entire lumen of the stomach) any drawing of bile or pancreatic juice regurgitated into the stomach is impossible. Besides, my duodenal tube of 1896 was so constructed that it could not double up or reduplicate, hence, this first duodenal tube, if it moved onward at all, must unfaillingly move through the pylorus.

In June, 1896, an article from my clinic appeared in the *Boston Medical and Surgical Journal* (p. 609), entitled "Photography of the Human Stomach by the Roentgen Ray." These experiments were later on repeated and improved upon by Drs. Harry Adler and Robert Bay. (See "The Diagnosis of Ulcer of the Stomach and Duodenum by the Roentgen Ray," *Jour. A. M. A.*, Nov. 12, 1910; also, Adler and Ashbury, *New York Med. Jour.*, Oct. 7, 1911.) I cite these experiments to prove that in my clinic the first experiments aiming at radiography of the stomach were undertaken. (See "Priority of Employment of the Roentgen Ray in Studying the Physiology and Pathology of the Digestive Tract" *Journ. Am. Med. Assoc.*, Oct. 5, 1912, vol. 59, p. 1308; see also "Clinical Diagnosis of Internal Diseases," by Lewellys F. Barker, vol. ii, p. 307.)

We were therefore familiar with a technique for gastroenterologic radiography as far back as 1896, and we availed ourselves of this method to make sure that our primitive duodenal tube really was in the duodenum.

As to our own personal convictions, they are as follows: We obtained the same duodenal contents twenty-four years ago under various normal and pathological conditions as we do today with Lyons' or Rehfuß's tube. And we obtained them too often to permit of any doubt as to the source of derivation of the aspirated juice. This entire controversy is provoked by Einhorn alone, none of the other many workers with duodenal intubation having ever expressed any doubts as to my first experimental work.

The reason why Einhorn throws this doubt on my original clinical method is that he considers himself the first one to have successfully and systematically entered the duodenum by a tube.

It can be proved beyond the possibility of a doubt that not only I, but Franz Kuhn (*Archiv für Verdauungs-krankheiten*, Bd. III, p. 19, 1918) and Maurice Gross preceded him (it is true by methods of different design). (See "Zur Geschichte d. Duodenal-intubation," etc., *Archiv für Verdauungs-krankheiten*, Bd. XVII, p. 136), which represents one of my earlier defenses against Einhorn's claims that no one intubated the duodenum before he did.

That my original method was imperfect and was superseded by better ones constitutes no detracting from my historic priority. The original (Kuss-

naul) stomach tube has also been improved, yet no one desires to rob Kussmaul of the merits of his pioneer work.

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SPEAKING OF SPECIALISTS.*

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THE statement of my subject may warrant the inference that in its choice I had in mind to rival a recent humorous essay on the subject of operations, but such was not the case. None other than some medical Mark Twain could extract and utilize to the full the humorous possibilities in the excesses and absurdities of present-day specialism, and none other could portray them in more kindly fashion, as the inevitable reaction of our profession to the necessities of a competitive environment. If it be objected that my subject lacks definition, it was so intended—to be simply a point of departure, allowing wide excursions into a wide field. When one's ideas are exploration-bound, it is disturbing to run up against the hard-and-fast confines of a subject. In order that I may not be misunderstood, please consider my critical references to specialists in particular, as being directed toward clinical rather than special-sense or laboratory specialists.

Consideration of this subject brings first to mind the question—"Who is a specialist?" Its correct answer is of vital import to all of us. It may be that, unbeknown, some who have never presumed to the title are *very* specialists; and others, who have assumed it, are general—*very* general—practitioners. By what authority is one a specialist? Is it by natural gift—by education—by pursuit—by experience—by attraction of a special field—by greed for personal gain? Is specialism essentially an entity, or is it a state of mind? Is the word "specialist" often merely a catchword? The dictionary gives, as the conditions that determine specialism, "a limited field," which is naturally separable from the field of general medicine; one requiring of him who cultivates it a greater skill, a closer concentration, and different methods and mechanical aids than is and are demanded of the general practitioner.

In the light of the foregoing questions, and these conditions, and our own experience, it is evident that there are specialists and specialists—some genuine, more spurious; some needed, more superfluous.

Specialism has marked the course of biology as of human institutions, it being the necessary means of adaptation to an increasingly complex environment. Paleontological records visualize the procession of now-extinct species. Today we foresee the extinction of the domestic horse, its specialization for speed having reached practically its limit—a limit far short of insuring successful competition with that of the man-made automobile and aeroplane. Extinct civilizations have marked the passing ages, each having developed through the centuries of its existence an environment even more complex and a specializa-

tion finally incapable of further adaptation. To-day in industry, in business, in education, in all the phases of our complex existence (I will not call it life), we see the workings of specialization directed toward conquest of environment.

The modern factory affords a striking exhibition of its extreme development and irimical results. In the workman who is required to make ever daily, weekly, yearly, by mechanical device, the same small part of the to-be-finished product, creative ability and joy in work are stifled. The product thereby loses in quality, in individuality, in that illusive something that marked the product of the hand-worker of apprentice days. The purpose of this specialization is accomplished—to increase dexterity, speed and output, thereby lessening cost and increasing profit to the manufacturer in competition with other manufacturers in the field of trade; in other words, thereby is achieved adaptation to the environment of competitive trade. The minute specialization in every detail of the successful modern business is a thing of astonishment to the uninitiated. The skill, time, and money expended upon the one factor in success—advertising—is stupendous in amount and in results. In the hands of the successful advertiser the public is as wax.

In education, vocational education, which fits for trade, is displacing the humanities, which fit for living.

To-day our profession, on a competitive basis, faces the necessity of adaptation to an environment rapidly increasing in complexity. Three factors in such complexity are, first, its own overcrowded ranks, representing all kinds and degrees of preparation and fitness and their opposites; second, an increasingly exacting public, possessing superficial knowledge gained through press and from platform, suspicious (with reason) of our capabilities and good faith, impressed by the catchword "scientific," credulous in the presence of tests, formulae and apparatus; and third, a rapidly increasing number of mechanico-theraputists of various names, whose theory and practice, if unenlightened, are definite, and who do *do* something tangible for their patients. Naturally, in such an environment, specialists and specialties appear over night, and new tests, formulae, methods, and mechanical devices crowd upon us in bewildering confusion—many of them but the passes of the medical juggler to hypnotize his clientele. In medicine, far greater than in industry or business, are the inimical results of over-specialization and of mechanical methods, of loss of perspective, and of vital and consecutive interest in the whole man. Specialism, unco-ordinated, is portrayed in the story of the blind man and the elephant—all tail, all trunk, all flank, according to the part handled. So in medicine—all nasopharynx, all colon, all internal secretions, all focal infection, according to one's specialty.

The situation is profoundly disquieting and is explicable only to the medical sociologist, who links up medicine with other social institutions, and the present with the past. Clearly, present professional tendencies persisting, destruction of medical unity, utter disintegration, are inevitable.

Is there no lessen out of biology and history to

*Read before the Lancaster County Medical Society, Oct. 23, 1920.

point the way to organization of medicine upon an enduring basis? Through all time, the law of existence for plant and beast and man has been that of the jungle; survival of the fittest—the fittest to survive on the plane of force and material advantage—the plane of competition. Species, civilizations, institutions, have arisen, grown more and more complex, all in the end suffering extinction. The lesson to me seems clear. Specialization, conditioned upon competition, separates the individual from his group, entailing his own extinction and that of the group, weakened by the defection of its individual members. Specialization with co-operation binds the individual to his group and makes for the endurance of both. If medicine is to endure, it must be organized upon the basis of specialism, conditioned upon cooperation and simplification.

The private medical group—a strategical group, allowing of better defense of its members from the onslaughts of other members of the profession, and of more successful forays upon the public—does evidence at least unconscious recognition on the part of many physicians of the necessity of medical organization upon an at least partially co-operative basis. At present, however, competition between different groups being necessarily more acute than that between individual physicians, because better organized, and the better service to be had within the group offset by the greater expense of such service, it is doubtful if professional conditions in general are much improved thereby.

An epochal book received a few days ago while in the midst of preparation of this paper—Sir James Mackenzie's "The Future of Medicine," presents an argument (supported by facts out of his large experience) for simplification of medical education and practice, for fuller utilization of clinical observation in medical diagnosis and treatment, and for organization of the profession about the physician—the general practitioner, who alone can have consecutive observation of the patient through a term of years, and who alone can effectively serve in the first two of the four stages into which Mackenzie divides disease—the stages of predisposition, early disease (with no objective symptoms), late disease (with objective symptoms), and the final stage, in which alone the pathologist, through the autopsy, can profit.

Says Dr. Mackenzie: "I am convinced that the concept of specialism dominant today is a wrong one, and that, helpful as this specialism has been in many ways, instead of enlightening it tends to darken understanding in a cloud of detail." A just criticism when directed toward the spurious and excessive specialism of the day. Dr. Mackenzie does not in this book discuss the philosophical basis of specialism, as I have tried to do in this paper.

While outside the medical colleges there is growing recognition of the impossibility of the student covering, even perfunctorily, the entire range of subjects assigned to every would-be graduate in medicine, the makers of curricula do not seem to have sensed the necessity of reorganization of medical education upon the basis of necessary and sane specialism. In a recent article in the *Journal of the A. M. A.*, Frederick Peterson

of New York faithfully reproduces in parody the syllabus recently recommended for first-year students by the professor of clinical medicine at Johns Hopkins, as quoted in "The Future of Medicine," the syllabus covering by actual measurement four and one-fifth pages of 6 by 3 2/3 inches of nonpareil type. Such a recommendation from such a source is both ludicrous and tragical—ludicrous in its reflection of the un wisdom of the present-day makers of curricula, and tragical in its consequences to the student and the clientele he will later serve.

The first logical step in reorganization of medical education upon the basis of specialism with simplification, should be determination of the fitness of the prospective student to enter the profession of medicine; his general fitness to be determined by reports from parents or guardian and former teachers, covering his personal traits and aptitudes and progress in secondary school and college; his fitness for some particular field to be determined by psychological and actual performance tests. Obviously, the qualities fitting one for laboratory research are not the same as those demanded of him who must meet the emergencies confronting the surgeon. Most rigorous and discriminatory of all should be the tests applied to the would-be future clinicians, surgeons, and obstetricians, who should at least give evidence of possession of more than average intelligence, judgment, moral perception, altruistic spirit, and capacity for work. The student having settled upon the special field of his future labors, all training from the beginning should be directed toward his specific needs. Courses varying in content and time consumed in their pursuit, and simplified by elimination of all irrelevant facts, tests, methods and apparatus not of proven value, should be adapted to meet the needs of future workers in different fields. To require from future ophthalmologist and obstetrician the same general course is the height of absurdity.

In the field of applied medicine, the *sine qua non* in organization is the elimination of financial competition, the establishment of cooperation through the inclusive community group—the only practicable working basis of specialized practice. Financial competition once eliminated, simplification of environment in this field will come, first, from decrease in the number of specialists and general practitioners in any community to meet its real needs. Our profession, once released from the necessities of competitive practice, could easily furnish the necessary data for determination of this necessary quota. Every member of the profession knows that inevitably, under present conditions of practice, the large majority of tests and visits made and operations performed are superfluous. Simplification will come also by decrease in the number of cases requiring medical attention, through the effective operation of public health agencies and the cutting off of the supply of defectives through enlightened social legislation.

Financial competition being abolished, the specialist will naturally assume his proper place in the medical scheme—that of the consultant. As such, the general practitioner can profit by his

full abilities; the patient will be protected from the results of excessive enthusiasm in the pursuit of his specialty, and the specialist himself, relieved of the necessity of foraging for patients, will have time and energies free to devote to the minute requirements of his special field.

Further simplification must come through the elimination of spurious specialties, which are largely the outgrowth of financial competition. The question arises: "How wide may be the field of the legitimate specialist?" Among specialists I have known there have been those who, by advertisement, to pediatrics have added obstetrics; and in practice, to obstetrics have added clinical medicine; and to clinical medicine, bacteriology; and to bacteriology any remaining medical territory. Obviously, with such, specialism is camouflage.

Some years ago, when pediatrics was young, I wrote a paper for the Pawnee Medical Society in which I maintained the illegitimacy of its claim as a specialty. The argument is as valid now as then, and is further fortified by the advance of public-health medicine which, through general public health officers and medical school examiners, has annexed a large part of the pediatric field. The fields covered by pediatrics and general medicine are continually found to be more nearly coextensive, there being but a narrow margin about either in which the diseases of the other, if infrequent, are not unknown. The same general methods of examination and treatment apply in the one as in the other, the pediatricist having no greater need to modify and adapt than has the general practitioner. The only distinctive field that pediatrics can claim is that concerned with the developmental processes of infancy and their morbidity and pathology, and these do not constitute a sufficient *raison d'être*. On this basis, geriatrics has equal claim as a specialty. Regulation of infant feeding, which constitutes such a preponderant part of the labors and emoluments of the pediatricist, falls logically to the obstetrician or general practitioner, in consultation, if need be, with the specialist dietician. Any intelligent physician is capable of grasping the essentials of correct feeding, and, if accorded the opportunity of experimentation with a succession of formulæ through a period of weeks, is quite capable of meeting the demands of the most exacting infantile stomach—provided, of course, the infant survives the experimentation. However, under present conditions of practice, knowing that such opportunity will not be accorded the *mere* physician by a clientele hypnotized by the dazzle of specialism, it is the part of least resistance, discretion, and peace of mind for such an one early to relinquish the case to the pediatricist, who otherwise, at the insistence of the family, will appropriate the same. Unquestionably, withdrawal of infant feeding from the field of specialism would promptly result in its simplification and thereby redound to the interests of the infant. The conclusion of all this is that the differentiation of pediatrics from general medicine is an artificial division and not a natural cleavage, with the result of the pediatricist annexing the family practice rather than of medical progress being advanced.

Gynecology is another so-called specialty that has no claim to separate existence, its field being practically covered by obstetrics and surgery. In these it should be merged. Time forbids consideration of other spurious specialties.

The weaknesses of medicine have been not only those of commission, but those of omission as well. There has been lack of needed specialties, as there has been surfeit of useless and spurious ones. For example, we need specialist consultants in therapeutics—those having faith, as well as knowledge founded upon experience, in the use of drugs and many other remedial agencies. It is the universal experience that in counsel we receive aid in diagnosis, but seldom in treatment. In that field of applied medicine which, in the past, has claimed most of our time, study, and effort—the relief of the physical ills of mankind—the profession has failed most signally. Lack of standardization and positiveness of treatment, and bigoted rejection of many mechanical and psychic methods of treatment, have been responsible for the rise of many healing cults of various names, with loss to our profession of many patients; and to these patients, as we believe, of adequate service.

That the profession of law, devoted largely to the safeguarding of property, should be far better organized in the mutual interests of lawyer and client than the medical profession, devoted to the safeguarding of health and life, is organized in the mutual interests of physician and patient, is explicable only on the supposition (well founded) that people are neither credulous nor long-suffering when concerned with affairs of the pocketbook. In the modicum of voluntary organization that has obtained in the field of applied medicine, there has been provision for neither legislative nor judicial machinery. Councils on standardization and courts of appeal are as vitally needed in medicine as in law or government, and will naturally arise under the operation of cooperative medicine.

To summarize: Specialization is the necessary adaptation to a complex environment. Specialization conditioned upon competition dooms to extinction. Specialization conditioned upon cooperation insures endurance. In medicine, specialization and coordination must go hand in hand, and the physician, the general practitioner, is the logical coordinator. Specialists are, in the nature of things, consultants, and cannot in reason be competitors. Genuine specialism, conditioned upon cooperation and simplification of the medical environment in all its ramifications, will alone insure the endurance and advancement of medicine.

1023 H STREET.

Presumption of Verminosis.—On account of the great frequency and variety of intestinal parasites Labbé believes it rational to suspect their presence in nearly every case of gastrointestinal disorder until it can be definitely excluded. Ordinary dyspepsia, painful crises and false appendicitis, diarrhea with or without alternating constipation, pseudo-hepatic colic and other familiar affections should make us suspicious. If to local disturbances there is added emaciation the practitioner should think of worms as well as cancer. Chronic enterocolitis is the most common consequence of verminosis.—*Gazette des Hôpitaux*.

A CONCEPT OF X-RAY PATHOLOGY.

VII. CRANIOPATHIES.

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(Concluded from page 316.)

X-Ray Horizontal.—Recalling how Camper compared the facial angle to the horizontal, and how this observer directed attention to the significance of a facial angle that assumes a horizontal position, it would seem fundamentally imperative that a judiciously chosen horizontal be selected as a basis for x-ray studies. Cranial skeletal embryology furnishes the clue. It is remembered how the facial bones and the skull base are derived from cartilage, and how the bones of the vault are membranous in development. The unyielding basal plane, therefore, acts as a resistant surface on which the superimposed brain lies. Any changes that may be induced by the cerebral pressure in its growth are reflected upon the membranous vault. If the base were smooth, the semifluid brain would exert its pressure equally on the membranous vault and a hemispherical cranium should in all cases be expected; but the base lines in three levels corresponding to the anterior cranial fossa, the middle cranial fossa and the posterior cranial fossa, each fossa curved and on a lower level and facing a different direction than its neighbor. Therefore, the growing cranial contents exerts its pressure on three parts of the membranous vault with greater intensity than the remaining membrane. These areas are, from afore backward, the frontal region, the supraoccipital and the infraoccipital.

The supraoccipital region is opposite the superior maxilla; in other words, opposite that portion of the cranial skeleton that is most reinforced. This enables the cranial contents to exert its greatest pressure in this direction, and, therefore, the greatest bulging occurs in the supraoccipital region. When the jaw position varies, the plane of the resistant base is shifted, and a corresponding shift downward in the cranial bulge is at once evident. Thus, in the Negro, the jaw is decidedly flat and the cranial bulge more nearly reaches the infraoccipital region.

X-Ray Craniometry.—A lateral view of the skull is made, the tube at any distance from the plate. On the forehead of the patient a brass rod, about 2 millimeters in diameter and 25 millimeters long, is vertically attached with adhesive plaster. The exposure is made according to the distance the plate is from the target (20 inches is convenient) and to the current and gap used. In the finished plate, the length of the brass rod is measured and a proportional fraction showing the amount of distortion between 25 millimeters, the original length of the rod, and the measured length on the plate is formulated. This error due to ray convergence may be applied to all measurements subsequently made upon the plate, thereby correcting the values so that they represent true measures. If greater accuracy is desired, two rods, one of aluminum and the other of brass, the same length and 3 millimeters apart, are fastened with adhesive to the median line of the forehead and parallel thereto.

The finished picture must show only one rod, indicating that the superimposition was perfect and therefore minimum distortion attained.

Having procured the sagittal view of the skull, the nasion or naso-frontal junction and the very middle of the sella turcica are marked. A line is drawn connecting the nasion and central sella turcica point, the line extending well in front of the nasion and well beyond the occiput. The distance between the nasion and the outside occipital point on the line just drawn is compassed and divided in half. The half point represents the locus of force distribution and is marked C. (See Fig. 14.) This x-ray horizontal is the base for all measurements subsequently to be made.

X-Ray Jaw Angle.—Camper, using the facial angle, arrived at the observation that as the facial angle reduces, and the jaw more nearly approximates the horizontal, intellectual debasement in animal scale is indicated. Camper's facial angle is dependent entirely, as has been shown above, upon

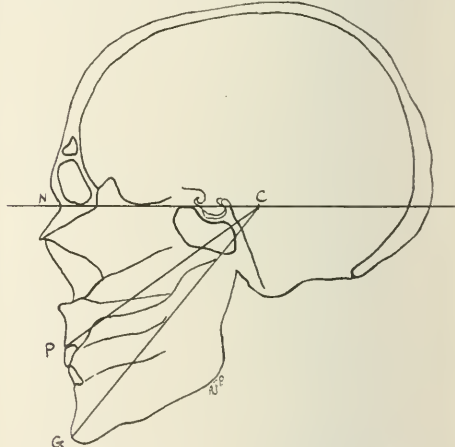


FIG. 14.—Newly introduced x-ray horizontal drawn from the nasion through a point in the middle of the sella, showing also the jaw angle NCP wherein N is the nasion; C is the mid-point on the x-ray horizontal; and P the prosthion. Showing also total jaw angle NCG where G is the gnathion.

the basal plane orientation in relation to the jaw bone. If the superior maxilla is shallow, the occiput is prominent, the force plane having been shifted to the horizontal. So that, a more perfect measure of the facial angle equivalent is the angle produced by the superior jaw with the x-ray horizontal. A line is drawn from C , the locus of force distribution, to P , the prosthion or point furthest out on the alveolar process of the upper jaw. The angle made by these two lines, the horizontal and the CP , is the x-ray jaw angle. It is normally (640 Americans), 35 degrees. In prognathia, the x-ray jaw angle becomes 30 degrees, or less; in orthognathia, the x-ray jaw angle becomes 40 degrees or more. At first thought, and without x-ray confirmation, it may be thought that prognathia yields a greater jaw angle than orthognathia; but the study of even a few cases will show the reverse to be true in x-ray pathology. That is, extreme prognathia, a stigma of degeneration, is manifested by an approach to the hori-

zontal, both measured according to x-ray standards.

X-Ray Total Jaw Angle.—It is sometimes useful, especially in studying skull changes incident to acromegaly, to have the total jaw angle measure. That is, the measure of the angle formed by the horizontal and the line connecting C with the gnathion (tip of alveolar process of inferior maxilla). Much may be gained from the total jaw measure, but still more from the relative proportion between the jaw angle and the total jaw angle in any case. This relation may be called the maxillary ratio, and is obtained by dividing the total x-ray jaw angle into the superior jaw angle. The following table shows the constants at the various limits:

	Jaw (upper) NCP	Total jaw NCM	Ratio
Prognathia	30	40	0.75
Normal	35	50	0.70
Orthognathia	40	60	0.66

The study of the angles, by the x-ray, just pronounced, has furnished a deep insight into the changes induced by endocrinopathies upon skull conformation. To enumerate the results obtained would occupy more space than it is desired to afford to this general topic of craniopathies; and they will therefore be discussed separately.

It has been shown that an intimate relation exists between the jaw angle and the skull rotundity. The relation may be graphically reproduced in the form of a craniogram as follows: the compass is placed with one leg at C and the other at the prosthion. When this diameter is obtained, the compass is swung to the horizontal extending anterior to the nasion and a semicircle drawn around the skull contour to the horizontal at its projection beyond the occiput. The compass is then closed exactly one-half of the C P diameter and a second semicircle inscribed within the skull. With C as a center, radii are drawn to the outer circle, each radius 10

made to the first one, the distance between the two being exactly the distance between the outer and inner circles in the x-ray. The two parallel horizontal lines are connected by vertical lines the same distance apart as the radii in the outer circle of the



FIG. 16.—The craniogram reproduced on a flat basis. The long sides of the rectangle are the same distance apart as the semi-circles A and B in Fig. 15. The vertical radii are the same distance apart as the radial distance on the arc A in Fig. 15. The upper irregular line is the curve of the upper table. The lower irregular line the curve of the inner table. A is the frontal sector; B the bregmal; C the supraoccipital and D the occipital and infraoccipital. The diagram is from a normal skull and much reduced.

x-ray plate. On each vertical line, corresponding to a radius, two points are marked; first, the distance from the lower line to the point on that radius at the inner skull table; second, the point on the outer skull table. When all the points are marked, the upper set is connected with straight lines, and similarly the lower set. The resulting drawing represents a reproduction of the inner and outer table curves translated to a flat horizontal basis instead of a curved basis as in the original x-ray. (See Fig. 16.)

It is noticed that four sectors are characteristically predominant in the craniogram. The first sector shows a widening between the two curves, the outer more bulging than the inner. In normal craniograms the first sector usually occupies from three to four radii. It corresponds to the frontal sinus. The second sector is the bregma sector. There is usually a widening, though to a much less degree than in the first sector, between the two curves. It corresponds to the frontal region. Then there is the third supra occipital sector. In this the curves are quite parallel to each other and to the base lines of the craniogram. The last sector is the occipital and infra occipital bulge. The two curves are somewhat widened, both arching a trifle when compared to the horizontal.

An important feature of the craniogram is the relative position of the two curves in the rectangle. The more the two curves approach the top horizontal, the greater the degree of orthognathia indicated; the more they approach the bottom horizontal, the greater the degree of prognathia indicated.

From the viewpoint of x-ray pathology, at least, the craniogram presents an excellent feature in its favor; each craniogram is its own standard. The actual size of the craniogram may be compared to any other craniogram and direct skull proportions thus arrived at. True, it is time consuming to prepare a craniogram; but it is done entirely without fatigue on the part of the patient, who, after the x-ray exposure, may be dismissed.

SELLA TURCICA.—Someone has expressed with homeliness, if not with aptness, that scientists, according to their method for classifying phenomena, may be divided into two schools: the "lumpers" and "splitters." It would seem that x-rayists, in the question of classification of normal sella turcica (Turkish saddle) can similarly be divided into two groups: the "lumpers," who describe nine normal types of sellas, and the "splitters," who describe

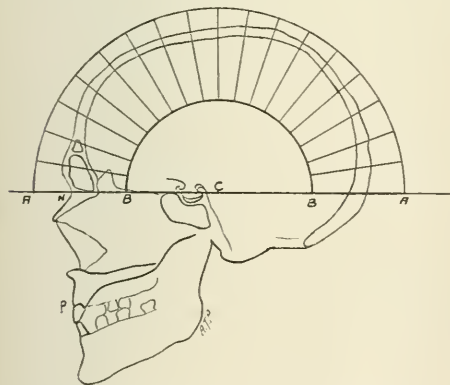


FIG. 15.—Illustrating by diagram the production of the craniogram. The distance from A to C is the distance from C to P; the distance from B to C is one-half the distance from A to C. The radii are 10° apart.

degrees apart from the other, making 18 divisions in all. (See Fig. 15.)

Craniogram.—When the radii are drawn, as indicated, a straight line is reproduced on a separate sheet of paper. A second parallel straight line is

700 normal types of sellas. That various types of sellar conformation may be visualized in individuals who present no obvious deviation from the normal, it is admitted; but it seems doubtful that as great a number as 700 distinct variables might occur; so that for purposes of *x*-ray pathology the classification tendered by C. Harvey Jewett will be referred to. Dr. Jewett describes the nine groups as follows:

Group I showed structurally long, slim, curved posterior clinoid processes with absence of anterior clinoid processes. This group closely simulates Group III, except for the fact that the latter has a small light anterior clinoid process. It is noteworthy that the statistics of this group show the lowest average age (with the exception of one other group of the same age) and the highest average measurements of the sella, both horizontally and vertically, and the highest average antero-posterior cranial measurement.

Group II shows nearly vertical light weight posterior clinoid processes with wide open infundibulum and absent or extremely indistinct small anterior clinoid processes. This group is similar to Group VII, the latter having distinct anterior processes. The statistics of this group are not distinctive, except for the fact that it contains the largest number of cases.

Group III, as noted above, is similar to Group I, except for the presence of small, light, anterior clinoid processes projecting horizontally backward. The small size and the direction of these processes are the only definite distinctions between this and Group VII. There are no distinctive features regarding the statistics.

Group IV is characterized in general by a very heavy anterior clinoid process, projecting directly backward and occupying a somewhat lower level than the tip of the posterior processes. The group might also be considered similar to Group VII, except for the difference in the construction of the processes. The average height in these cases is the greatest.

Group V gives the appearance of a shallow floor with very indistinct thick processes and wide infundibular spaces. The statistics show this group to be of the highest average age.

Group VI gives the appearance of complete bridging over of the sella turcica, most of the cases showing heavy processes. It is possible that slight rotation of the head might show a different picture, but this was not observed in several cases that were repeated. The appearance of bridging over in this case is undoubtedly due in most instances to the superimposing of shadows. It is interesting to note that the measurements of the sella turcica are the smallest in this group, and that as many as 10 per cent. of the 100 cases studied showed bridging over. This group also shows the shortest longitudinal and the longest vertical cranial diameters.

Group VII, as previously mentioned, closely simulates Group III, but the most distinctive cases of this group show anterior and posterior clinoid processes of about equal length with small infundibular spaces. This group is characterized by the greatest weight and the shortest height, with the exception of Group IX, in which the height is the same.

Group VIII, as cited above, is similar to Group II, having thin, nearly perpendicular posterior clinoid processes, with wide infundibular spaces; but this latter group, in addition, has small but distinct anterior processes. Like Group II it contains a large number of cases. The average weight is the lowest.

Group IX is composed of nine cases, nearly all of which are different, and all of which show great variation. One case is very shallow, and shows complete absence of both processes. Three cases show double anterior clinoid processes with considerable variation in the rest of the sella. Two of these cases were repeated, thinking that position might play a part in the variation, but the same picture was observed. This group shows next to the smallest longitudinal, and the smallest vertical cranial measurement.

In eliciting *x*-ray pathology of the sella two *x*-ray positions are used. The first is a sagittal view by which an exact profile of the saddle is sought. The

second, a stereoscopic view, the tube tilted somewhat eccentrically from the side and above (as recommended by Cushing) in order that the finished stereoroentgenogram may admit of a visualization into the fossa. Profile radiographic measurements that exceed 15 millimeters in long diameter and 10 millimeters in depth may be considered as indicating sellar enlargement. Keith gives for the normal measures 10 to 12 millimeters antero-posteriorly 14 to 15 millimeters transversely and 18 millimeters in depth. These measures are skeletal; and in producing *x*-ray plates for sellar measures, either a correction should be applied determined as described under the caption "Craniometry," or teleroentgenographic plates may be used, according to the method of Jewett. Fitzgerald pointed out that the total length of the skull base, and therefore the *x*-ray horizontal described previously, is a criterion for determining the position and size of the hypophyseal fossa. It has been shown before that the center about which the forces determining the skull conformation operate is closely situated in the region of the sella; so that, reasoning from cause to effect, it would be more proper to say that the position and size of the sella determine the *x*-ray horizontal and ultimate skull conformation (the converse of Fitzgerald's postulate). In a series of 80 college students between the ages of 18 and 32 and certified free from obvious pathology after clinical inspection, the following dimensions were obtained for the average sizes, of the sellas: length, 10 to 15 millimeters; breadth, 14 to 17 millimeters; depth, 7 millimeters.

Tumors of the Hypophysis.—These may be divided into two groups: (1) the intrahypophyseal tumors, (2) the extrahypophyseal tumors. The first variety arise from the hypophysis itself and develop within the sella turcica. These are most often associated with the clinical picture of acromegaly. The second type arise at the entrance to the hypophyseal fossa, and grow above the sella turcica. Clinically, this latter type of tumor is common in Fröhlich type of dystrophia adiposogenitalis. Both kinds of tumors cause changes in the sellar conformation, the intra sellar tumors enlarging the hypophyseal fossa practically evenly in all directions, with incident thinning of the bony structures composing the sella. If the intra sella tumors grow eccentrically the various pathologic erosions of the structure may be visualized; in sagittal plane, if the tumor erodes more on the left than on the right, a sinistrolateral *x*-ray plate will reveal two levels to the sellar floor, the higher true level, and a lower step caused by the burrowing of tumor erosion. Schematic representations of the various sella anomalies are reproduced in Schüller's Atlas and Text, to which reference is made for detailed study of sellar disturbances.

Cushing describes three types of pathologically deformed and enlarged sellas distinguished on the *x*-ray plate. Says Cushing:

(1) Those associated with thickening of the clinoid processes and dorsum cippi; (2) those with thinning from pressure absorption of these parts, and (3) those with more or less destruction of all outlines.

The First Variety.—Here the enlargement is accompanied by thickening of the walls, and as this type is confined to the cases of acromegaly and gigantism which are uncomplicated by adenomatous struma forma-

tion, it is probable that the bony thickenings are merely a feature of the tendency toward osseous overgrowth. In one instance there had been such a degree of bony overgrowth as to mask the actual enlargement of the sella until this was made evident by stereoscopic plates.

Unquestionably, in almost all cases of acromegaly and gigantism, even without the secondary tumor formation, certain evidences of pressure atrophy of the sellar dorsum and base will occur, for a process of bone absorption always accompanies the osteoformative process.

The Second Variety.—Marked thinning with perforations of the sellar floor as well as of the dorsum may occur in acromegaly, but such a condition is comparatively rare in this disease unless the hypertrophic gland has undergone the terminal metamorphosis into an adenomatous struma.

These great distentions with absorption of bone from pressure atrophy are far more common in the cases of advanced hypopituitarism associated with a primary glandular struma. In the earlier stages there occurs a simple spherical distention; whereas in the advanced stages there is an extreme spherical ballooning out of the fossa, which projects far into the sphenoidal cells, the bony capsule being so thin as to cast a hardly perceptible shadow.

The Third Variety.—In these there occurs a more or less complete absorption of the dorsum and a downward dislocation of the base, so that the sellar landmarks, with the usual exception of the anterior clinoid processes, are effaced. This change may be brought about either by the transformation of a primary glandular hyperplasia into the type of malignant struma which is capable of bursting its dural capsule and invading the cranial chamber, or conversely by the downward pressure of an interpeduncular growth which deforms and absorbs the subjacent sphenoidal bone by its progressive enlargement.

Neither of these processes, however, is incompatible with the preservation of a fairly distinct sellar shadow of average size, though the walls are apt to be thinned and show erosions. It may be exceedingly difficult in some cases of this type to identify the outlines on a single plate, the more so since there is apt to be a general downward displacement of the entire sphenoidal region. Hence many exposures from different angles may be necessary, and it is not an uncommon experience, after several plates have shown a supposedly complete absorption of the dorsum sellae, to unexpectedly secure a negative on which the fine line of a thinned and elongated dorsum is clearly apparent.

The chief difficulty in radioscopic interpretation is unquestionably met with in these cases of superimposed extrapituitary growths. Only when the growth has led to a marked sellar deformation are the x-rays of great diagnostic value in cases of this type, for we have seen that the sella may be fairly well preserved, even though the tumor is enormous and has been of long duration.

Equally important, and more difficult to interpret, are the abnormally small sellas which accompany the primary glandular hypoplasias of the young. It has been our experience in these conditions that unusually heavy shadows are cast, particularly by the dorsum sellae. Exceedingly small fossae are occasionally seen.

PINEAL GLAND.—It seems that the pineal gland may be pathologically abused without incident clinical manifestations in many cases, and in still other cases cysts, tumors, and calcification of the pineal body may disturb the endocrine balance of the internal secretions with resulting clinical symptoms such as increased intracranial pressure, certain focal symptoms and signs of disturbed internal secretions of the hypophyseals. In x-ray pathology calcified pineal glands may be noted and the clinician left to determine whether the anomaly stands in etiologic relation to the pathogenesis of the clinical condition studied.

In including a sketch of x-ray pathology of the skull mention must be made of the method of Dandy advanced for the localization of the elimination of

the presence of cerebral tumors through the expedient of ventriculography. The conclusions arrived at by Dandy and expressed in *Surgery, Gynecology and Obstetrics*, xxx, No. 4, are:

1. Ventriculography is invaluable in the localization of obscure brain tumors. So-called unlocalizable tumors comprise at present over half of the total number.

2. Practically all brain tumors either directly or indirectly affect some part of the ventricular system.

3. Hydrocephalus is easily demonstrable by ventriculography and when present usually, though not always, restricts the location of the tumor to the posterior cranial fossa—that is, the brain stem or the cerebellum.

4. Local changes in the size, shape, and position of one or both ventricles as shown by the ventriculogram will accurately localize most obscure tumors of either cerebral hemisphere.

5. Every effort should be made to localize the tumors before resorting to any operative procedure.

6. The usual subtemporal decompression is useless and dangerous when a hydrocephalus is present—that is, when the tumor is in the brain stem or cerebellum.

7. A suboccipital decompression (cerebellar operation) is extremely dangerous when the lesion is in the cerebral hemispheres.

8. To differentiate between cerebral and cerebellar lesions is frequently one of the most difficult tasks in intracranial localization. Ventriculography at once separates these two groups and indicates the operation of choice.

9. The only cure for brain tumor is extirpation. The results in terms of complete cures of brain tumors will be in proportion to the early localizations which are made. A decompression is a purely palliative procedure and should be adopted only when the tumor cannot be located. Ventriculography permits of an early and accurate localization of the growth when all other methods fail.

10. It is possible to get a separate profile ventriculogram of the whole of each lateral ventricle. Any change in size or contour is easily demonstrated. Antero-posterior views will show the same points in cross section, but they are chiefly useful in showing any lateral dislocation of the ventricles.

11. The results in localization of five types of cases of brain tumor are shown with ventriculograms. In all but one of these, the ventriculogram was the only means by which a positive localization could be made. One tumor occluded a lateral ventricle and dislocated both lateral ventricles. Another tumor altered the size and shape of one lateral ventricle. In a third case a cerebral tumor, though suspected, was eliminated by the hydrocephalus. In a fourth case a unilateral hydrocephalus was demonstrated.

12. Occasionally the size of both ventricles is so reduced that air cannot be safely injected. In one case the dislocated position of both ventricles, which were greatly reduced in size, made the localization possible.

13. Ventriculography is also useful in precisely localizing the growth. This permits of an exploration directly over the tumor and greatly simplifies the operative procedures.

14. Many useless and harmful operations will be spared the patient by a judicious use of ventriculography.

15. Doubtless the type of tumor will often be indicated by the ventriculogram. Such knowledge will be useful in prognosis and in determining whether radical or palliative operative treatment should be instituted. These determinations will result from accumulated experience in the correlative operative findings presented in a large series of cases.

16. With experience and care in the use of ventriculography, I believe few tumors will escape accurate localization.

It would seem that ventriculography stands in the same relation to the brain surgeon that pneumoperitoneum does to the abdominal surgeon and diagnostician. In two cases recently studied, ventriculography afforded proof positive of the localization of a tumor, subsequently verified by necroscopic findings.

FALLACIES IN THE DIAGNOSIS AND TREATMENT OF SOME GENITOURINARY CONDITIONS.

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This subject is being presented with the view of emphasizing the fallacies which have actually occurred in cases during my observations in the Army, in hospitals, and in private practice, and to help avoid their repetition if possible.

Diagnosis of Gonorrhea for Complicated Balanoposthitis.—Whenever a phimosis complicates balanitis of balanoposthitis, there may be and as a rule there is, a thick creamy or pus-like discharge from the preputial orifice. Some of these cases have been diagnosed gonorrhea, based on the presence of the discharge and on the fact that, when performing the two-glass test, the urine trickles down, washes away the pus in the preputial orifice, and consequently clouds the first urine.

Diagnosis of Gonorrhea for Phosphaturia.—Not all cloudy urine is due to pus and not all pus is due to gonorrhea. In this case also, simply because a two-glass test showed both glasses of urine to be cloudy, a diagnosis of gonorrhea was made. The causes of cloudy urine should be borne in mind and in every case phosphates should be eliminated.

Urethral Discharge.—Too much emphasis cannot be laid on the fact that many cases have been diagnosed gonorrhea simply on the presence of a urethral discharge. Snap-shot diagnosis and the slight regard for the venereal infections on the part of many practitioners seem to be the important causes of this hasty conclusion. The time has now come when a microscope in a physician's office is just as essential and indispensable an article as the stethoscope or sphygmomanometer. Just an extra three minutes to stain a smear, with a little more attention to eliminative diagnosis, and these mistakes would not have occurred. The following cases of urethral discharge were diagnosed as gonorrhea: 1.—Intra-urethral chancre. 2.—Tuberculosis of kidney, complicated by tuberculous epididymitis. 3.—Bilateral pyelitis with a mild grade of cystitis. 4.—Chemical urethritis. 5.—Colon infection of prostate with abscess formation, and rupture into the urethra. 6.—Eritismic urethritis, due to excessive coitus or ungratified sexual desire. In these cases the possibility of a concomitant Neisserian infection was carefully excluded.

The Two-Glass Test.—The test most commonly known and the one generally used by most physicians is the two-glass test. Interpretation: First glass cloudy and second glass clear signifies an anterior urethritis. Fallacy: With very little discharge from the posterior urethra, no pus may make its way back into the bladder and a posterior urethritis may thus escape detection. Furthermore, the fact that a posterior urethritis exists may readily be verified by a urethroscopic examination. Both glasses cloudy signifies an anteroposterior urethritis. Fallacy: When very little urine is voided, the anterior urethra may be imperfectly cleansed and a simple anterior urethritis may be mistaken for one of the whole canal.

A Not Infrequent Occurrence Is the Existence of Prostatitis and Seminal Vesiculitis With Perfectly Clear Second Urine.—This is found particularly in chronic cases and sometimes at the terminating stage of an acute attack of urethritis. This condition may readily be verified by massaging the prostate and vesicles and by examining the moist secretion under the one-sixth objective lens for the presence of pus. Thorough irrigation of the urethra before massaging the prostate is essential in order to exclude contamination of the prostatic secretion of pus and bacteria from the urethra. Errors in diagnosis which are commonly those of failure to search for the gonococcus by smear and culture and for absorption by the complement fixation test, are largely responsible for many uncured cases of anterior and posterior gonococcal chronic urethritis, as treatment is prematurely discontinued, even by the physician. Too much stress cannot be laid upon the importance of this fact, for many cases of gonorrhea are discharged as cured when simply having clear urine, without examination of the prostatic and seminal vesicular secretion. This is one of the most regrettable mistakes, since most of the chronicity and latency of gonorrhea is due to prostatitis and seminal vesiculitis.

A Very Frequent Error Is to Consider the Prostate and Vesicles Normal on Simply a Negative Digital Examination.—This is an absolute fallacy since many prostates whose size, contour, and consistency are normal to the touch, yet on massage and examination of the moist specimen show disease to be present.

Similarly, in Senile Hypertrophy of the Prostate Examination of the Prostate, Per Rectum, Ofttimes Does Not Give a True Index to the Obstruction Present.—The degree of urinary difficulty due to prostatic obstruction does not of necessity bear a fixed relation to the size of the gland as felt per rectum. Thus, a small prostate may cause great obstruction to the stream. A small fibrous gland oftentimes gives much more trouble than a large adenomatous gland. The most accurate method of determining the manner and extent to which the prostate encroaches on the bladder is by cystoscopy.

It Is a Fallacy to Rely Upon One Examination of Prostatic Secretion.—Frequently noticed is the normal microscopic appearance of the prostatic and vesicular secretion on the first examination, but, on the second or third examination many pus cells may be present and the true condition of the gland revealed. This may be explained in several ways: either the drop on the first examination happened to contain only the normal elements, or better, the first massage loosened the plugs of pus in the diseased prostatic tubules, only the contents of the normal tubules being evacuated, while on subsequent massaging the previously loosened plugs of pus are expressed.

Complete Emptying of Bladder.—In chronic distention of the bladder with a history extending back over a long period it is a great fallacy, in complete retention, to empty the viscus completely. It is better to tie in a catheter and take seventy-two hours to evacuate completely. Many an unexpected and unexplained death has followed quick and complete emptying of the bladder.

Diagnosis of Chancroid for Chancre and Vice Versa.—The more genital sores observed, the more convinced is one that an absolute positive diagnosis of chancre or chancroid on just the clinical appearance of the sore is impossible. Too many cases have been diagnosed chancroid with subsequent appearance of secondaries or a positive Wassermann reaction. As we all know, an early diagnosis of syphilis is of major importance. By early is meant before the blood Wassermann ever becomes positive. This is the ideal time to treat syphilis, and where anti-syphilitic treatment gives the best results. It is almost criminal to wait for the appearance of secondaries in order to make the diagnosis. An extra five minutes is certainly well spent for a dark field examination in deciding so important an issue.

The Wassermann Test.—So much may be said about the Wassermann test that time will not be taken to discuss fully this important subject. Suffice to say, that it is to be much regretted that so important a test, with its numerous modifications from time to time, should not be performed in an identical manner by all laboratory workers. The only solution offered at the present time is to choose the laboratory in which one has the most faith and to send all specimens to it. In trying several laboratories one may get a variety of findings which will tend to shake one's faith in the value of the Wassermann test.

Some Fallacies in the Interpretation of the Wassermann Test.—(a) Relying upon one negative blood test during the stage of the initial lesion. In one case under my observation the blood Wassermann was not positive for five weeks after the appearance of the initial lesion. Craig gives the incidence in the several weeks of the chancre as follows: First week, 36.3 10 per cent.; second week, 59.3 10 per cent.; third week, 68.9 10 per cent.; fourth week, 77.2 10 per cent.; fifth week, 81.3 10 per cent. One can readily see where an ulcer has healed and a dark field examination is impossible, a Wassermann test should be repeated at intervals of a week for at least a month. (b) Relying upon the result of a Wassermann test while the patient is under anti-syphilitic treatment. Mercury and arsenic interfere with the Wassermann reaction, therefore, it is inadvisable to take blood for a test within a month or six weeks of the administration of treatment.

The Long Held Opinion That Syphilitic Involvement of the Cerebrospinal System Occurs Only After Several Years Has Been Proven Erroneous.—Such an involvement may occur within the first year, therefore, where the blood Wassermann is negative examination has not been complete until a spinal Wassermann has also been performed.

As regards fallacies made in the treatment: 1. The use of too irritating agents in the treatment of gonorrhea. We cannot hope to sterilize the canal with our strong germicides and consequently the irritation produced by the strong remedies traumatizes the tissues, lessens their resistance, opens up new avenues for infection and protracts the course of the disease. 2. Too early medication of the canal in so called bull-headed or Russian clap, where the discharge is bloody and considerable edema present. It is best to wait until the very acute inflammatory symptoms subside before treat-

ing the canal. This procedure will certainly obviate complications and save the patient much discomfort. 3. Too early instrumentation. This predisposes to infectious elements being inoculated upon other parts, not only by the instruments themselves, but also by the slight traumatism absolutely unavoidable which opens the door to extension. 4. Massage of an acutely inflamed prostate, if the patient stands for it. An epididymitis is certainly inevitable. 5. Too frequent massage of the prostate and vesicles. One patient has recently come under my observation with a beginning abscess of the prostate who had been massaged every day. No good can be derived from this procedure compared to the harm done. Twice weekly and at most three times is sufficient. 6. Encouraging external opening of periurethral abscess. One of the most difficult and troublesome conditions to heal without a plastic operation is a urinary fistula, the result of a folliculitis and periurethral abscess. To obviate this complication a periurethral abscess should be opened from within through the urethroscope. Two such urinary fistulae have recently come under my observation in which the abscesses were poulticed and encouraged to open externally. 7. Urethral medication during an acute epididymitis. All urethral treatment during an acute epididymitis should be stopped and is distinctly contraindicated; nevertheless, men continue to prescribe and administer urethral medication during such a stage. 8. Failure to treat foci of infection during gonorrheal arthritis. The prostate and vesicles are the usual foci of infection in gonorrheal arthritis. Time and time again all kinds of therapeutic measures are applied to the joints and vaccine therapy is used without paying any attention to the urethra, prostate or vesicles. 9. Fallacy of the routine method in the treatment of syphilites. To my mind more judgment and less routine should be used in the management of syphilites. Arsenic and mercury per se do not cure syphilis. Up-to-date various routine methods have been advocated, *e. g.* as regards the number of courses, the intervals between courses, the number of injections of salvarsan that constitutes a course, mercury along with salvarsan or mercury following salvarsan. Any one of these methods may be employed, provided one increases the patient's resistance and body power to overcome the infection, but continuing the treatment just as a routine where the dose may be too large for an individual, where the patient develops jaundice, or where an injection has caused marked kidney irritation, certainly defeats the purpose sought by depressing the tissues and reducing their combative powers.

Conclusions.—Each fact and fallacy mentioned represents a specific case or cases which have come under my observation. Most of the fallacies made in the diagnosis of these genitourinary conditions were due:

1.—Too little attention paid to eliminative diagnosis.

2.—Failure to take advantage of the laboratory aid in the examination of the urine, exudates, and secretions.

Most of the fallacies made in the treatment were due to the disregard for one great scientific principle, namely, acute inflammatory conditions at any

focus of the urogenital tract indicate rest and freedom from intervention except in extraordinary circumstances.

1624 SPRUCE STREET.

Medicolegal Notes.

Care of Viscera Kept for Analysis in Homicide Cases—Admissibility of Evidence of Result.—In a recent prosecution for murder by furnishing the deceased with poisoned whiskey, the Missouri Supreme Court holds that in order to admit testimony showing the result of the analysis of the deceased's stomach, which had been carelessly kept in an unfastened glass jar for several days before it reached the analyst, it was necessary to satisfy the court of the identity of the stomach examined with that of the deceased and that it was in the same condition when examined as when removed from his body. It was not necessary that it should have been hermetically sealed so as to be inaccessible to anybody; it was not necessary to show that there was an entire absence of opportunity for anybody to tamper with it; it was only necessary to show the circumstances were such as to establish a reasonable assurance that it was the same and in the same condition. It was not preserved with that care which should characterize the conduct of an officer in such a case, and the glass jar containing it was carted around in a careless sort of way; but there was no time when anything occurred to suggest a suspicion that the stomach was molested or that any one who might be interested in tampering with it knew that the prosecuting attorney had the jar in transit in his automobile during a day and night on his way to the analyst. It was held that the evidence was admissible. Other similar cases include *State v. Van Tassel*, 103 Iowa, 6, 72 N. W. 497, where the organs of a deceased were shipped by express direct from Nashville, Iowa, to Chicago for analysis. The testimony of the chemist who made the analysis was held admissible in evidence. In *People v. Bowers* (Cal.) 18 Pac. 660, jars which contained the stomach and contents of the intestines to be examined were covered like preserve jars and wrapped in paper, but were not sealed at any time, and afterward were locked for two days in the laboratory of Cooper Medical College, to which the physician and janitor had access. It was then held that the evidence as to the result of the analysis was admissible. The court noted that there were no circumstances tending to show that the jars had been tampered with. Where internal organs were removed by the undertaker and placed in a galvanized iron vessel covered over with a piece of cloth, and passed through three or four different hands before reaching the chemist who made the examination at the expiration of two or three days, the evidence of the chemist was admissible. *State v. Daly*, 210 Mo. 675, 677. In the case of *State v. Thompson*, 132 Mo. 321, 34 S. W. 31, where a considerable interval of time passed between the sealing of the organs in a jar and the examination afterward by a chemist, the court noted the absence of evidence to create a suspicion that the organs were other than those preserved, and evidence showing the result of the examination was held admissible.—*State v. Smith* (Mo.) 222 S. W. 455.

Parent's Consent Ordinarily Necessary to Operation on Minor Child.—An eleven year old girl was placed by her father in the care and custody of her adult sister, who had had three months' experience in training to become a graduate nurse. The sister took the child to a doctor to find whether an operation for adenoids was necessary. He informed her that an operation would be necessary to remove the child's badly diseased tonsils and adenoids. A date was fixed and they returned with another sister, who had had two years' training as a nurse. After an examination of the heart, an anesthetic was administered and the tonsils and adenoids removed; but before coming from under the influence of the anesthetic the child died. The father sued the doctor and his assistant, relying solely on the ground that the operation was without his consent. The Texas Court of Civil Appeals reversed a judgment for the defendants on the theory that the verdict was unauthorized by the evidence. (159 S. W. 122.) Affirm-

ing this judgment of the Appellate Court, the Commission of Appeals of Texas had under consideration the question whether the sisters as temporary custodians of the child had the right to give consent to the operation; or whether the physicians' act in performing it was justified, regardless of the parent's consent, upon the ground that the paramount interest of the child demanded the operation. The authorities are unanimous in holding that a surgeon is liable for operating upon a patient unless he obtains the patient's consent, if competent to give such consent, or, if not, of some one who, under the circumstances, would be legally authorized to give the requisite consent. If a person should be injured to the extent that he is unconscious, and his injuries of such nature as to require prompt surgical attention, a physician called to attend would be justified in applying such treatment as might reasonably be necessary for the preservation of his life or limb, and consent on the part of the injured person would be implied on the ground of an existing emergency. The evidence was to the effect that the germs, seeping from the diseased parts, and carried by means of the circulation of the blood, permeate and poison the system, and unless arrested by an operation such as was had in this case will eventually undermine the whole constitution and result in death. The evidence showed that there was an absolute necessity for a prompt operation, but not emergent in the sense that death would likely result immediately upon failure to perform it. In fact, it was not contended that any real danger would have resulted to the child had time been taken to consult the parent with reference to the operation. Therefore it was held that the operation was not justified upon the ground that an emergency existed. The physicians, acting in good faith, in assuming the sisters had authority to give consent, undertook to perform the operation, and although it was skillfully performed and without negligence, death ensued, as the result either of the operation or of administering the anesthetic, or both. The sisters were but the temporary custodians of the child, and as such temporary custodians it was held they had no authority to give consent to perform the operation in the absence of an emergency. The parent was the only one who could legally give consent to perform it, and, if not given, the physicians' act in performing it was held a legal wrong. If performed without the consent of the parent it would amount to a technical assault for which the child could have recovered had she survived the operation, and, therefore, under article 4695, Texas R. S. 1911, the cause of action would survive to the parent.—*Moss v. Rishworth* (Tex.), 222 S. W. 225.

Where Rupture from Strain Held Not Within Accident Policy.—An accident policy governed by the California laws insured against loss "resulting directly and independently of all other causes from bodily injuries effected solely through external, violent and accidental means." The Missouri Supreme Court holds that death resulting from rupture caused by accidental strain is not "independently of all other causes" where a cancerous growth was ruptured, and but for this growth the injury could not have happened.—*Campbell v. Aetna Life Ins. Co. (Mo.)*, 222 S. W. 778.

Proof of Malpractice Often But Not Always Possible by Experts Only.—There are some facts pertinent to a malpractice case which may be proven only by the testimony of experts. For example, a nonprofessional observer may not ordinarily diagnose disease; the standards of practice in different schools of medicine must be established by the testimony of experts of those schools; and generally with respect to matters of science or specialized art, or with respect to matters resting upon pure theory, judgment and opinion, based upon reasons familiar only to experts, the opinion of experts is generally the only evidence receivable. But the Minnesota Supreme Court hold that it is not the law that a physician can never be found guilty of malpractice except on opinion evidence of negligence furnished by other practitioners. As said in *Getchell v. Hill*, 21 Minn. 461: "There may be cases where the mode of treatment having been shown, the practical common sense of the jury will enable them to determine that the injury or failure of cure is owing to unskillful or negligent treatment."—*Harju v. Allen* (Minn.) 177 N. W. 1015.

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LATENT SYPHILIS IN PREGNANCY.

LATENT syphilis in pregnancy occurs with some frequency and because of the temporary increase in syphilis at the present time, may be expected to occur more often in the future. Syphilis in such cases affects both mother and child and the objects of treatment are to cure the mother and to prevent the child from becoming a congenital syphilitic. Dr. Amand Routh read a paper on the subject before the London Obstetrical Society recently, an abstract of which was published in the *Medical Press and Circular* of Dec. 1. Syphilis is probably more prevalent in Great Britain than in America owing to the fact that a very large proportion of the adult male population served in the army during the war and had favorable opportunities for contracting the disease. Routh points out that the opinion is now accepted by most observers that by some means the infection of syphilis is often held latent during pregnancy, and he advances the following suggestions to explain this latency: (1) As a result of spirillolysis, spontaneous or otherwise, the spirochetes can be broken up into granules. These are infecting agents, being, in fact, spirochetes in the granule stage. The granules are able to develop into the mature organism in a suitable environment, or may become biologically inactive and remain latent for varying periods. (2) Chorionic syncytial ferments are present during pregnancy at the point of interdigitation of the fetal and maternal portions of the placenta. Their action is primarily trophoblastic to enable the delicate chorionic villi to penetrate the uterine mucosa and open up maternal blood-vessels, so that the ovum may find for itself a resting place with nutritive blood spaces around it. As a result of the destructive action of the ferments upon the maternal tissues, so-called syncytiotoxins are formed, but any excess appears to be at once neutralized by the so-called syncytiolysins. If not thus neutralized, maternal and fetal toxemia may become present. (3) The chorionic ferments, or their derivatives, are suggested as being capable of exercising their destructive properties upon the infecting spirochetes and breaking them up into granules. (4) It is further suggested that during pregnancy it is the continued action of the chorionic ferments upon the granules which may render them latent and biologically inactive,

and perhaps in a few cases may destroy them. (5) After the pregnancy, when the chorionic ferments gradually diminish in number in the tissues of the mother and child, the granules, unless already destroyed, may develop into mature spirochetes. (6) The success or failure of the chorionic ferments to protect the mother and child from spirochetal infection would depend upon (a) the virulence of the infection, which tends to diminish, owing to the presence of more maternal antibodies with each successive pregnancy; and (b) the source of the infection, whether "mixed" from both parents, or maternal, in which case infection would be continuously present during pregnancy; or paternal, which might be a single infection, and would therefore be most easily controlled by the ferments. (7) The Wassermann reaction of mother and child appear to be negative if infection has been by the spirochetes in their granule stage, so long as the granules remain biologically inactive and the mature organism is absent.

Routh's theory of the pathology of latent syphilis is ingenious and plausible, that is to say, if the presence of spirochetes is accepted as the primary attribute of syphilis. There are many, however, who believe that the organism of syphilis may exist in other form than that of the spirochete. If Routh's view of the pathology of latent syphilis be correct, then treatment of the condition should be greatly facilitated by the discovery of certain chemical substances by which spirochetes can be destroyed without injuring the tissues. If, then, spirochetes are the offending organisms, the employment of one or other of these chemical substitutes should render the prevention of congenital syphilis well within reach. The question of the validity of Routh's theory and therefore of treatment seems to largely hinge on the point as to whether the spirochete is the only organism or most frequent form of the organism of syphilis. It is generally believed to be, but the matter has not been quite definitely settled.

THE PATHOLOGICAL PHYSIOLOGY AND SYMPTOMATOLOGY OF URONEPHROSIS.

ACCORDING to whether the obstacle to the flow of urine through the ureters is total or partial, permanent or temporary, one of two types of uronephrosis occurs. A closed uronephrosis can be obtained experimentally by complete ligation of the ureter, which results in a closed uronephrosis with acute retention without distention. On account of the increased tension above the ligature the renal pelvis and kidney become congested and distended, while the tumefied epithelium becomes incapable of secreting and undergoes atrophy. The renal functions cease and the organ is transformed into a sac which becomes partially absorbed secondarily. This absorption takes place in Henle's or Bellini's tubules or in the calices and pelvis. Histologically, there is at the outset an intense congestion accompanied by interstitial and

intracavitary hemorrhage. The musculature of the renal pelvis hypertrophies from continued contractions and the tubuli dilate from back pressure. The epithelium is capable of regeneration if the ureteral occlusion is removed in time, but should it persist, the walls become sclerosed, the contractions cease and atrophy succeeds dilatation.

When the occlusion is partial but permanent an open uronephrosis with chronic retention and distention ensues. The renal dilatation is considerable but its evolution is slow. The hydronephrosis progressively increases because the tension is not sufficiently high either to arrest secretion or to favor absorption. However, the urine progressively loses its essential principles. If now this large sac becomes closed—the occlusion ceasing to be partial—the tension will maintain its size; it will not increase because the tension is too high for secretion to take place. Neither will it decrease in volume because the histological elements of the kidneys are too atrophied for sufficient absorption to occur.

The evacuation of a hydronephritic sac may take place intermittently or continuously. In the latter circumstance the urine escapes in jets but in lesser quantity than the amount arriving in the kidneys. When the excretion occurs intermittently the urine escapes from the kidneys only when repletion brings the urine up to the level of the ureteral orifice or when the tension is sufficient to force it through. In certain cases intermittent evacuation is more accentuated, in which circumstance there are attacks of acute retention arising in chronic retention. The ureteral permeability disappears, the sac is in hypertension, creating an increase in the size of the kidneys. Then at a given time the sac empties itself, an abundant polyuria indicating the end of the attack. This represents intermittent hydronephrosis.

A movable kidney may be a cause of acute retention; in other cases the continuity between the renal pelvis and kidney is such that the valve located between the two walls forms an obstacle from the distention of the pocket. In these circumstances a momentary polyuria may, by exaggerating the tension, close the opening of the exit of the urine. At other times, a passing tension of the ureter may temporarily complete the closure of the orifices and, according to some writers, it is a spasm of the ureter or congestion of its walls that plays the principal part. The latter hypothesis can hardly be accepted as probable.

A uronephrosis may remain latent for a long time and is often overlooked until the lesion becomes bilateral and anuria and uremia occur. There are, however, cases where this clinical form is accompanied by very severe pain. Other instances of hydronephrosis give rise to tumor, which at the onset causes no physical or functional disturbance and is discovered only when it has attained a certain size. Hydronephroses

are the largest tumors the kidney can produce and confusion with ovarian cystomata is easy.

Hydronephrosis is an abdominal tumor occupying the hypochondrium and flank, afterwards the iliac fossa. It is everywhere dull on percussion and excepting on the left side the intestine is rarely found above it. The tumor is movable, tense, resistant or even fluctuating, while its outline is distinct. It may be mistaken for an hypertrophied liver or spleen. Finally, there are cases of hypernephrosis in which pain predominates and they are common and closely simulate nephritic colic. If the renal retention is aseptic there is apyrexia. During the painful paroxysms the amount of urine decreases, the normal kidney assuming the functions for both organs and being itself influenced by an inhibition reflex. Hematuria is rare, although it may occur. During the paroxysm the tumor is tender to palpation and at the end there is sometimes a real flood of urine, after which the tumor will be found to be soft.

The association of pain and tumor is pathognomonic of renal tumor, but the nature of the morbid production is less easily surmised, because lithiasis, movable kidney and even the nephritides may give rise to an identical symptomatology. Usually, however, cystoscopy, ureteral catheterization, and the functional examination of the kidneys will result in a correct diagnosis.

HERMAPHRODISM AND INVERSION.

THE relationship between pseudohermaphrodisism and inversion has until recently been quite obscure. The older authors insisted that the so-called atypical sex ensemble had no necessary connection with psychic hermaphrodisism or inversion. Inverts were almost never found to present somatic hermaphrodisism and hermaphrodites were very seldom homosexuals in the ordinary sense, though homosexuality could, of course, be forced by false training. The law consults the individual inclinations in deciding the question of sex. Laignel-Lavastine in *Le Progrès Médical* for October 9, 1920, xlviii, 41, endeavors to establish a classification in which both somatic and psychic factors are recognized. It is necessary to exclude all individuals of absent or very low sexuality, and among these are many hermaphrodites. These show infantile genitals and are very often of substandard intelligence. In orthosexual hermaphrodisism the confusion of the external genitals may cause boys to be brought up as girls, and very rarely girls may be raised as boys. These are known respectively as orthosexual androgynes and gynandroids. There remain the homosexuals in which both somatic and psychic factors are recognized. In the typical invert the subject may be somatically normal, including the external genitals. He may present none or but few of the secondary sexual characters of the opposite sex which, however, originate rather in the psyche than the soma, as the feminine voice and gait. In the genito-somatic-psychic homosexual there may be great variability and a number of subtypes.

The author gives accounts of homosexual androgynes who are quite distinct from orthosexual androgynes. In many of these cases the condition of the gonads cannot be determined, but presumably there is an ovotestis. Examples are given of complete genitosomatic-psychic feminism, in which an individual who presents all the characters of a female is possessed of "testicles." The author does not seem aware of the histological studies of Steinach on the gonads in sex confusion. It is very probable that these women or men, whichever they really are, have an ovotestis in which ovarian internal secretion predominates. In typical cases the woman is to be classed as incurably sterile from a somatic cause. The condition opposed to the preceding is termed genitosomatic-psychic virilism. In theory there should be a complete male with the exception of female gonads, but such a condition has never been shown to exist, and in case such should come to light the gonads would doubtless be ovotestes with predominance of testicular internal secretions. The nearest approach to a complete case would be a virile woman with a pseudopenis sufficient for copulation. A few well-marked cases of this kind have been described, but Hirschfeld with all of his experience never saw a female invert with a pseudopenis.

The author does not seem to be aware of the new teaching of Steinach that inversion is a matter of the minute structure of the gonad and that implantation of a normal gonad will be followed by a transformation of the psyche—at least in the male. This theory, if correct, would greatly simplify the relationship between hermaphroditism and inversion.

DUBINI'S CHOREA.

WITHIN a year a brief history of Dubini's electric chorea in medical literature from an Italian source appeared in the *MEDICAL RECORD*, in which it was emphasized that this affection was not a mere transient phenomenon, but may be found described in Italian literature as far down as the eighties, covering a period of about forty years from its original description by Dubini. Nothing was said of any later cases. But in the *Revista Ospedaliera* for November 15, 1920, x, 21, Bignami reports a case seen by him in 1901 in which the diagnosis was probably Dubini's chorea. This case is given in great detail, including histological studies. Apparently the case was not reported at the time; and in a transcription from the hospital records there was no official diagnosis of chorea or indeed of any affection. But the author now has no hesitancy in making the retrospective diagnosis of myoclonic encephalitis. An exactly analogous case was seen in 1900 in Rome by Sciamanna. These two cases may then be said to represent the transition between the old and new diseases, for the conception of electric chorea had by this time become extinct, while myoclonic encephalitis had not yet been heard from. In January, 1920, Professor Nazari stated before the Academy of Medicine of Rome that the cases of myoclonic encephalitis then prevalent represented a recrudescence of Dubini's chorea. The cases cited above

were sporadic, as no massed incidence of such an affection was evident at this time. We note in the case reported that there were no ocular paralyses, and this is true of the historical malady but hardly true of myoclonic encephalitis of today. Apparently this absence may justify the diagnosis of Dubini's disease rather than encephalitis—at least until the significance of this symptom has been finally determined.

DIABETES IN BEARDED WOMEN.

EMIL WEIL and Pichet discussed this subject before the Société de Biologie on January 8 (*La Presse Médicale*, January 12, 1921, xxix, 4). It is intelligible that hirsutism in women may be part of a pluriglandular syndrome, in the course of which there might develop glycosuria. The author's case occurred in a woman of 38 with well-developed beard, who succumbed to an intense saccharine diabetes. The patient also had pulmonary tuberculosis, the stage and degree not being given. Autopsy showed no tumor of the adrenal and the only glandular lesion was sclerosis of the ovaries. The totality of endocrine manifestations was the male distribution of hair in part (beard), virilism (no details), obesity, diabetes. The relationship is obscure and one can only compare this with similar cases. Tuffier and Guémès have reported cases of hirsutism in which the women showed respectively mild glycosuria and well marked saccharine diabetes. The latter readily yielded to diet and probably should really be regarded as glycosuria. Two other cases of hirsuties in women (patients of Laignel-Lavastine) were examined carefully for sugar in the urine, but although none was ever found, tests for carbohydrate tolerance showed that this was impaired, while artificial diabetes could be readily provoked by injecting adrenaline and tyroïdin. There seems therefore to be an undoubted connection between feminine hypertrichosis and glycosuria, while obesity may also be associated. The rationale of these cases is not entirely apparent, but in virilism we should certainly suspect the adrenals.

News of the Week.

The Typhus Situation.—The outbreak of typhus fever in Trieste, the source of the cases brought to this country, appears to have been completely arrested, no new cases being reported. Emigrants awaiting ships are being kept under the strictest observations for a period of twenty-one days before being allowed to sail. Ex-Surgeon General Rupert Blue recently held a conference with the heads of steamship companies in Paris which resulted in the adoption of strict regulations as regards the inspection and cleansing of all emigrants before they leave European ports. American inspectors at all European ports are ordered to examine second-class passengers as well as steerage. The United States Senate, on February 18, appropriated \$200,000 to be expended by the Public Health Service in equipping the quarantine station at Rosebank, S. I., for handling the immigrant problem at the Port of New York and the Public Health Service has ordered the following officers to report immediately at New York: Passed Assistant Surgeon W. A. Scott, ordered to

Rosebank; Assistant Surgeon R. E. Porter, to Ellis Island, and Surgeon A. H. Holer and Passed Assistant Surgeon M. A. Stark, to Fox Hills (Staten Island) Hospital. The New York Health Department is maintaining strict watch on all emigrants entering the city, not only at the port but at the railway terminals, since it has been found that immigrants debarking at Boston have been reaching New York by rail, and often in unsanitary condition. Three children have been found suffering with typhus in Cortland, N. Y. The children with their mother arrived in New York from Naples on January 4, and went to Cortland on January 13, and three days later the first of the children came down with the disease. The Board of Health of Lewis Run, near Bradford, Pa., believes that there are two cases of typhus there and has appealed to the State Board of Health for instructions. A short time ago Vincent Romenelli and his daughter arrived in the village from Italy. The daughter was sick at the time and died soon after. A brother has since died and two other members of the family are sick. The man's wife and a son died of typhus in Italy a few days before he sailed for America.

Malaria in Russia.—A special despatch from Moscow, quoting Professor Martinsovsky, states that there are 10,000,000 cases of malignant malaria in Russia, and that the mortality is about 3 per cent. of those stricken by the disease. The despatch states that there are but 5,000 pounds of quinine in the country.

Hospital Consolidation Completed.—The court has approved the petition for the consolidation of the Park Hospital, the Demilt Dispensary, and the Clinic for Functional Re-education, New York, into one corporate body. The officers of the new corporation are: President, Dr. W. Gilman Thompson; Chairman of the Building Committee, Dr. Allan Wardwell; Vice-Presidents, I. Wyman Drummond, Dr. John A. Hartwell, and Curaud F. Thompson; Secretary, Elwyn W. Poor. Among those on the medical and surgical staff of the hospital are Dr. Joseph A. Blake, Dr. John A. Hartwell, Dr. Irving S. Haynes, Dr. Carlton Wallace, Dr. Charles L. Dana, Dr. Henry S. Dunning, Dr. John D. Kernan, and Dr. Robert G. Reese.

Smallpox Discovered in Washington Hospitals.—Certain floors of the Washington University Hospital and the Episcopal Eye, Ear and Throat Hospital, Washington, D. C., have been put under quarantine by the Health Department following the discovery of cases of smallpox in both institutions. The first patient was a nurse at the Episcopal Eye, Ear and Throat Hospital, who was taken to the Smallpox Hospital on February 5. She had been in service at the George Washington Hospital in January. On February 14 a patient in the George Washington Hospital was found to have the disease.

British Births Highest Recorded.—According to an official report of the Registrar-General, births in England and Wales during 1920 reached the highest figure ever recorded, and the death rate was the lowest. The birth rate was 25.44 per thousand and the death rate was 12.4. The deaths of infants under one year were 80 per thousand.

The Doctor's Right to Prescribe Beer as Medi-

cine.—The United States Treasury Department has asked a ruling as to whether physicians can prescribe beer for sick persons under the terms of the Prohibition Enforcement act. The reason for this request is that since the recent order of the Prohibition Enforcement Bureau permitting physicians to prescribe wine in unlimited quantities, many inquiries have been received from doctors asking why the right to use beer for medical purposes was denied.

Encephalitis in Detroit.—Health Commissioner Dr. H. F. Vaughan reports that there have been 58 cases of "sleeping sickness" reported to the Detroit Board of Health since January 1. There have been 27 deaths, almost double the mortality from the disease last year. The Health Department has put a special staff of nurses and physicians to work to learn, if possible, the source and manner of spread of the disease.

"Sleeping Sickness" in New York.—From January 1 to February 15 there have been reported to the New York Health Department 179 cases of encephalitis lethargica, and 47 deaths. The Department does not believe that this fairly represents the situation, inasmuch as the disease has but recently been made reportable. The mortality rate from the disease is estimated at 10 per cent. and this would indicate that there have been in the neighborhood of 470 cases since the first of the year. During the week ending February 19 there were 50 cases reported with three deaths. The Laboratory of the New York State Department of Health has turned all its laboratory resources to the effort of discovering the cause of lethargic encephalitis. Physicians throughout the State have been asked to make reports and the department announces that it stands ready to furnish all possible diagnostic assistance.

Lepor Takes Stroll in Washington.—Willard Centlivier, held as a leper in a cottage on the Eastern Branch to the District Building by the Health Department, escaped from his caretaker and took a stroll through the streets of Washington. Centlivier and another patient are said to be dissatisfied because they are kept in a building so small that it does not afford private quarters for each man. The local health department has been promised that these two patients will be transferred to the Federal Leprosarium at Carville, La., but when they will be moved is not known. The Health Department feels that it should not have to care for these men, who are not natives of the District of Columbia.

List of Reportable Diseases Amended.—At its meeting on January 27 the New York City Health Department amended Section 86 of the Sanitary Code regulating the reporting of communicable diseases. The diseases to be reported within twenty-four hours from the time the diagnosis is made now includes the following: Acute anterior poliomyelitis (infantile paralysis), anthrax, Asiatic cholera, botulism, diphtheria (croup), dysentery (epidemic), encephalitis lethargica, epidemic cerebrospinal meningitis, glanders, suppurative conjunctivitis, hook-worm disease, leprosy, malarial fever, measles, mumps, paratyphoid fever, plague, pulmonary tuberculosis, acute lobar pneumonia, bronchial or lobar pneumonia, influenza,

rabies, rubella (German measles, rotheln), scarlet fever, epidemic septic sore throat, smallpox, tetanus, trachoma, trichinosis, tuberculous meningitis, typhoid fever, varicella (chickenpox), whooping cough and yellow fever. If the disease is typhoid fever, scarlet fever, diphtheria, epidemic dysentery, or epidemic sore throat, every such report shall also show whether the patient has been, or any member of the household in which the patient resides is engaged in the handling of milk, cream, butter, or other dairy products for sale or preliminary to sale.

Drug Raiders Make Big Find.—The Narcotic Squad under Commissioner Dr. Carleton Simon, after months of detective work, made a raid on a flat in East Twelfth Street whereby it is believed the center of the organized East Side drug traffic has been reached. After a hand-to-hand fight the squad succeeded in gaining access to this dive, where over \$60,000 worth of cocaine, heroine, and opium were found.

Woman Reaches Ripe Age of 109.—Mrs. Mary Fischer, who would have been 110 years old next May, died of old age in Chicago on February 11. She was born in Poland in May, 1811. Her faculties were clear until a few hours before death.

War Medical Statistics.—The Army Medical School, under the supervision of Col. Charles Lynch, is making progress on a comprehensive medical and surgical history of the war, and it is expected that the first of the volumes will appear about July 1. The work will show how many men from different States contracted any one of the 350 diseases listed, and it will be possible to judge how men from one State stood the military service in comparison with those from others. It will show how long men remained in the service before they had to be taken under medical supervision and ultimately separated from active duty. The statistical data are being prepared in view of the possibility of further legislation affecting war-risk beneficiaries. It will be possible to ascertain, for example, how many men afflicted with tuberculosis came under treatment within specified times and what part the military service played in breaking down the thousands of men that are asking for compensation.

Cancer Cures With State Radium.—Dr. Harvey R. Gaylord, director of the Gratwick Laboratory, where cancer is being treated by radium purchased with the Legislature's appropriation of \$250,000, recently sent his annual report covering laboratory and clinical work to the Legislature. Of 537 cases treated, many apparently hopeless, 358 showed remarkable improvement or could be classed as clinically well. The group of cured cases numbers 202, and the report states that undoubtedly some of the case reported as improved will prove to be permanently cured. The laboratory will install soon the type of x-ray apparatus developed by Professor Duane of Harvard University, which has a penetrating power greater than any used heretofore.

Regulations Requiring Registration of Drug Addicts Revoked.—Walter R. Herrick, Commissioner of the Department of Narcotic Drug Control of the State of New York, has repealed the Special Rules and Regulations for the City of

Greater New York requiring the registration of all drug addicts, promulgated June 25, 1919, to take effect February 14, 1921. This action is taken because the necessity for such registrations has been eliminated by Regulation No. 12 of the new rules and regulations of this department prohibiting the use of unofficial blanks by physicians issuing prescriptions for or dispensing cocaine, opium or their derivatives and by Regulation No. 16 requiring data concerning prescriptions for habitual users to be inserted on the official blanks.

Dr. Percy R. Turnure of New York has had the Cross of the Legion of Honor conferred upon him by the French Government, through General Colardet, for "eminent services rendered to France during the world war."

Dr. Frederick S. Westmoreland has resigned his position in the Bureau of Hospitals of the New York Department of Health to enter private practice in Spartansburg, S. C.

Dr. Stephen Smith celebrated his ninety-eighth birthday anniversary on February 19.

Suicides in the United States Increase.—In its 1920 report the Save a Life League, of which Dr. H. M. Warren is president, states that there were more than 6,000 suicides in the United States last year, more than 1,000 in excess of the number for 1919. Many more men than women wearied of life, there being 3,567 men who destroyed themselves and only 2,604 women. According to the report Dr. F. L. Hoffman estimates that the suicides not reported would have raised the total to 12,000. The economic loss through suicide for the year 1920 is placed at \$10,000,000. Divorce figured prominently in this record of suicides, more than 100 couples killing themselves for this reason. More than 400 soldiers have destroyed themselves since returning from the war. Last year there were 75 presidents and managers of large business concerns, 36 men in the millionaire class, and 23 rich women who terminated their own lives. Doctors supplied the greatest number among the professions, 51; then followed actresses, 40; teachers and college professors, 34; lawyers, 24, and brokers 24. Of bankers there were 59, including 14 bank presidents. Self-destruction among children has reached an alarming situation. In 1919 there were 477 children who ended their lives in this country; in 1920 the number increased to 707—boys 223 and girls 484. About 200 of these children used poison and 150 had recourse to a revolver. The report expresses the opinion that many of these promising lives could have easily been spared if parents and friends had been a little more humane and taken a kindly interest in their welfare.

Bureau of Record of Athletic Events in High Schools.—Arrangements have been made by the Bureau of Education of the Department of the Interior for preserving and publishing records made in athletic events by boys and girls in high schools and in the higher grades of the elementary schools. The work will be under the direction of Professor George E. Schlafer of Indiana University, Bloomington, Ind., and correspondence relating to it should be addressed to him. Blanks to be used in reporting the records to Dr. Schlafer may be had from him or from the Bureau.

Civil Service Positions Open to Physicians.—The United States Civil Service Commission announces open competitive examinations to fill vacancies in Saint Elizabeth's Hospital, Washington, D. C., and positions requiring similar qualifications. The positions open are as follows: Senior assistant physician, at \$2,500 to \$3,500 a year; assistant physician, at \$2,000 to \$2,500 a year, and junior assistant physician, at \$1,500 to \$1,800 a year. Applicants should at once apply for Form 2118, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C. Applications must be filed before March 22, 1921.

Civil Service Positions for Psychiatrist.—The United States Civil Service Commission announces an open competitive examination for the position of Associate in Clinical Psychiatry and Psychotherapy at St. Elizabeth's Hospital, Washington, D. C., and vacancies in positions requiring similar qualifications. The position carries a salary of \$2,500 a year. Applicants must have a bachelor's degree and a medical degree or its equivalent from institutions of recognized standing, at least one year's resident hospital experience, and at least three years' experience in the care and treatment of the insane. Those wishing to file applications should apply at once for Form 2118, stating the title of the examination desired.

Red Cross Volunteers Help in City Hospitals.—Two hundred volunteers, many of them women prominent socially, have come to the rescue of the New York hospitals which have been overwhelmed by an increasing number of patients and a shortage of nurses. The volunteers have been organized into units under the direction of Mrs. Lucy W. Phister, who was active in organizing the Red Cross Overseas Service. Many of these volunteers are already on duty in the wards of various hospitals.

Death Rate Among Industrial Workers Drops.—Statistics based on the records of 16,000,000 persons holding insurance policies in the United States and Canada are considered fairly representative of the general population. The Industrial Department of the Metropolitan Life Insurance Company shows a death rate of 9.7 per thousand, which is 9 per cent. less than the 1919 rate, and 23 per cent. less than the mortality record of 1911. Tuberculosis, pneumonia, influenza and accidents showed a marked decrease. The improvement as regards tuberculosis is most marked. In 1920 this disease was responsible for 13.9 per cent. of the deaths, a death rate 14 per cent. less than in 1919, and 40 per cent. less than in 1911. The influenza and pneumonia death rate was 27 per cent. lower last year than in 1919. While the modern safety movement has been effective in lessening the number of industrial accidents, the automobile accident rate was 10.9 per 100,000, higher than ever recorded before in this group of industrial workers. The suicide death rate was one-half that of the year 1911.

Naphtha-Soaked Soil Said to Cause Sickness.—About four months ago an eight-thousand-gallon tank of naphtha was smashed in a wreck on the Philadelphia and Reading Railroad near the town of Roelofs, Pa., and ran into a nearby pit. About two weeks later an overpowering odor began to rise from the ground and many people in the vicinity became ill. One man is said to have died from

drinking naphtha-tainted water, others were made seriously ill, and practically every one in the town was more or less affected. All the cows on the farm on which the naphtha was spilled became ill.

Gifts and Bequests.—By the death of Alfred Treadway White a number of benefactions made during his lifetime for which the Brooklyn Trust Company was made trustee now become available. Among these are the following: Brooklyn Board of Charities, \$168,000; Visiting Nurses' Association, New York, \$168,000; Brooklyn Children's Aid Society, \$41,000; Brooklyn Society for the Prevention of Cruelty to Children, \$30,000; Brooklyn Hospital, \$17,000; St. Christopher's Hospital for Babies, \$30,000.

New Building for Harvard Cancer Commission.—A new building is being erected adjoining the Collis P. Huntington Hospital in Boston which will be devoted to x-ray and radium work. The insurance companies of Boston have given more than \$30,000 toward the new building.

Obituary Notes.—Dr. ROBERT A. BLACK, who was formerly head of the Health Department of the Boroughs of Brooklyn and Queens, New York, died suddenly in Hot Springs, Va., where he has resided for the past sixteen years, on February 14, at the age of sixty years. He was a graduate of the College of Physicians and Surgeons, New York, in 1883.

Dr. WALTER R. ISZARD, a graduate of the Hahnemann Medical College, Philadelphia, in 1902, died at his home in Brooklyn, N. Y., on February 18. He was genito-urinary surgeon to the Cumberland Street and Prospect Heights Hospitals, was on the staff of the Peck Memorial Hospital, and was visiting physician to the Methodist Episcopal Home for the Aged. He was a member of the New York State Homeopathic Society, the Associated Physicians of Long Island, and the Academy of Pathological Science.

Dr. JOHN J. BURNELL of Greenwich, Conn., died as the result of a motor accident, on February 13, at the age of sixty years. He was a graduate of the College of Physicians and Surgeons, Baltimore, in 1883, and was formerly on the staff of the Roosevelt Hospital.

Dr. LEO RATNER, a graduate of New York University Medical College, in 1892, died at his home in New York City on February 18.

Correspondence.

PSORA?

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—Among the "Causes of Death of French Kings" there is one that is not given in the article with this title in the MEDICAL RECORD of Feb. 5. Neither is this cause to be found among those given in Witkowski's book on this subject. It was given at a lecture by the distinguished American medical historian Dr. Jas. J. Walsh of this city, who cited as the cause of death of a French king as given by his physician to be that of "the itch struck in." This omission I beg to record for the benefit of those of scholarly tastes who may see fit occasionally to pass their spare time in studies of this kind and who are alluded to in the article in the MEDICAL RECORD quoted above. HISTORICUS.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, February 3, 1921.

Encephalitis Lethargica.—There has been recently a considerable amount of writing in the press concerning encephalitis lethargica, which is mis-called sleeping sickness. According to accounts which seem to bear the marks of authenticity, the disease is prevalent in most parts of the world and particularly so in Italy and Great Britain. As a matter of fact, the disease, at any rate, in Great Britain, is not present in epidemic form, but there are a good many cases in London and neighborhood. The malady is of great scientific interest and the Ministry of Health have made and are making investigations with the view of elucidating some of its moot points. This much at least is known that it is not very contagious. It is of a low degree of infectivity. As for the mode of infection it appears to have been shown more or less definitely that whatever virus exists is in the saliva or nasal discharge. That it is conveyed by personal infection. There is no specific treatment, it should be treated on general lines. Because so many cases occurred soon after the epidemics of influenza in 1889 and 1918, it was suspected by some of being related to influenza. However, this supposition seems to be ill founded. The disease is notifiable in England, and as said before the Ministry of Health are endeavoring to elucidate the matter. Indeed, this department is about to issue another report on the subject.

Report on Milk in Great Britain.—A report on milk has been published recently in Great Britain prepared by a parliamentary sub-committee appointed by the standing committee on trusts. This report is more of an economic nature than one relating to health or food value of the substance, but contains many features of much interest to American medical readers. With regard to the value of milk as a food, the committee strongly urge the importance of bringing about a substantial increase in the consumption of milk, more particularly among young children. It is pointed out that the regular use of milk in the dietaries of children insures the supply of the food accessory substances or "vitamines which have been shown to be so essential for growth and development. But apart from this special dietetic advantage of milk the ordinary food constituents of which milk is composed exist in forms which are most easily utilized by the human body. These constituents in milk compare favorably in cost weight for weight, with the same constituents in other forms of food, such as meat, fish and eggs. The following is a summary of the conclusions reached: (1) The large combinations of distributors that are in existence have not dealt unfairly with either the producer or consumer up to the present. They have effected considerable economies, and the committee consider that they have operated in the interests of the consumer as well as in the interests of their shareholders. (2) There is still ample room for improvement in the methods of dealing with milk at all stages, both from the economical point of view and also having regard to the health of the nation. The committee recommend that all milk should be delivered in bottles. In order that this may be accomplished,

they consider that either some form of combination among the distributors is inevitable or municipalities should be empowered to undertake the distribution. (3) Combinations of producers and retailers in certain districts have fixed their prices at an unreasonable level, and they consider that all such cases, where complaint is made, should be dealt with under Section 1 (a) or (b) of the Profiteering Act, 1919, and that as a further precautionary measure, the local municipal authorities should be empowered to take over the distribution of milk in those areas. (4) Should the proposed amalgamation of the producing distributing interests in the milk industry mature, they consider that the consumer would require to be adequately protected. (5) There are no combinations, or agreements between manufacturers of milk products, other than the usual dairy produce that is, condensed milk and patent milk foods. There is some diversity of opinion among even prominent medical men as to the value of milk as a food. The committee have a very high opinion of this value, as the majority of medical men have, but there are some distinguished dissentients from this view. Dr. Harry Campbell holds that while perhaps cow's milk is the best, most easily available substitute for human milk, that in fluid form is not at all well adapted for the nutrition of children who have cut their teeth. In the form of cheese it is an excellent food. The report appears to show that in this country there is little or no profiteering in milk.

Sanatorium Mismanagement of Tuberculous.—The *Lancet*, January 29, referring to the published Transactions of the National Association for the Prevention of Tuberculosis, eighth annual conference, alludes to Charles L. Minor's North Carolina criticisms of sanatorium treatment. He contrasts the work done by private and public sanatoriums very greatly to the disadvantage of the latter. He thinks that the public institutions are apt to be exploited by medical officers of the come-and-go stamp as a stepping stone to something better. Speaking from the point of view of the superintendent of a private sanatorium he took the stand that the best arrangements provided separate quarters for advanced, moderately advanced and incipient cases, so that patients in the last class should not hear the coughs or see the coffins of patients in the first class. Sir Henry Ganvain, who spoke at the same meeting, agreed with Dr. Minor as to the failure of sanatorium treatment for the working classes.

Obituary.—Mr. Rupert Farrant, a brilliant young surgeon, who was only thirty-seven years old, has recently died as the result of the strain of strenuous war service. Almost up to the time of his death he was assistant surgeon and lecturer in practical surgery and endocrinology at Westminster Hospital. He had a distinguished career as a student at Westminster School and St. Bartholomew's Medical School. Mr. Farrant was much interested in a study of the internal secretions and made a special study of the influence of the thyroid gland on general metabolism. He twice delivered lectures on this subject at the Royal College of Surgeons of England as Hunterian Professor.

LETTER FROM GENEVA.

(From Our Own Correspondent.)

GENEVA, January 15, 1921.

Sanatoria for Surgical Tuberculosis.—Since the war, tuberculosis has been on the increase in Switzerland, as it has in other countries, but the antituberculous work done so far has been almost exclusively directed against pulmonary tuberculosis. While eleven Swiss cantons possess each an establishment destined for the treatment of pulmonary cases, there exists at present only one altitude sanatorium for surgical tuberculosis, namely, the one that was put up two years ago at Leysin by the Vaudoise Antituberculosis League, and nevertheless, according to the statistics of de Quervain and Hunziker there are no less than 3000 surgical tuberculosis cases per annum in Switzerland. This is evidently a great social injustice that should now be rectified and this has been undertaken by Prof. de Quervain of Berne and Dr. Rollier of Leysin.

Since surgical tuberculosis is, like the pulmonary process, a disease in which the question of soil plays an active part, it is essential to place these patients in the best possible conditions for defense of the organism. An experience of twenty or more years has allowed both Bernhard and Rollier to prove that a mountain suncure fulfills these conditions perfectly, because it affords the most efficacious general treatment, while heliotherapy, combined with rational orthopedic treatment, is for many cases the best local treatment.

Switzerland, with its numerous Alpine and sub-alpine resorts, is better placed than many other countries for organizing an antituberculosis fight for surgical cases of this affection. The advantage of mountain resorts resides in the fact that solar radiation is there most intense and continuous and patients can benefit from the sun during the entire year, an essential factor in the cure. The ideal solution would be that each canton should have its own sanatorium for surgical tuberculosis in a chosen altitude resort. In the case of small cantons several might use the same establishment. It is not a question of building luxurious installations, as at present the cost makes any such undertakings out of the question, but while waiting for better times to come, it is possible to use already existing hotels that have been little frequented since the war and which could be bought or leased under advantageous conditions, and could be altered over into hospitals. The experience gained by the free clinics at Leysin shows that such a transformation is easy to realize. It is important that the sanatoriums for surgical tuberculosis should be independent of those for pulmonary tuberculosis already in existence. The treatment of the surgical cases requires special medical knowledge, not only of heliotherapy but also radiodiagnosis, radiotherapy, orthopedics, and conservative surgery, all of which are precious adjuncts to the solar cure. An organization for occupational cure must be carried out in these establishments. Experience gained in this domain among the Swiss tuberculous soldiers quartered at Leysin allows one to conclude this is a therapeutic, physical, and moral factor of the first importance. It has also the advantage of giving patients the faculty of partially helping toward the cost of their treatment.

In order to maintain and consolidate the cure of tuberculous subjects, it is necessary that when once recovered, they should live in good hygienic conditions. By creating in the plains agricultural, market-gardening, and wine-growing colonies for convalescents, the latter can avoid returning to trades, often unhealthy, or returning to insanitary lodgings. Thus, it may be possible to solve the double social problem: on the one hand, to prevent recurrences, on the other to furnish the nation with labor, which has become progressively scarcer on account of the movement from the country to cities. In order to solve the financial side of the problem, a popular movement will be started in favor of patients with surgical tuberculosis. An appeal to the good sense of the Swiss people will not fall on deaf ears, and the funds collected will be placed at the disposal of the cantonal leagues. The above propositions propounded by de Quervain and Rollier are being examined by the Swiss Association for Tuberculosis and will undoubtedly be favorably acted on.

Although the treatment of already existing surgical tuberculosis appears as an urgent necessity, it is no less important and certainly easier, to organize a prophylactic fight against these affections. Like pulmonary tuberculosis, the surgical forms almost invariably follow a tracheobronchial adenopathy—this first manifestation of tuberculous infection in childhood, so that it is important to arrest further progress of the disease by placing children in the most favorable conditions for organic resistance. This can be accomplished by the introduction of reforms in the hygiene of tenements and schools, in which a larger place should be given for the physical development of the children—schools built in the open and freely exposed to the sun. Such is the present program which is under consideration.

Progress of Medical Science.

Boston Medical and Surgical Journal.

February 10, 1921, clxxiv, 6.

1. The Industrial Question: A Proposal and Announcement. Frederic J. Cotton.
2. Acute Infections of the Pancreas. F. B. Sweet.
3. Observations on Some Cases of Perineal Prostatectomy. J. Dellinger Barney.
4. A Case of Ovarian Pregnancy. Michael F. Fallon.
5. A Note on Gliomata with Report of a Case. Henry Viets.
5. A Note on Gliomata with Report of a Case.—Henry Viets reports a brain tumor, glioma, of the right temporal lobe, which infiltrated and largely replaced the tissues of the lobe without deformity in the general shape of the brain. A large cyst was formed. The tumor extended to the base of the brain and bulb, where it ran in the subarachnoid space over a large part of the ventral surface of the brain and extended down the spinal cord to the conus terminalis without invasion of any part of the central nervous system except a small portion of the left cerebellum. The medulla and cord were greatly compressed by the tumor mass. The symptoms and signs of both a brain and a spinal cord tumor are recorded with the report of a negative surgical exploration. Both macroscopically and microscopically the tumor showed the characteristics of a malignant glioma. The case illustrates in a striking manner the tendency of glioma to extend along a serous surface without invasion.

New York Medical Journal.

February 12, 1921, cxlvi, 7.

1. The Surgical Aspects of Hyperthyroidism. John B. Deaver.
2. Hyperthyroidism in a Child. Morris H. Frantz.
3. Goiter. Herbert L. Northrop.

4. Fatigue—Endocrine Weariness. John McNulty.
5. Thymic Disease. Alvin E. Siegel.
6. Addison's Disease. Joseph Eideisberg.
7. Exophthalmic Goiter and Surgery. Israel Brann.
8. Successful Surgery in Cases with Endocrine Disturbances. William Neumann.
9. Röntgen Ray Therapy in Hyperthyroidism. Walter C. Barker.
10. Thyroid Deficiency in Otolaryngology. James G. Callison.

1. **The Surgical Aspects of Hyperthyroidism.**—John B. Deaver, in closing the discussion of this subject, reiterated that there are few diseases that so easily fall into the medicosurgical class as hyperthyroidism. There is without doubt a justifiable difference as to when medical measures should give way to surgery. In a large class of cases the patients improve and are cured by rest, medication, x-ray, and other measures, but the difficulty that confronts the profession is the inability to tell which patients will and which will not improve without surgical measures and how long to wait before deciding that medical means have failed. If the injunction to the internist is, do not wait too long, the injunction to the surgeon should be, do not rush operation; and unless properly equipped with the physical facilities and surgical acumen and skill, one should hand one's cases over to those who, by their intense study of the question and by their aptitude, have placed thyroid surgery among the safe operative procedures.

2. **Hyperthyroidism in a Child.**—Morris H. Frantz gives the history of a girl nine years of age who presented the symptom complex of hyperthyroidism, the first manifestation of which was noticed by the mother when the child was one and a half years old, at which time a swelling in the neck was noted. Due to the residence of the parents of the child in a goitrous district, the mother of the patient suffering from hyperthyroidism, and the mental precocity of the patient, the question arises whether this condition is congenital.

3. **Thymic Disease.**—Alvin E. Siegel, from the observation of two cases and of others not reported, and from a study of the literature, deduces the following conclusions: 1. Thymic disease is more frequent than is generally supposed. 2. There may be some influence on metabolism and growth from too early or too complete atrophy of the gland. 3. Thymic disease and status lymphaticus are closely allied, and differ principally in the extent of the involvement. 4. Thymic enlargement may be a misnomer because the symptoms may arise with little or no enlargement. While there may be hypertrophy or hyperplasia, difficulty seems to be caused more by hypersecretion or by hypertoxicity of the secretion. 5. The thymic secretion exerts a selective depressant influence on cerebral respiratory centers. 6. Exposure to the x-ray is the best method of treatment. Hypodermic medication and instrumentation of any sort should be avoided.

Journal of the American Medical Association.

February 12, 1921, lxxvi, 7.

1. The Technique of Chenopodium Administration in Hookworm Disease. Samuel T. Darling and Wilson G. Smilie.
2. The Significance of Group Practice in Its Relation to the Profession and to the Community. Veader Newton Leonard.
3. Studies in the Properties of Blood Platelets: A New Method for Counting Platelets. Thomas E. Buckman and Joseph E. Hallisey.
4. Sodium Citrate Treatment of Thrombo-Angiitis Obliterans. William A. Steel.
5. Behavior of Blood Pressure During the Use of the Stomach Tube. C. A. McKinlay.
6. The First Heart Sound and the Presystolic Murmur. William D. Reid.
7. Secondary Pulmonary Hypertrophic Osteo-Arthropathy: Report of a Case. Samuel Kleinberg.
8. Administration of Carbon Dioxide After Anesthesia and Operation: The Acid-Base Regulatory Mechanism. Stanley P. Reimann, George H. Bloom, and Hobart A. Reimann.
9. The Etiology of Common Warts: Their Production in the Second Generation. Lyle B. Kingery.
10. Zinc Chloride Poisoning: Report of Outbreak Among Workers in a Wood Preserving Industry. Carey P. McCord and C. H. Kilker.
11. Tumors of the Ovary in Children: Report of a Large Ovarian Cyst in an Infant Seven Months of Age. William A. Downes.

5. **Behavior of Blood Pressure During the Use of the Stomach Tube.**—C. A. McKinlay, after the occurrence of epistaxis during stomach lavage in a case of arterial hypertension, undertook a brief study of the temporary

effects on blood pressure caused by the passage of the stomach tube. Aside from the known effect of mental excitation, muscular activity and straining, the question presented itself as to the part played by the irritation of the buccal, esophageal, and gastric mucosa in causing temporary increase in blood pressure quite constantly observed. Blood pressure determinations were made in twenty-six cases, studied in four groups, the only selection made being to include cases in which there was hypertension. His conclusions from the study follow: 1. There is, as a rule, an increase in blood pressure of from 20 to 50 mm. of mercury with the passage of the stomach tube. 2. There is a greater increase in those cases in which there is retching. 3. The increase in blood pressure is not dependent on straining or mental excitation. 4. The percentage of increase is greater in cases in which there is hypertension. 5. Cases in which there is hypertension when under the physiological effects of pilocarpine giving vagus inhibitory action show an average increase in systolic blood pressure which is less than the increase when pilocarpine has not been given. Similar cases with diminished vagus inhibition following atropine show no marked variation in the average increase from that noted in cases without atropine.

9. **The Etiology of Common Warts: Their Production in the Second Generation.**—Lyle B. Kingery, in line with the theory that common warts are of infectious origin and that the particular infectious agent is in the nature of a filtrable virus; and following the experimental production by Wile and himself of small papular lesions at the sites of the injections of verruca filtrate made from the ordinary lesions of verruca vulgaris removed by curettement, undertook a second series of experiments with a view of producing these lesions in the second generation. The same technique was used as in the first experiments, and the induced lesions were the source of material. After an incubation of approximately six months, extremely minute papular lesions gradually made their appearance at the exact sites of the injections of the sterile filtrate. One or two of these second generation lesions after a time disappeared spontaneously, the majority, however, gradually increasing in size until they approximated that of a split pea. At that time they presented marked hyperkeratosis, a definitely verrucous surface, and were in every way clinically indistinguishable from ordinary verruca vulgaris. Histological examination at this time revealed a picture virtually identical with Unna's description of the changes occurring in these lesions.

11. **Tumors of the Ovary in Children.**—William A. Downes bases this communication on a case of a large ovarian cyst in an infant seven months old. A lower right rectus incision was made, a trocar was introduced, and 2.5 liters of clear, straw-colored fluid withdrawn. A pedicle, the size of the little finger, springing from the left cornu of the uterus was ligated with No. 1 plain catgut. The right tube and ovary were normal. Convalescence was uninterrupted and the child was discharged from the hospital cured. The writer found in the literature only two cases of tumors of the ovary in children, including cysts, in which the condition was operated on in the first year of life. He makes the plea for earlier operative interference in the surgical diseases of infants and children.

The Lancet.

January 22, 1921, cc, 4.

1. The Bradshaw Lecture (abridged) on the Surgery of the Spleen. Sir Berkeley Moynihan.
2. Inoperable Uterine Cancer Treated by the Cold Caustery Method of Percy. A Series of Forty-three Cases. Percival P. Cole.
3. Anxiety Psychoneurosis. Alfred Carver.
4. Dissection of the Fauical Tonsils under Local Anesthesia. W. Morris.
5. A Study of the Indications for Removing Tonsils by Dissection or by Reverse Guillotine. Michael Vlasto.
6. Typhus in Turkey and Adjoining Countries: Its Recent Prevalence. F. G. Clewlow.
7. Industrial Fatigue. Charles S. Myers.

1. **The Surgery of the Spleen.**—Sir Berkeley Moynihan holds that a number of symptoms may draw attention to the spleen, even when clinical examination does not reveal the presence of splenomegaly. It is through the correct insight into the significance of the

clinical symptoms and other morbid phenomena that the real understanding of any supposed case of splenic disease becomes possible. Instead of searching only for the existence of this or that splenic disease, an inquiry should be directed to the determination of the functional capacity of all the various organs likely to be deranged. This derangement must be regarded not merely as a restriction of the morbid changes to the spleen, but as a disturbance of wide ramification throughout the whole body, affecting one or other, or perhaps even all, of the four systems in which the spleen plays a part. The focus, at the moment, may in truth be in the pulp of the spleen; but even so, the general picture presented by the patient is the outcome of the participation of the other systems in the process which started in the spleen. It may be that splenectomy in any of these diseases will remove the obvious culmination of the morbid process, and thus bring about a "cure" of the disease or an arrest of its development; but it does not by any means follow that all the other related parts are thereby caused to return to their normal states. Absence of symptoms does not imply the restitution of normal functions. A further step in the investigation of the clinical condition of the patient should aim at the exact discovery of the site of the lesion in certain particular cell types: (a) in the splenic pulp; (b) in the bone marrow and in any part where the reticulo-endothelial cells may exist in specially congregated or active masses; (c) in the liver; (d) in the endocrine organs, including the pancreas. This lesion being predicted or recognized, the question will arise as to whether it consists in or entails the elaboration of poisons capable of causing hemolysis, cirrhosis, or asthenia. The tissue affected, and the changes therein resulting being recognized, further research must be directed to the discovery of the type of infective agent at work, whether bacillary, spirochetal, or other. In other words, the patient is no longer to be regarded merely as the victim of some type of "disease," but as the victim of disorders of a certain character in certain parts of certain anatomical or functional systems of the body. It is the form of the disorder, the form of distribution (determined by an assessment of the functional capacity of the several organs concerned or likely to be concerned), when correctly studied, that will inevitably lead to the source and cause of the morbid state, and ultimately to the prospect of the "cure" of the patient.

2. Inoperable Uterine Carcinoma Treated by the Cold Cautery Method of Percy.—Percival P. Cole states that the forty-three cases on which this report is based, gauged by whatever standard, from the radical point of view, were inoperable. They were drawn from the chronic wards of the Cancer Hospital. No selection was exercised in the choice of cases in so far as concerned the local condition. Attention was directed to the general condition only, no case being dealt with unless this was sufficiently good to render reasonable the immediate risk incurred. The abdominal wall in every case healed without a trace of suppurative. A striking improvement in the general aspect occurred within two or three days of operation. Slight reactionary temperature may persist for a few days at first; in the writer's cases it caused no more anxiety than that which frequently obtains after a supravaginal hysterectomy. Shock has never been encountered, which is the more noteworthy in view of the fact that several of the patients were more than fifty, and one was sixty-eight. In three cases sloughs of considerable size were passed per vaginam, and in one case the coincident loss of blood was considerable, but it was not repeated. A foul discharge may commence on the third or fourth day and persist about a fortnight. Patients are kept in bed for three weeks and leave the hospital at the end of a month. Vesicovaginal fistula has resulted in seven cases. Twenty-nine of the patients were traced and found to have died, five were untraced, the operation was abandoned in two, and seven were living at the time of the report. Of eight patients who died in the hospital (not discharged) the average length of life after operation was $3\frac{1}{2}$ months; of four who died in the hospital after readmission, average one year and eight months; of seventeen who died outside, average one year and four months. From his experience Cole considers that this operation, particularly when rein-

forced by subsequent radium treatment, should have a place in the armamentarium of a surgeon who would endeavor to undertake the treatment of inoperable cancer. With the cautery and radium together, used discreetly and discriminately, a great deal may be done, perhaps more than has been done, to alleviate the distressing disabilities of inoperable uterine cancer, and in many cases to restore to those suffering derelicts peace of mind, together with the chance of an increased term of economically useful life.

British Medical Journal.

January 22, 1921, i. 3134

1. An Address on the Application of the Professional Lessons of the War to Civil Work. Sir Henry W. M. Gray.
2. Observations on Splenic Anemia: Banti's Disease. Sir Berkeley Moynihan.
3. On the End-Results of Colectomies for Intestinal Stasis. A. W. Sheen.
4. A Case of *Diphtheriophagus latus* Infection. George C. Low and Elizabeth J. O'Driscoll.
5. The Economic Aspect in Eye Injuries: A Plea for Early Treatment. T. Lister Llewellyn.
6. The Drooping Shoulder Sign of Phthisis. W. C. Rivers.

3. On the End Results of Colectomies for Chronic Intestinal Stasis.—A. W. Sheen presents the histories of three cases in which the war enforced a beneficial patience, in that "cures" were not claimed by immediate publication, and in which the term "end results," tautologically but well understood, is justified. In the three cases there was great improvement, which, in two, might be termed complete success. The qualifying details are: In the first case a ventral hernia with dyspeptic symptoms; in the second, adhesions, fortunately not interfering with pregnancy; in the third, diarrhea occasionally. A fourth patient died after the operation. Discussing briefly the toxic theory of stasis as expounded by Sir Arbuthnot Lane and his followers, the use of the belt and paraffin, the resort to colectomy, and the employment of alternative procedures, the writer states that it must be a commonplace with those, like himself, who have had a surgical experience of the abdomen extending over many years, that various operative measures have seemed to cure patients who, *inter alia*, had signs and symptoms of toxic stasis. He cites a case in point, and holds that such cases justify his contention that there are more surgical ways than one of curing toxic stasis, and that every case should be treated in accordance with the special indications it presents. Nor does he advocate surgery as the only remedy. Diet, drugs, aperients, paraffin, massage, exercises, posture, abdominal supports, regulation of life, change of climate, spa treatment, removal of toxic foci—all have their place in the treatment of intestinal stasis. In the treatment, operative and non-operative, the psychic factor must not be overlooked. The rest and careful after-treatment are of benefit after all abdominal operations. The prevention of stasis and toxic foci should begin in babyhood and continue. The earlier the treatment the better, and then the less severe and more potent it is. Prevention is the final goal.

6. The Drooping Shoulder Sign of Phthisis.—W. C. Rivers directs attention to a physical sign of phthisis not mentioned in any British text-book, which was present in half of the last fifty consumptives sent to him for diagnosis. On the affected side, or (generally) the side of the more extensive or older disease, the point of the shoulder and the nipple are lower than on the other side; the nipple is also smaller and seems to lie further back. Behind, the scapula is lower—its inferior angle may reach three inches below that of its fellow—and is at a different distance from the spine, mostly nearer to it. Muscular atrophy also is noticeable, a little of the pectorals, but far more of the upper part of the trapezius. The superior border of that muscle, instead of running straight from neck to shoulder, is flattened, wasted, hollowed out, so that, as compared with the opposite side, much less of it shows above the clavicle when viewed from the front, and above the spine of the scapula when viewed from behind. The sign occurs indifferently in men and women, although more marked in the former; and as regards association with the type of phthisis, in this order of descending frequency—juvenile hilus cases, a rather large proportion; third stage cases (Turban-Gerhardt),

very early half; first stage cases, nearly half; second stage cases, about a quarter. He has seen it develop in the course of a few weeks.

American Journal of the Medical Sciences.

January, 1921, clxi, 1.

1. Notes on the Diagnosis of Bronchopneumonia and Its Complications. Nellis E. Foster.
2. Experimental Studies in Diabetes: Series II. The Internal Pancreatic Function in Relation to Body Mass and Metabolism. II. Changes in Assimilation by Alterations of Body Mass. Frederick M. Allen.
3. Benzyl Benzoate in Pediatric Practice. John Ruräh.
4. Studies in the Physiology of the Liver: I. Technique and General Effects of Removal. F. C. Mann.
5. Alimentary Hypersecretion: Gastric Hypersecretion: Gastrochronorrhea. Burrill B. Crohn and Joseph Reiss.
6. Observations Upon the Treatment of the Chronic Intestinal Invalid. John Bryant.
7. On the Etiology of Typhus Fever. Edwin W. Schultz.
8. Acute Epidemic Encephalitis. Charles H. Miner and Stanley L. Freeman.
9. Recurrent Type I Pneumonia: Serum Treatment of Two Attacks One Month Apart. Henry M. Thomas, Jr.
10. The Coloidal Gold Curve in Epidemic Encephalitis: A Preliminary Note. Thomas K. Davis and Walter M. Kraus.
11. Carcinoma of the Supraampullary Portion of the Duodenum. N. B. Herman and William C. Von Glahn.
12. Etiology of Acute Rosacea Through a Visceroneurologic Mechanism. Frank Porter Miller.

3. Benzyl Benzoate in Pediatric Practice.—John Ruräh became interested in this subject through the work of Macht, who found the drug useful in the inhibition of peristalsis and the relaxation of the spasm of smooth muscle. In infants and young children many distressing symptoms are caused by the great tendency to spasm of the smooth muscles, and he believes that consideration of the uses of benzyl benzoate in pediatric practice may be of service in stimulating study of this drug, which, it would seem, bids fair to become a permanent part of therapeutic armamentarium. In pediatrics it may be used in place of atropine wherever a relaxing effect is desired on spasm of smooth muscle. Ruräh has used it sufficiently to be able to recommend it in bronchial asthma, spasmodic bronchitis, gastric or intestinal colic, hiccup, and spasmodic constipation. It has been recommended by others in excessive peristalsis. In whooping cough its action is often most beneficial, but the results are uncertain, as is the case with all other antispasmodics in this disease. In general convulsive conditions not dependent on organic lesions of the central nervous system, especially in the newborn, the drug will be found of benefit. It is non-toxic, but not particularly agreeable to take.

5. Alimentary Hypersecretion; Gastric Hypersecretion; Gastrochronorrhea.—Crohn and Reiss make the observation that in the present period of clinical gastric research the attention of the majority of workers is focussed on diseases characterized by organic or structural changes in the tissue wall of the stomach and duodenum. The result is that the observations of functional disturbances have fallen into the background and a lesser interest and eagerness have been shown in attempting to reclassify and evaluate the various forms of secretory disturbances to which the stomach, as a major secreting organ, is subject. Because of the confusion associated with the phrase "gastric hypersecretion" the writers have collected the views of those who have previously been interested in this topic, which they summarize as follows: A. *Continuous Hypersecretion* (Magensaftfluss or Reichmann's disease), a malady having a characteristic clinical picture and evidenced by continuous outflow of large quantities of secretion in both the digestive and interdigestive and fasting states. Surgery has pretty nearly classified most of these as cases of pyloric stenosis due to ulcer: the medical men succeeded in establishing a smaller number on the basis of pure neurosis. B. *Continuous Hypersecretion*, occurring not chronically, but in intermittent form, associated with periodic migraine, tabetic crises, paroxysmal hysterical vomiting spells, etc. These are accepted by all as cases due to excessive stimulation of the gastric nerves of central nervous system origin. C. *Alimentary Hypersecretion*, not really a disease, but a symptom or chemical phenomenon occurring during digestion. This milder form of secretory stimulation was shown to be a very common phenomenon and generally attributed to protopathic

organic origin, usually ulcer. From their own studies the writers draw the following summary: 1. Hypersecretion is a symptom; it is a functional disturbance of the secretory apparatus of the stomach. It is not a disease *per se*. 2. It is a frequent symptom, occurring most commonly in males, and being present in probably at least 10 to 15 per cent. of all persons with gastric complaints. 3. Its occurrence is independent of the acidity titer of the stomach; it is found more often associated with hyperacidity, but can be seen through all the grades of acidity, even in achylia gastrica. 4. Most of the cases of hypersecretion are of the continuous type, lasting through the digestive and interdigestive period. The most severe type of cases, when associated with vomiting, emaciation, thirst, epigastric pain, etc., constitutes Reichmann's disease. These cases are nearly all due to gastric or duodenal ulcer (intrinsic cause). 5. Of the milder grades of continuous hypersecretion (alimentary hypersecretion, without vomiting, etc.), many of the cases are attributable to ulcer (about one-third); the remainder are due to abnormal nerve irritation, either reflexly from abdominal disease in other organs or from neurotic instability, such as vagotonia, psychoneurosis, etc. (extrinsic cause). 6. A few cases are due to diseases of the cerebral system, hysteria, psychic causes, etc. (intermittent hypersecretion). Under the head of treatment the writers direct attention to the importance of removing both extrinsic and intrinsic stimuli of an abnormal nature. Restriction of diet is one of the basic principles; rest in bed is a necessary corollary of this treatment. In a series of cases of hypersecretion previously reported the effect of marked restriction of diet, both solid and fluid, was studied; 45 per cent. showed local improvement in the chemism of the stomach and 80 per cent. were discharged from the hospital free of symptoms. The use of atropine is warranted by experiments. They were able to demonstrate a striking reduction in the supersecreted fluid after hypodermic administration of this alkaloid. Less favorable results followed the administration by the mouth or over longer periods. The removal of abnormal nerve stimuli, whether of cerebral nerve system or of viscerosensory origin, is self-evident; no treatment that ignores the psychical condition of the patient will be effectual in a case wherein vagotonia is a factor or hysteria or a psychoneurosis is present. Organic brain or spinal cord disease once diagnosed calls for its own treatment.

Southern Medical Journal.

January, 1921, xiv, 1.

1. Relativities in Medicine. Edward H. Cary.
2. Some of the Problems Raised by the Recent Development of Medicine: A Plea for Extensivity as Well as Intensity in Our Work. Charles L. Minor.
3. Thrombosis of the Coronary Arteries: A Clinical and Pathological Study. James Edgar Paullin.
4. Overmedication in Infancy and Childhood. James D. Love.
5. Roentgenology in the South. Robert H. Lafferty.
6. Relationships in Medical and Public Health Work. Hugh S. Cumming.
7. Child Welfare: The Strategic Point of Attack in Public Health Work. A. E. Hines.
8. Some of the Newer Phases of the Cancer Problem. William D. Haggard.
9. The Railway Surgeon and His Job. H. A. Royster.
10. Past, Present and Future of Orthopedic Surgery. W. S. Baer.
11. Some General Considerations Regarding Prostatectomy. J. T. Geraghty.
12. The Future Needs of Ophthalmology and Otolaryngology. J. A. Stucky.
13. Semisuspension in the Treatment of Tonsil Infections. Frank Dyer Sanger.
14. The Medical Curriculum. G. Canby Robinson.

3. Thrombosis of the Coronary Arteries; A Clinical and Pathological Study.—James Edgar Paullin cites four cases of the condition under consideration. Death usually results in the pronounced cases, but he considers one justified in assuming that some can recover. Early diagnosis is of the greatest importance. Absolute rest in bed for days and weeks is necessary. The only hope for recovery lies in securing for the infarcted area as rapidly as possible an adequate supply of blood through its collateral circulation. The ability to do this depends on the condition of the unobstructed artery, the extent of the anastomosis and the size of the infarct. It has been shown by Miller and Matthews that the

death rate in dogs following ligation of the coronary artery is much lower where the animal receives digitalis or strophanthus, and that these drugs are useful in promoting and increasing the collateral circulation. May it not be assumed, then, that the same condition will obtain in man, and that by administering, intravenously or hypodermically, either strophanthus or digitalis, the heart is being helped to establish this collateral circulation? To be of value this remedy must be used early and in sufficient dosage to get a quick effect. The writer has seen no good result from the use of nitroglycerin or the nitrites. Morphine in sufficient dosage to relieve pain is absolutely necessary.

11. Some General Considerations Regarding Prostatectomy.—J. T. Geraghty gives the following indications for suprapubic prostatectomy: 1. When a suprapubic cystostomy has been recently performed for drainage, the enucleation usually should be carried out through the suprapubic opening. 2. A previous perineal operation or the presence of a dense scar about the bulbous or membranous urethra. 3. Multiple small calculi, especially when associated with diverticula. 4. Where prostatic hypertrophy is complicated with a lesion of the spinal cord the danger of incontinence following prostatectomy will be very considerably lessened by suprapubic removal. 5. Where there is present a very large intravesical hypertrophy with great dilatation of the internal sphincter, suprapubic prostatectomy will give better functional results. In this type of case, frequently following perineal prostatectomy, there is a slight weakness of the sphincters with consequent annoying dribbling, which may persist for some months. In the vast majority of these cases, however, the incontinence, which is only slight, disappears. Where no special indications exist for the perineal operation the suprapubic should be the method of choice. 6. Where it is impossible, because of ankylosis of the spine and hip, to put the patient in the proper perineal position. Some of the indications for perineal prostatectomy follow: 1. In every old and feeble man perineal prostatectomy seems preferable to the writer. This operation is attended with considerably less shock than the suprapubic operation, which inherently causes greater disturbances than the perineal. 2. Small fibrous prostates should be removed perineally, as successful removal through the suprapubic route may be very difficult or almost impossible. 3. Patients with a great deal of abdominal fat should be selected for the perineal operation rather than the suprapubic, because the fat does not resist infection well, and convalescence consequently may be protracted. 4. Where there is present a very large inguinal hernia the perineal operation seems definitely indicated. 5. Where there is present a localized area suspicious of carcinoma, better exposure of the involved part will be secured through the perineum, because cancer of the prostate nearly always occurs in the posterior lobe. In occasional cases it will be possible to excise completely the carcinoma without doing a complete radical operation. It is impossible, by the suprapubic route, to remove carcinoma involving the posterior lobe. 6. Repeated previous suprapubic operations are an indication for the opposite route.

New Orleans Medical and Surgical Journal.

December, 1920, lxxiii, 6.

1. Some of the Most Probable Causes of Mental Diseases. C. V. Unsworth.
2. Dementia Præcox. E. McConnelly.
3. Clinical Versus Laboratory Findings in Syphilis of the Nervous System. C. S. Holbrook.
4. Paranoia and Allied Psychoses. W. J. Otis.
5. Senile Psychoses. Henry Daspit.
6. Feeble-mindedness. George F. Roelling.
7. General Treatment of Nervous Disorders. L. L. Cazenave.
8. Medical Aspect of Insanity to Medicine. J. A. O'Hara.
9. Methods of Examination. L. V. Lopez.

3. Clinical Versus Laboratory Findings in Syphilis of the Nervous System.—C. S. Holbrook holds that there is no field in medicine where the importance of a correct and prompt diagnosis is more desirable than in syphilis of the nervous system, and that such a diagnosis frequently is not readily made. Syphilis, it has been said, may mimic any disease of the nervous system, and the typical syndromes described in text-books are seldom found, and are valuable only in the descriptive art. In

the study of a person with nervous or mental symptoms assistance should be sought from all sources. The family history, the personal history, and habits of the patient, together with the clinical findings, should be thoroughly scrutinized. When further information is desirable the laboratory should be called into requisition. Many of the more or less atypical cases of paresis, tabes, and meningitic luetic infections have been allowed to progress for months and years, not because these diseases were not considered, but because some laboratory tests proved negative. As a matter of fact, the blood Wassermann is of such little value in syphilis of the nervous system that a negative reaction should receive little consideration, and a positive reaction means that the disease may be due to syphilis or that it is present in a syphilitic. Usually in syphilis of the nervous system distinct changes in the spinal fluid will be found. There are four tests that are of value, the cell count, the globulin content, the colloidal gold test, and the Wassermann reaction. All of these tests should be made in each examination, for, not infrequently, it is found that one or two of the tests are negative while the others point to syphilis. Almost any combination of results may be present. In rare instances the blood and spinal fluid are negative to all tests and yet the patient is suffering from syphilis. When a patient gives rather vague symptoms, especially of the so-called neuroathetic type, and when a history of a venereal sore can be elicited, it is very important that syphilis be ruled out as far as possible by an examination of the spinal fluid. Any person showing Argyll-Robertson pupils should be considered as suffering from cerebrospinal syphilis until proved otherwise. Unequal, irregular, slowly reacting pupils, absent or unequal patella reflexes, should also place one on guard. The clinical findings should always be of primary importance and the laboratory ones of only secondary importance.

U. S. Public Health Reports.

February 11, 1921, xxxvi, 6.

Epidemic Encephalitis (Encephalitis Lethargica; Nona).—Dr. H. F. Smith, U. S. Public Health Service, after a careful review of the literature dealing with the epidemiology of encephalitis lethargica, reports on 153 cases occurring in the United States during 1918 and 1919. One hundred and five of these were in persons twenty years of age or over. The relation of the disease to influenza was studied. Since about 30 per cent. of the entire population had been infected with influenza during the pandemic, significance could attach to the occurrence of a previous history of influenza in cases of encephalitis only if this percentage was markedly exceeded. In the series studied 46 per cent. gave such a history. In the case of males this percentage rose to 71, while in females it dropped to 29. This difference is striking, since the incidence of influenza during the pandemic was approximately 30 per cent. for each of the sexes. The mortality from encephalitis lethargica was almost three times as great in cases with a sudden onset as among those in which the onset was gradual. Ptosis was observed in 95 per cent. of the cases, diplopia in 83 per cent., blurred vision in 72 per cent. Asthenia was present in 93 per cent. of the cases, and an acute debilitation out of all proportion to the temperature and relative severity of the other symptoms was one of the striking characteristics of the cases. Fever was the most constant of all symptoms. Examination of the spinal fluid was of value in excluding other conditions. No specific data were discovered on which a diagnosis of encephalitis lethargica could be made definitely, though many of the fluids showed positive evidence of a reaction of the meninges due to an inflammation of the brain tissue. Such evidence consisted in an increase in cells, or in protein substances, or both. In over half of the cases the white blood count was under 10,000. Blood culture done in four cases was negative. Animal inoculations, in monkeys, were negative, but the inoculated material was not fresh. Approximately 900 persons were exposed in the immediate families of the cases reported, and no secondary cases could be discovered. Case fatality rate was 29 per cent. for all cases, and 60 per cent. for cases with a sudden onset.

Book Reviews.

DIAGNOSTIK UND THERAPIE DER MAGENKRANKHEITEN, von Prof. Dr. T. BOAS, Berlin, 7te Auflage. Leipzig: Geo. Thieme, 1920.

THIS well known book of Boas has just appeared in its seventh edition. Of the many new items contained in the present work a few may be cursorily mentioned. Boas does not approve of administering alkalies in hyperchlorhydria at the height of digestion. This has a tendency rather to increase gastric secretion. Boas prefers to employ the alkalies one-half hour before meals. Aluminum silicate is recommended as one of the best remedies to combat high acidity; it is given in half to teaspoonful doses in water, half an hour before meals. In gastric hemorrhages Boas is a believer in strict rest, abstinence from food and drink and the administration of opiates. Everything is treated in the most practical way and the book may be warmly recommended to every practitioner of medicine who reads German.

THE RADIOGRAPHY OF THE CHEST, Vol. 1, **PULMONARY TUBERCULOSIS**. By WALKER OVEREND, M.A., M.D. (Oxon), B.Sc. (Lond.). Hon. Radiologist and Physician to the Electrotherapeutic Department, East Sussex Hospital (Hastings); Radiologist to the City of London Hospital for Diseases of the Chest (during the War); late Chief Assistant in the X-Ray Department, St. Bartholomew's Hospital; Physician to the Prince of Wales' Hospital, London, and Radcliffe Travelling Fellow. St. Louis: C. V. Mosby Company, 1920.

FOLLOWING a brief and too general reference to the technology involved, there are fully and ably discussed the normal structures that register on the x-ray plate, in the radiograph of the chest. Dr. Overend comments on the various classifications of pulmonary tuberculosis heretofore advanced and presents, for the purposes of radiography, a description of the following types: Tuberculous disease of the bronchial glands, disseminated nodular phthisis, disseminated nodal phthisis, bronchopneumonic pseudolobar tuberculosis, chronic attenuated phthisis, fibroid phthisis, pneumonic phthisis, miliary tuberculosis. Tuberculosis of the bronchial glands is again divided into mediastinal, hilar, and perihilar. Case histories and x-ray photographs reproduced are used to demonstrate the types. Bronchopneumonic phthisis is described as nodular, nodal, and pseudolobar,—according as the foci are quite small and nodular or large and multilobular. The pseudolobar type is almost exclusively unilateral as the result of hilar or perihilar glandular affection on the same side. In chronic attenuated or minor phthisis the radiographical manifestations are arranged as follows: (a) apical nodular, (b) apical infiltrative, (c) perihilar discrete and disseminated, (d) perihilar infiltrative, (e) perihilar fibrotic, (f) lymphatic disseminated, and (g) bronchitic. Illustrations and case histories of each example are presented. Pulmonary fibroid tuberculosis includes those cases in which the radiogram shows evident fibroid deposits, extensive areas of fibrosis, or evidence of considerable displacement in internal organs and deformities of the chest wall, with or without the presence of cavity. Miliary phthisis is next considered, together with its complications. Pneumothorax, emphysema, cavities, and bronchiectasis are considered as complications in tubercle. Finally, there is a chapter on the radiographical diagnosis of pulmonary tuberculosis in which clinical comments and illustrative cases appear. In the concluding remarks, Dr. Overend justly presents the inadvisability of expecting the radiologist to determine at one examination the diagnosis in cases which have possibly puzzled one or more skilled clinicians. Multiple examinations are recommended, supplemented by many plates, both plane and stereoscopic, more particularly of such areas as may be regarded with suspicion.

A TEXT-BOOK OF HISTOLOGY. By FREDERICK R. BAILEY, A.M., M.D. Sixth Revised Edition. New York: William Wood and Company, 1920.

THE fact that this text-book has reached its sixth edition is in itself proof that it has met with general approval. The present revision shows evidence of a careful inspection for the need of changes necessary to bring it up to date but no change in the general plan

of the work has been made. The chapter on the nervous system occupies about one-third of the volume and has been written by Oliver S. Strong. The new edition will probably increase the size of the already wide circle of friends possessed by this work.

DIE PARTIGENGESETZE UND IHRE ALLGEMEINGÜLTIGKEIT, Erkenntnisse, Ergebnisse, Erstrebnisse. Allgemeinverständlich, dargestellt von Hans Much, Universitätsprofessor in Hamburg, Leipzig: Curt Kabitzsch, 1921.

MUCH believes that all natural antigens are in fact antigen mixtures. The several constituents which he conceives go to make up this antigen mixture, he has designated as partial antigens or, as he has contracted the words, "partigens." This pamphlet is the presentation of the author's views of the laws governing the activities of the partigens. In each antigen mixture there are said to be four partigens: a water-soluble portion, albumin, lipid and fat. Since his whole argument is based upon the claim that lipoids and fats have antigenic properties as well as albumins and since this claim is vigorously protested by probably the majority of immunologists perhaps all that can be said is that the author's thesis is interesting if true. The pamphlet is purely a philosophical presentation of the question and contains no experimental evidence to support it. It makes interesting reading.

A NATURALIST ON LAKE VICTORIA, with an Account of Sleeping Sickness and the Tse-Tse Fly, by G. D. HALE CARPENTER, D.M., B.C.H. (Oxon), Uganda Medical Service. New York: E. P. Dutton & Co., N. D. (1920).

THIS is a delightful book. The author spent parts of four years in the vicinity, and on the islands of Victoria Nyanja, in a study of the bionomics of the Tse-tse fly, *Glossina palpalis*, under the auspices of the Royal Society. The book gives evidence of the closest and most painstaking observation and the knowledge gained of the habits of the fly is most extensive. Native "boys" were trained to collect the fly, and its relative abundance or rarity in a given place was determined by the average number of specimens taken "per boy per hour." The natural enemies of the fly are considered, and the possible means of eliminating it; although the author is not apparently sanguine of much success in this direction.

To the naturalist, and particularly to the entomologist, the book will prove especially interesting, since more than half its pages are devoted to descriptions of the mammals, reptiles, birds, fishes, and insects generally observed in the region. The style is simple and non-technical, although the chapter on "The Colouration of Insects" can hardly be so described. The book is most interesting and readable; the illustrations are numerous and especially fine.

WARFARE IN THE HUMAN BODY. By MORLEY ROBERTS, with an Introduction by Professor ARTHUR KEITH, M.D., F.R.C.S., F.R.S. London, Eveleigh Nash Co., Ltd.

THIS is a book by a keen student of man and nature. Most people know of Mr. Roberts as a novelist of note, they do not know of him as a keen sociologist or as no mean artist with the brush as well as the pen. In the volume he deals with the pathology of human societies as well as with that of the human bodies. And to do this he has studied in the laboratory as well as in the open in observing nature. When such points are dealt with as malignancy, inhibition, the theory of immunity, heredity and environment, the physiology of consciousness and the psychology of training, the reader is sure of a very wide field to traverse. But the assurance of Professor Keith is warranty that the subjects are handled in no quasi-scientific fashion but deeply and thoughtfully, whether one agree with the author or not. The fact is that the book is one abounding in suggestive thought and well repays reading and thinking over. Not the least of the points is that to deal with these problems the scientist of wide observation is needed of the calibre of Wallace or Darwin, in place of the specialist observer of to-day. One point the author has made is that bearing one another's burdens is a first rate plan of social life. This is heretical according to modern education, but it might prove efficacious according to the author in dealing with some of the worst forms of social inflections.

Society Reports.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, Held January 24, 1921.

THE PRESIDENT, DR. GEORGE GRAY WARD, JR., IN THE CHAIR.

Inaugural Address of the President.—The Relation of the Medical Profession to the Community.—Dr. GEORGE GRAY WARD, JR., delivered this address. (See page 337.)

Severe Rachitic Involvements of the Thorax and Certain of Their Consequences.—Dr. EDWARDS A. PARK of Johns Hopkins Hospital, Baltimore, read this paper, which was liberally illustrated with lantern slides. He stated that in the course of severe and prolonged rickets the thorax was invariably affected and often became the seat of most extensive deformity. The milder degrees of rachitic involvement were in themselves of little or no importance. The more severe involvements, however, might after a time become a veritable menace to life itself. In examining the chest of a child suffering from what we might most properly call rachitic osteomalacia of the thorax one was at once struck by the peculiarities of the deformities and the behavior of the deformed thorax in respiration. In the first place the chest was small, measuring from 9 to 12 cm. less in circumference than the head at a time when the thorax should be as large as the head. In the second place it was shaped very roughly like a wedge, the anterior part of the chest corresponding to the narrow end of the wedge. Its unusual shape was due to depression present at both sides in the region of the costochondral junctions and extending backward and forward so as to narrow the thorax anteriorly. In the expiratory position these depressions extended from the midaxillary line to within two or three centimeters of the sternum in front and from the fourth rib above to the ninth rib below. The deepest points were found at the sixth and seventh costochondral junctions and here the depression might be a centimeter or more in depth. It was in most instances greater on the right than on the left side, apparently because the heart acted to protect the left side. Indeed on the left side there might be no depression. With inspiration the deformities were much increased. The depressions became widened and deepened. They extended from within two centimeters of the sternal margin to the posterior axillary line and from the second rib to the tenth rib below, where the thorax began to flare out over the abdomen. The floor of the depression sank with inspiration backward and inward toward the vertebral column. Owing to the collapse of the sides of the thorax during inspiration the circumference of the chest at the level of the nipples remained the same during inspiration and expiration, or might be actually diminished by a few millimeters during inspiration. Thoracic respiration alone considered must therefore result in an actual inspiratory loss of intrathoracic space. *This must in itself bring severe respiratory disturbance.* These deformities were brought about because the bony thorax had lost its rigidity as the result of the failure of calcium deposition and calcium withdrawal consequent upon rickets. There was also a weakening at the costochondral junctions brought about by the rachitic process in the so-called metaphysis or intermediary zone. The chief factors operative to produce deformity were the pull of the diaphragm and atmospheric pressure. Atmospheric pressure caused the ribs to sink in at their weakest parts anteriorly, the pull of the diaphragm bent the ribs and their cartilages inward, and both of these factors caused the cartilage to be displaced upon the rib through the rachitic zone, so that instead of forming a continuous line, the cartilage was attached to the rib obliquely or even at right angles. Such changes in the thoracic wall eventually brought about changes in the thoracic contents. When the thorax was opened knuckle-like enlargements were found projecting into the cavity of the thorax, and grooves, one on the external surface of each lung not far from the anterior border, ran in a direction from above downward, somewhat outward and backward.

When the lungs were pulled forward into their anatomical position, the grooves on the surface of the lung came to lie directly opposite the line of the deformed costochondral junctions, and the depressions in the grooves exactly corresponded to the costochondral prominences. This groove divided the surface of the lung in such a way that roughly one-quarter lay in front of it and three-quarters behind. The part of the lung in front of the groove was mostly emphysematous, that behind the groove was generally largely atelectatic. The changes in the heart consisted principally in dilatation and hypertrophy of the right ventricle. The columnæ carneæ were thick and flattened out against the ventricular wall. The weight of the heart was increased out of proportion to the body weight. The heart was usually heavier than the liver, kidney, or spleen, as compared to the body weight. The liver occupied an extremely low position which was explained by the correspondingly low position of the diaphragm. The intestines were usually distended. Dr. Park described the physical signs and clinical picture presented by an advanced case of rickets, and stated that the clinical picture suggested pneumonia and had usually been considered in that light, yet it was noteworthy that the temperature was rarely greatly elevated; it was usually low, and not infrequently normal. The leucocyte count was usually low. In 30 cases studied with that point in mind, it varied between 4,000 and 15,000 and averaged 11,000. The clinical picture was caused by the loss of rigidity of the respiratory bellows, the result of the rickets, with continued collapse of the thorax and loss of its power to expand. The atelectasis increased. As a result of the atelectasis the pressure on the pulmonary circulation rose, hypertrophy of the right heart followed, later perhaps of the whole heart. If the rigidity of the ribs became still further impaired, a point was reached at which the disabled respiratory machine was just sufficient to maintain itself under normal conditions. When now a slight additional burden was put upon it in the form of an infection, it became insufficient to perform the work demanded. Nature then resorted to the only expedient possible—respiration became enormously increased. The course of such cases was subject to great variation; some became progressively worse until death intervened; in others an alternating exacerbation and decline of symptoms might continue for weeks. If these children did not die they might gradually improve, and, given time, osteoid tissue might be produced in such quantity as to give the shafts of the rib and the costochondral junctions the requisite rigidity. It was most important to realize that deformity and normal thoracic function were entirely compatible; that the element of danger was not deformity but the loss of rigidity of the thorax. With the aid of cod liver oil calcium salt could be made to deposit in the rachitic metaphysis and the shaft and a true healing of the defect brought about by the rachitis be accomplished. With the aid of cod liver oil the thorax could be made to become rigid or nearly so in about two months. In spite of the cod liver oil treatment the deformities would persist months and perhaps years. Gradually, however, the deformities of the thorax were outgrown. Rickets was often looked upon as a disease not in itself threatening to life. It did threaten life, however, when situated in the thorax even without added infection. Treatment should chiefly be directed toward prophylaxis. Such extreme rachitic affections as had been described must never be allowed to develop. At present the only treatment for these acutely sick cases which they were able to advocate from their experience was the administration of cod liver oil, preferably in small doses, the avoidance of those things which gave rise to the abdominal distention, and the best care.

The Treatment of Rickets. Especially the Results Accomplished by Means of Cod Liver Oil.—Lantern Slide Demonstration.—Dr. JOHN HOWLAND of Johns Hopkins Hospital, Baltimore, gave this presentation. He stated that there was hardly a disease like rickets that was so old and yet so new, that was accurately known clinically centuries ago and that interested pediatricians and experimenters intensely at the present time. Yet with all the efforts that had been expended, particularly in the last ten years, we were without a clear understanding of the cause of rickets.

A good deal had been done, much had been learned, and the direction that investigation would take was reasonably plain. It became increasingly evident that food played the essential if not the whole rôle in the process. It had been hard to reconcile certain facts with this conception, for instance, that infants developed rickets of the most extreme grade when being nursed by their mothers, and that they did it also when receiving cows' milk, and that they became rachitic far more frequently at certain times of the year, notably the winter and early spring. But other facts compelled the conclusion with even greater insistence that food was the essential factor. Animals could be made rachitic with complete regularity when an improper diet was given to them; they could be cured by a proper diet, all other influences remaining the same. The proof of these facts with rats left nothing to be desired. At some future and probably not distant date the one who wrote upon the treatment of rickets would speak in terms of food factors and food composition. Now in the beginning of our knowledge we were not in so favorable a position. With little doubt it would be possible to give directions for making the milk of nursing mothers or of healthy cows antirachitic in its influence. But at present we were marking time and waiting for further information. So far as diet was concerned we must still give infants and young children food which we knew contained the essential factors for nutrition in a proper amount and in such form that it was capable of being digested, which was no more than we tried to do with all children. We could in many instances place children in good hygienic surroundings, but this would not necessarily cure rickets; it might help somewhat. And so we had used remedies, and very many had been advised and used, and only two had had much reputation. These were cod liver oil and phosphorus. Cod liver oil had been used to a considerable extent for only the last fifty or sixty years. It had been advised for many different conditions, especially for tuberculosis and in children for almost every known disease and lately especially for rickets. It could truthfully be said that it had been regarded by some as a specific and by others only as an easily assimilable fat. There were metabolism studies first by Schabad and later by Ernst, Schloss, and others to show that calcium was retained better in rickets when cod liver oil was given, and there had been clinical studies by Hess and Unger to indicate that cod liver oil would prevent the development of rickets. What he wished to present now was ocular evidence that cod liver oil would cure rickets and the most severe rickets. Dr. Howland then showed slides and described the conditions due to lack of calcium. Other slides showed ossification centers and the gradual deposit of calcium following the administration of cod-liver oil. As the result of their studies, of which the pictures shown represented only a small part, it seemed to him that most of us had been very blind, and he confessed that he had been among the blind. We had a specific for rickets and we had not appreciated it. The reason for this was that cod liver oil was not immediate in its effects or at least its effects were not immediately evident. Cure might be going on and we could not appreciate it. Deformities did not become less, they rather were more apparent for a time. Enlarged costochondral junctions were firmer and more readily felt. Thoracic deformities were not improved; enlarged epiphyseal extremities did not at once subside. But the disease in the bones was brought to a standstill and was cured and after a number of weeks the bones were firm. Very gradually unnecessary enlargements disappeared as did the callus after a fracture and many minor deformities became less. With so potent a preventive as this it was imperative to see that the deformities never arose. It took a long time to cure rickets. The evidences of improvement often did not show for four to six weeks, or perhaps more, but they became progressively more marked and the end result was nearly certain. It seemed sufficiently evident then that in the empirical remedy cod liver oil we had a specific and that we could therefore wait with equanimity the day when more exact knowledge would enable us largely if not entirely to prevent this deforming, economically important, and probably eradicable disease.

Dr. ALFRED F. HESS said he thought all would agree

that it was very difficult to discuss these papers as the demonstration was so complete and convincing. As Dr. Howland had said, there had been a particular interest evinced the last five or ten years in rickets. This was partly due to the general interest in nutritional disease and also in part to the great increase in rickets in the Central Empires where, as was well known, rickets had assumed almost epidemic form in Germany, Austria, and other countries. The one practical therapeutic advance was our realization of the value of cod liver oil. Dr. Hess said he had been interested in this matter and with Dr. Unger, in 1917, had carried out a study in one of the negro districts of the city, Columbus Hill. Here they selected a number of infants and children and gave them cod liver oil both as a therapeutic and as a prophylactic measure, doing this in the winter and spring when rickets was most frequent. It was quite remarkable how the rickets was cured; in over 80 per cent. of the cases there was a definite clinical cure. As Dr. Howland had said, we were able to prevent and to eradicate it. In this city there were about 65,000 children between three and fifteen months of age (the age at which rickets occurred); if, say one-third were unable to buy cod liver oil it could be furnished to that number of children for \$150,000 a year. In other words, by the expenditure of \$150,000 a year we could practically eliminate the disease. Following the progress of rickets by the x-ray was also a great advance of recent years. It would enable us to separate the remedies that had value from those which had no value. As was known there were many advertisements of preparations which were said to be just as good as cod liver oil. Many of these were said to contain a small amount of cod liver oil and were used by physicians and the laity in place of cod liver oil. We could now test such preparations and prevent their false labeling and their use instead of cod liver oil in this disease. In this same district a study was carried out by Dr. Unger and the speaker as to the diet of the negro mother and, without going into details, it might be said that there was one prominent characteristic, namely, they took little fruits and fresh vegetables and an excess of carbohydrates. A similar study carried out last spring and fall showed the same lack of fresh vegetables and fruit.

Dr. OSCAR M. SCHLOSS said he could well agree with Dr. Hess as to the difficulty of discussing these papers. They furnished a very clear cut demonstration about which there was relatively little to be said. The thing that had impressed him during the last few years was the extreme frequency, not only among the type in which we usually saw extreme grades of rickets, but also among the better classes. If we assumed that head sweats and small enlargements of the costochondral junctions were evidence of rickets, then a very large number of infants suffered from moderate grades of this disease. Another interesting point was the extreme variability of the symptoms, the symptoms being more pronounced in one direction in one patient and in another direction in another patient. Dr. Schloss stated that he had recently seen three children who developed green-stick fractures from slight injuries. These were children whom he had seen as infants and they had all shown evidences of rickets. The x-ray plates at the time of fracture showed rather decided rickets, and the tendency to fracture cleared up after administration of cod liver oil. Another condition not identical with rickets but perhaps related to it in which cod liver oil was useful was so-called congenital soft skull, though it was not always congenital, as it sometimes developed during the course of two or three months. It was surprising the way in which these almost totally membranous skulls would ossify under the administration of cod liver oil. The first one of these cases he saw some years ago and that patient had demonstrated that cod liver oil was really as useful as it had been demonstrated to be this evening. Within a few weeks the skull was quite hard, and it had seemed almost impossible that it could have been the result of the medication. The repeated experience of such results lent assurance to the belief that this was cause and effect. Dr. Schloss stated that he believed the natural conclusion was that the use of cod liver oil should be spread rather widely, not only to Italians and Negroes who developed ex-

treme grades of rickets, but it might be well to spread this knowledge to the better classes in which slight or moderate grades of rickets often developed.

Dr. WALTER LESTER CARR said it was impossible to overestimate the value of the papers of the evening. All one could do was to endorse and learn from what had been said. Dr. Park spoke of the deformities of the chest with bone changes in rickets and the associated lessening of thoracic expansion. It always seemed to him that the atmospheric pressure of fifteen pounds to the square inch not only caused a lessening of respiratory activity but also impaired the circulation as the amount of inspired air was diminished, and this interfered with the venous return from the respiratory and intestinal tracts. As a result a catarrhal condition was established. These children were therefore highly susceptible to infection and it was recognized that it was difficult to care for a bronchopneumonia in a case of rickets. The catarrh of the intestinal tract interfered with digestion and absorption. The reason there were so many preparations of cod liver oil on the market was because physicians had not understood the dosage for cod liver oil and were led to use other less valuable oils. Sometimes children could take only moderate doses, and if there was a great deal of mucus in the intestinal tract the oil might not be emulsified. These were matters of clinical observation. He felt that all should bear the reproach that more attention should be paid to the use of cod liver oil in the treatment of rickets.

Dr. WILLIAM P. NORTHRUP said he hoped a retired teacher would be pardoned for taking pride in the fact that these two pupils of his were the star performers of the evening. Dr. Howland he had examined for the Presbyterian Hospital and had lived with him at the Foundling Hospital. Dr. Park also was at the Foundling Hospital with him. These pictures that Dr. Park showed looked like old friends. He had seen all these queer twisted bones at the autopsies performed at the Foundling Hospital. One found every kind of twist and deformity, so there was nothing to add to the scientific discussion except to express his appreciation of the fact that they had found a cure for rickets. The diagnosis of rickets was easy, the prognosis was the experience of all, but when it came to a specific that was really adding something. He thought they all felt very grateful to both speakers.

Dr. ROWLAND G. FREEMAN said it was a pleasure, when so many of our old remedies were turned down, to come back to cod liver oil and get a scientific demonstration of its efficiency. He was sure all present felt very grateful to the speakers.

THE PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting Held December 22, 1920.

THE PRESIDENT, DR. HERMAN B. ALLYN, IN THE CHAIR.

Intravenous Citrate of Soda Treatment of Thromboangiitis Obliterans (Berger's Disease).—Dr. WILLIAM A. STEEL of Philadelphia presented this paper and said that thromboangiitis obliterans affected all the coats of both arteries and veins, and begun usually in the legs below the bifurcation of the popliteal and from there spread into other vessels. In this country it was almost entirely limited to middle-aged, male Russian Jews. The symptoms were due to the gradual shutting off of the arterial blood by the occluding thrombus. The first sign was pain in the foot or calf while walking or standing, usually attributed to rheumatism or flatfoot, relieved on sitting down and holding up the leg but recurring on further attempts at walking. The affected foot became purple when dependent and blanched when held horizontal; it felt colder than its fellow and was sensitive to cold, damp weather. The author had employed sodium citrate method of treatment for the past three years, with encouraging results, by the following technique: during the first month the patient was kept in bed with the legs constantly in either a hot air or electric light bath at 110° F., and 250 c.c. of 2 per cent. sodium citrate solution were given intravenously every second day. During the second month the interval of injection was lengthened to every

third or fourth day, daily leg massage was given and the patient put in a wheeled chair with feet hanging down for a short time each day; or, if the case was not advanced, some walking was allowed. The intervals of injection were then gradually lengthened until at the end of a year one was given every two weeks. Increased walking was permitted as the symptoms subsided. Potassium iodide in 10 grain doses 3 times daily was given during the whole course of treatment. Six cases had been treated; 2 had resumed their regular occupations; one was walking with good function; one, with a previous leg amputation, had resumed his occupation as a playwright; one very desperate case walked after one year of treatment, relapsed at 4 months and was now yielding to a second course of injections; the sixth case was progressing satisfactorily.

Dr. J. CHALMER DACOSTA of Philadelphia said that he was very much interested in this subject and believed that Dr. Steel had given us the only plan of treatment that had really proved of service. He did not think it could be stated as emphatically as had formerly been done that all the cases were in Hebrews, because he had personally seen 3 cases which had occurred in persons not Hebrews and born in Philadelphia. He did not think that we should allow the absence of Hebrew blood to influence us in the diagnosis in these cases. Early diagnosis before the onset of gangrene was of the utmost importance. Women were free from this malady. The absence of pulse was not constant. It was apt to be absent during the attack of pain and to return on relief of pain. Intermittent claudication varied in severity from merely a nervous symptom to crippling pain. The bright red color was characteristic. He thought that the condition characterized by this bright red color was what Weir Mitchell called erythromelalgia. The future of these cases was ominous. The disease was inexorable.

Dr. MOSES BEHREND of Philadelphia said that in the Jewish Hospital with which he was connected they got these patients quite often and he was compelled to say that his experience with the sodium citrate treatment had not been so favorable as Dr. Steel's; they had used gallons of it. When one leg had been amputated it was not a very pleasant prospect to the patient to contemplate amputation of the other leg. In such cases they had given sodium citrate a very thorough trial. One such case in the Mt. Sinai Hospital had been treated very thoroughly, but finally the second leg had to be amputated. Sodium citrate doubtless relieved the pain but it did not cure the condition.

Dr. W. WAYNE BABCOCK of Philadelphia said that the rule had been with some surgeons to amputate early and high in order to save the patient the discomfort of a progressive disease. Dr. Steel had not had to amputate in any case he had seen. He thought that we could feel that Dr. Steel's method of treatment was worthy of a great deal of our praise and enthusiasm. He thought that in any case which came to us we were in duty bound to carry out this treatment with thoroughness and care.

A Simple Method of Administering Tuberculin That Has Proved Efficacious.—Dr. MYER SOLIS-COHEN of Philadelphia read this paper in which he said that the appropriate initial dose of tuberculin for the individual patient was that amount which, when injected intracutaneously, gave the minimal reaction as indicated by induration. If this dose was followed by favorable reaction, such as amelioration of the symptoms, a feeling of well being, rise in spirit, increase of appetite, reduction of temperature, it was repeated as these good effects were passing off until it no longer was followed by improvement, whereupon it was increased by 50 per cent. increment until it again produced a favorable reaction. If the initial or any subsequent dose failed to have any influence, it was likewise increased until it produced a favorable reaction. Any dose that was followed by an unfavorable reaction, such as rise of temperature, exacerbation of the symptoms, malaise, anorexia, pain, loss of weight, was reduced from one half to one thousandth, depending upon the severity of the reaction. Old tuberculin (O. T.) and tuberculin Rückstand (T. R.) administered in this way to patients in the incipient or moderately advanced stage with temperature below 100° who had not been improved sufficiently would injure none and improve many. In view

of the wide variation in tuberculin hypersensitiveness, which in two patients of apparently the same type might vary one million times, any method of administering tuberculin that gave practically the same initial dose to every patient was dangerous even in so-called expert hands. Tuberculin was merely one of many therapeutic measures of value in tuberculosis. It was an important adjuvant to and not a substitute for the necessary physiological and medicinal treatment.

DR. JOSEPH TURNER of Eaglesville, Pa., said that the early disfavor in which tuberculin was held following Koch's discovery could be attributed to the fact that it was not known how to use it and also that tuberculosis was really a mixed infection. In recent years it had come into more favor among those who were working in tuberculosis, and chief among those had been Trudeau. In the past tuberculin had been given in too big doses. He had given tuberculin to 39 adults and 1 child without selecting the cases. Some of them got an arrest of the disease and were able to go home and go to work. Some did not get well. Those who did get well were, with one exception, the type that are getting well this year without tuberculin. Out of 40 cases he could think of only one who might have been benefited by tuberculin and he was not sure of that. He did not think that tuberculin was a specific for tuberculosis. If it were there would not be about 50 or 60 varieties of it.

DR. A. E. ROUSSEL of Philadelphia said that his experience with tuberculin had been restricted to about a dozen cases in adults in the Eaglesville Sanitarium. The results obtained in this series had been very much the same as those mentioned by the last speaker. He had not observed any improvement in any of these cases and he was quite satisfied that in two of them there had been an increase in symptoms.

DR. W. WAYNE BABCOCK of Philadelphia said that in some of the cases of tuberculous glands and sinuses he had observed a marvelous improvement. He had seen many old discharging tuberculous sinuses which, after a single dose of tuberculin had stopped running as if a spigot had been turned off. He had had a few cases in which enlarged glands of the neck were reduced in a week or ten days after a single large dose. Such results were obtained in about 10 per cent. of the cases. The doses in all these surgical cases had been from 5 to 10 mgm. He had tried the injection of tuberculin directly into the gland in children and found that it had caused a rapid liquefaction and healing.

DR. HERBERT FOX of Philadelphia said that he thought that all that could be gained by the use of tuberculin was to raise the tolerance of the individual for the toxin. There were no clinical or laboratory evidences that immunity had been produced. He thought that Dr. Cohen's ingenious application of the skin test as a control of the amount with which to start this toxin resistance was a very nice point.

DR. MYER SOLIS COHEN said that he felt that tuberculin was still on trial. Most incipient cases did well without tuberculin. He would not think of giving tuberculin to a patient who was doing well on ordinary measures. He did not believe in comparing groups one of which was getting tuberculin and the other was not. Among those who were getting tuberculin there were some who were getting too much and it was doing them harm; whereas some of them who were not getting it would have been benefited had they received it. There was no doubt that in some cases tuberculin did good and in others harm.

Color Vision.—This paper was read by Dr. C. P. WEBER of Washington, D. C., who said that the seat of color vision diagnosis was found in the iris. Besides being a curtain which shielded the retina the iris was also a shield against invading color. When the eye was forced to observe a certain color for a long time, the iris changed its color to suit that of the invading impression. It required several years for this change to take place. The iris took on the color which was complementary to the color which it was forced to observe. The entire spectrum was represented in the color of the iris, beginning with red at the center and concluding with violet at the periphery. When the change of color took place, the color disappeared in the corresponding concentric ring. In the condition known as color blindness the iris appeared a pale, dull yellow bordering slightly on a greenish tint. This condition

was produced principally by work under artificial light. It would also be produced by the amethyst lenses which were popular a few years ago, if worn long enough. A careful study of the subject of color vision had resulted in the production of a cure not alone for color blindness, but for all conditions arising from the false use of color. The main object in the procedure of a cure was the change of the color of the iris. When a cure was to be made, a choice must first be made as to which of the normal conditions is the right one for the patient at hand. The time which the iris required for a change with the proper glasses ranged between two and four months. Headaches which arose from the false use of colors were relieved almost instantly by the selection of properly colored lenses.

Polyorphism of Epidemic Encephalitis (Lethargic); The Types of the Disease and the Differential Diagnosis.—Dr. Alfred Gordon of Philadelphia read this paper in which he said that the clinical picture of lethargic encephalitis presented great variety. The literature abounded in examples of its polymorphous character. In view of its polymorphism errors of diagnosis were likely to be made. The general characteristics of the malady consisted of three principal symptoms: fever, ocular palsies and somnolence. The somnolence might present various degrees from slight drowsiness with a tendency to sleep on sitting down to the deepest unconsciousness. Palsy of the ocular muscles was a common symptom. It was usually an early manifestation. The most frequent symptom was ptosis which was in the majority of cases bilateral. The internal muscles of the eyes were less frequently involved. Inequality of the pupils, mydriasis and nyosis, paralysis of accommodation, mild strabismus were the conditions observed. Various motor and psychic manifestations were met with. The following types might be observed: Myoclonic, choreic, hemiplegic, convulsive, meningeal, Parkinsonian, bulbar, neuralgic and neuritic, mental, cerebellar, poliomyelitic, sensorial, paraplegic, and incomplete. The disease must be differentiated from polioencephalitis, cerebral abscess, anterior poliomyelitis, cerebral syphilis, intoxications, narcolepsy, coma, and stupor. Lethargic encephalitis was a protean disease with its histological characteristics of a definite type, but with a great variety of localizations throughout the entire central nervous system.

DR. CHARLES K. MILLS of Philadelphia said that he thought the facts were in a nutshell that there were peculiar pathological lesions widely focalized. Perhaps the most difficult thing to understand was why in so many cases we had the triad of symptoms to which he had referred. It was less difficult to comprehend its protean forms if we considered what we knew of its pathology. He had studied and written about, together with one of his colleagues, what we know as cerebellar and the cerebellobulbar type of this disease. The paralysis agitans type was very much like that described many years ago as pseudoparalysis agitans and was probably given this characteristic by the focalization of the lesion in the lenticular nucleus. It seemed to him the triad of symptoms was due to some peculiar selective action of the infection on certain parts of the nervous system. Everyone of us who had had experience with the disease had been impressed with this characteristic.

DR. J. HENDRIE LLOYD of Philadelphia said the name sleeping-sickness should never have been applied to this disease. It was well named encephalitis. One of the most important differential points was that of syphilis. We all know that abnormal somnolence was common in cerebral syphilis. Dementia præcox, where the symptoms were cataleptoid, might simulate this disease. This was also true of hysteria.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held December 16, 1920.

THE PRESIDENT, DR. GEORGE DAVID STEWART, IN THE CHAIR.

The program of the evening was arranged by the Committee on Library.

The Deeds and Needs of the Library of the Academy.—DR. GEORGE DAVID STEWART made a brief address in which he pictured the way in which books enabled us

to go back through the centuries and live with other men in other times. In his library a man could dwell at the court of kings or with the Olympian gods. Books were the heritage left us by those whose experiences had brought them something of truth, or usefulness or beauty which they wished to share with the rest of humanity. If one wished to be not a mere spectator in the world's drama he wrote a book, or he became an actor and performed some deed that another embalmed in writing, for books were powerful and enduring. Towers had fallen, walled cities had crumbled to earth and temples had moulded to dust, and their glory had vanished and would be forgotten were it not for books. Dr. Stewart said that books were dynamic, and exerted a great force and influence in our lives. A well chosen library was the greatest preventive of presenility. Speaking more particularly, of the Library of the Academy, he said that it was one of the largest medical libraries in America, ranking next in size to that of the Surgeon General. Its popularity extended all over the United States and Canada. The first query of almost every man applying for membership in the Academy was "How soon may I use the Library in the afternoons?" Recognizing this demand, they permitted applicants for membership to pay a fee and become library subscribers during the time they were on the waiting list. Space was urgently needed. The readers had increased almost 4,000 during the past year, to be exact, from 23,500 in 1919 to 27,457 in 1920. In the effort to get more space they were constantly making rearrangement. Old shelves from the council room, removed to make way for new fireproof cases for the classics, had been placed along the walls of the hall above the Library. This with the room formerly occupied by the Public Health Committee gave a little additional space and permitted some of their books to leave unworthy positions on the floor and climb to their rightful places among the irresistible aristocracy on the shelves. It was true that some of their members had left generous legacies, the income from which was sufficient this year to pay library expenses amounting to nearly \$20,000. But this was a very modest sum and not nearly enough. They should and must expand. It should be possible to admit medical students at all times of the day. The fact that the curricula of medical schools permitted, and medical students sought admission to the Library was strong evidence that medical education was covering a broader field. At present, however, the admission of medical students was impossible; there was neither the space nor the necessary staff of assistants. There was another class of readers in the Library, a small and silent band that Osler said was the leaven that leavened the whole lump. Voltaire once made the unfortunate remark that rare books were worth nothing, since if they were worth anything they would not be rare. We knew better nowadays. We knew that in some old books there was much that might appeal to the few but to them with the voice of a clarion. There were books that had lain silent for a century and then had spoken with the trumpet of prophecy. As Thoreau said, "Two thousand summers had imparted to the monuments of Grecian literature, as to her marbles, only a maturer, golden and autumnal tint, for they had carried their own serene and celestial atmosphere into all lands to protect them against the corrosion of time." Recognizing the needs of this small band and also that a knowledge of medical history might and did prevent old errors from again becoming current, the Library Committee recently asked the trustees for a small allowance wherewith to purchase some of these rare old books, and a modest amount was voted. Then through their Librarian, who presented the case with skill a friend appeared who fulfilled the prophecy of the test, "Ask and it shall be given," for he not only donated the books but the case in which they were displayed and protected. Alexander of Macedon carried with him on his expeditions a copy of the Iliad, possibly the only one then extant, in a precious casket. They were not in a position at present to indulge extensively in rare books, since it was with difficulty that they supplied the necessary modern volumes. However, they invited the members of the Academy to look at the precious casket that had been provided in which their Iliad would be protected and preserved when they brought it to join the company of immortals. For their scientific necessities they needed a great deal

more. When such large sums were given for all sorts of educational and medical endeavor, it seemed incredible that the New York Academy of Medicine could not and did not receive enough to provide for its legitimate and wholly altruistic activities. Surely it was because their character and need were not known.

The Story of a Great Consultation in the Sixteenth Century—Jerome Cardan Goes to Edinburgh.—Dr. CHARLES L. DANA made this contribution, in which he described the trip of Jerome Cardan, then Professor of Medicine at Paris, to Edinburgh where he had been called in consultation by John Hamilton of Edinburgh, Archbishop of St. Andrews, who was in a distressful state of mind and body. He was 40 years of age and for ten years had suffered from asthma. He had advised with his personal physician and had consulted the royal physicians at the Courts of Francis I and Charles V of Spain. He was told that his disease was due to a moist brain, a distillation of phlegm accumulated in that organ and discharging itself through the windpipe into the lungs, causing cough, expectoration, and dyspnea. Dr. Dana related that Cardan was at this time 50 years of age and in very poor health. After forty years of hardship, antagonism, and miscellaneous diseases he had "arrived." He had a distinguished clientele, and had been called to be physician to the Pope. He had declined this honor and had just resigned his University position. He was free to travel when Dr. William Cassinate, the Archbishop's personal doctor, sent him a letter some ten thousand words long begging him to go to Lyons and possibly to Paris where he could see and examine the Archbishop. Cassinate sent him 200 crowns and he started for Lyons with five attendants. Upon arriving at Lyons, after a three weeks' trip, Cardan found neither the Archbishop nor his doctor there. He was, however, kept busy for thirty-eight days with entertainments and consultations, at the end of which time Dr. Cassinate arrived with a letter from the Archbishop, explaining that he was too ill and too busy to leave Edinburgh. Would not Cardan come to him? He sent him 300 crowns for his expenses, promised him 10 crowns a day for his trouble besides many honors, presents, and a "great harvest of fame and esteem." Cardan did not want to go, for he thought England immensely cold; that the grass was full of worms, and the sky darkened with crows. However, he finally accepted the commission and started for Paris on April 18. He was entertained by the royal physician, asked to be physician to the King, and to give his services to various nobles of the day. He met in consultation the famous Jacobus Sylvius, teacher of Vesalius. Cardan described him as a "merry old man of 70, quite bald, quite little, and full of jokes." The other consultant was Fernal, Professor of Medicine in the University, and a most important figure in Medical History. They had a dinner party and discussed the case of the Archbishop from a clinical and Galenic point of view. Their theory was the "moist brain" above alluded to. Cardan listened, kept silent, and ventured no opinion. He here made his final arrangement with the Archbishop's physician. A contract was drawn up and then destroyed as being an instrument unnecessary between a physician and an honorable patient—an interesting commentary on the medical ethics of the day. Cardan and Cassinate traveled down the Seine to Rouen, with the former's five attendants, and part of the way with an escort of fourteen horse and fifteen foot soldiers, for France and Spain were then at war and Cardan was a subject of Charles V. They went to Boulogne, then to Calais, and thence to London, arriving on June 3, 1552. Here they stayed three days and then started for Scotland, arriving twenty-three days later. Cardan stayed in Edinburgh until September 12, a period of ten and one-half weeks. For forty days after his arrival Cardan did not begin his treatment. Being a prudent man he allowed the Archbishop's physician to carry out again the treatment that had been approved by the Paris consultants, Sylvius and Fernal. But the Archbishop got worse and finally Cardan explained his position. The Archbishop was very much annoyed at the delay and told Cardan to apply at once his theory of the disease. Now Cardan thought that the Archbishop's brain, instead of being cold and humid, was hot and dry (perhaps we would not say hyperemic). This caused humors distilled in the stomach to rise to the brain. Also materials in his food were

turned into phlegm, which passed into the bronchial tubes, causing cough, expectoration, and dyspnea. As a matter of fact, the Bishop was a great eater and drinker, and took no exercise; he worked hard; kept irregular hours; was not shy with the ladies. Practically Cardan put him on a Wier Mitchell rest cure. This was about as follows: He rose at eight and took a shower bath—the first taken in Scotland. He then took a walk in a shady place, chewing a little mastic, the 16th Century substitute for pepsin gum. This caused expectoration and helped purge the brain. At 9 o'clock he had breakfast, consisting of liver, with a little ginger and some bread, and two ounces of white wine. After breakfast he rested and amused himself. From 12 to 4 he was allowed to attend to his business, but was forbidden to write letters with his own hand. At 4 he went for an hour's ride on horseback. Then, sitting or reclining, he was allowed to give audience to those who wished to see him. He had supper at 7 o'clock which was like breakfast, but opened with the 16th century cocktail, consisting of a teaspoonful of pure honey. He was to go to bed at half past eight and secure ten hours of continuous sleep. As specialties in the diet, he was recommended turtle soup, snails, barley water, and chicken broth. The Archbishop accepted the advice and medication prescribed and promised that he would report at the end of two years. Cardan had the follow-up system in his practice. In two years the Archbishop did write to say that he was nearly well. The chief object of Cardan's cure by medicine was to reduce the temperature of the brain. To do this, the head must be purged and before that there was to be a purgation of the body. The head was purged in those days through the palate, the nose, and the sutures of the skull. So Cardan blistered the coronal suture and poured a mixture of milk and water with two grains of elaterium through the nose, this being done on an empty stomach. Cardan did not believe in blood-letting nor in much medicine, and these were about the only medications that the patient received; but the attention to hygiene and diet was very strict and definite. He limited the amount and character of his food, kept him away from the hot sun, forbade him to sleep on a feather bed, and made him use a linen pillow. He gave him as a laxative preserved peaches and sugar of violets, and avoided purgatives. He made him drink a quart of milk a day. He was told to rub his head vigorously with an ivory comb and to give his extremities a vigorous rubbing every morning. He allowed him only two meals a day, and as a fattening agent gave him two ounces of sugar water dissolved in the broth of a young pig. He gave him cold natured food which would resist the attraction of the hot brain. Before Cardan left his patient, he prepared and wrote out his "Consilium Medicale" in which he gave his theory of the disease and provided for every detail of the treatment. This made a document twenty folio pages long. It was probable that the Archbishop asked for something simpler, so Cardan wrote a shorter outline of seven pages folio. Cardan left Edinburgh in September and spent some weeks as the guest of the Court of Edward VI, a youth of 15 years. Dr. Dana quoted from the account of a conversation between Cardan and Edward VI and commented upon it showing that Cardan thought the young prince the prodigy of learning and cleverness he was assumed to be.

Dr. Dana then reviewed the impressions of England and her people that Cardan carried away with him. He returned home by way of Belgium, Holland, and the Rhine, spending several days with Frisous at Louvain, and visiting other notable men of the time, among them Conrad Gesner, who was a physician, a botanist, a zoologist, and one of the most industrious and learned men of all time. He published in twenty volumes a catalogue of all the writers who had ever lived. Cardan finally reached his home in Milan, on January 3, 1553, having been gone 310 days. He wrote an autobiography "De Vita Propria," which was quite short, very objective, unsparing in its self-analysis, and full of curious details of his own personality and career. It has been called one of the three great autobiographies in literature; the others being Caesar's "Annals" and Rousseau's "Confessions." Cardan was sensitive, affectionate, introspective, imaginative, superstitious, humorous, in-

clined to ideas of self-reproach, with high ambition and hypomanic industry. Concerning his weaknesses, he admitted he was always inclined to sensuous pleasures. Of these he added his worst and greatest was love of music. He got very melancholy over this defect in his morals. Cardan represented the learned men of his century. His writings were a mirror of what was best in the art, practice, learning, and ethics of the day. In his art he was not behind later centuries. In his ethics he was abreast even of those of today.

Medical History a Safeguard Against Medical Fads.—Dr. JAMES J. WALSH made this contribution, in which he declared that undoubtedly the most important chapter in the history of medicine was that of the cures that had failed. Every generation of physicians of which we had any definite records had had high confidence in a series of remedies which seemed to them, for the time at least, to be curative of some of the rather serious symptoms, if not actually the serious diseases of mankind. Further experience with these remedies had shown that they were without good effect or were of most trivial significance, and often indeed time served to show that they were distinctly harmful rather than helpful. This course of events had been repeated over and over again. Probably nothing would do more good for medicine than if we could secure some remedy for this disease of running after fads to which physicians were so susceptible. Not all of them did the patients harm directly, but some of them did, and all of them did harm indirectly by wasting time with useless remedies. Personally, Dr. Walsh said, he had the feeling that the only remedy for this unfortunate tendency was to be found in a reasonable knowledge of the history of medicine. Properly studied that was just full of the stories of fads and also of warnings in regard to them. A good many people would feel that the cures that failed were a thing of the past because we had reached such a firm foundation of scientific medicine for our therapeutic ideas that we were not disillusioned in the way our fathers were, and our remedies endured. There was a very definite tendency to think that in nearly everything in our generation we were very far ahead of the past and in nothing more than in the critical ability to discriminate the apparent from the real, and enthusiastic claims from realities, but that was only a nice bit of self-complacency that each generation had had its turn. We pitied the generations of the past that they did not live to see our glorious time, but in our turn we should in future be pitied just as complacently. As a matter of fact there probably never was a time when men were so easily led to accept exaggerated claims of any and all kinds as at the present time. The recent experience with Ponzi in Boston was an excellent illustration of that. Anyone who thought that we had become less susceptible to suggestion in this generation must be hiding himself from the realities of present day life. Our popular education and our newspapers and magazines, with their advertising pages reeking with suggestion, had as a matter of fact made us ever so much more suggestible than ever before. It was surprising then to find that physicians shared at least somewhat in this suggestibility of the generation and adopted conclusions occasionally that proved to be not well founded. There were a number of reasons why the medical profession in our time came to adopt remedies that afterwards proved to be of little or no service to our patients. We had ever so much more research than in the past and many of those who pursued medical investigations had the feeling that they must justify their work by making announcements from time to time. As a result not a little of our medical research was not carried out to its legitimate conclusions before it was announced to the public. Besides we were blest, dubiously enough, with a large number of manufacturing pharmacists whose business it was to get hold of what seemed to be novel ideas in therapeutics and exploit them. The commercializing of therapeutics had added greatly to the number of cures that had failed and we had had remedy after remedy highly advertised, popular for a while, and then dropping back into the limbo of disused drugs or discarded modes of treatment. To illustrate this Dr. Walsh reviewed our experience with so-called cures for tuberculosis and cancer. During the same quarter of

a century that we had had this large number of remedies for the cure of tuberculosis and cancer, we had also had such movements as the use of organic extracts of various kinds and then the vaccines, for so many of which the medical garret was yawning at the present time, and then the various modes of treatment connected with the theory of focal infection carried to its uttermost extreme. Then we had a series of remedies coming and going dependent on the theory of intestinal autointoxication as the cause of nearly everything under the sun in medicine, and a few other things besides, an example of those alluring glittering generalities of theory which prove so tempting to physicians all down the ages. Since Pasteur's great discoveries the feeling that there must be antiseptics that would cure microbial disease had been the source of a great many different kinds of remedies. We had forgotten that all down the centuries the idea of killing disease whenever pursued to any serious extent had nearly always led to the killing of the patient or at least to his serious injury before his disease was affected as unfavorably as we had hoped it would be through the use of antiseptic materials. The history of medicine represented the one possibility of giving men a background for judgment, critical and safeguarding, with regard to new remedies. The history of medicine taught that important discoveries had been made in every generation and gave the physician an open mind for medical progress. This always came from observation, not theory. The history of medicine was a monitor with regard to the pursuit of elaborate theories and their tendency to lead even those who had the best of good will in the world and a good deal of knowledge far afield in the pursuit of will 'o' the wisp that invariably led us out over the swamps and quicksands of disappointment from which it was not easy to return to the hard narrow path of real advance. The history of medicine as regards surgery was full of suggestion for modern development and was also valuable as a background for the judgment of such fads and fashions as judging of character by the shape of the head or by physical stigmata, or treating insanity by drastic measures, whether medical or surgical, and even helped us to understand such waves of popular interest as hypnotism, spiritism, and the like, so constantly recurring in the history of humanity. Dr. Walsh then went on to show some of the absurdities of drastic purgation and venesection, remedies of the nineteenth century that had failed, and mentioned some of the remedies for epilepsy and insanity that had gone into the discard. A few years ago there was a definite proneness to think of at least certain forms of criminality as representing insanity and operations on the brain were suggested for them as a cure. In one very well known case here in New York an habitual criminal actually succeeded in having himself operated on for the relief of pressure supposed to be due to an old injury, and then, after having had the reputation of being the worst criminal anywhere in the United States, was for two years a model prisoner so that at last pardon was obtained for him and a great deal of commiseration was expressed for the "poor fellow" who had spent so much time in prison as a criminal, though he was only an unfortunate sufferer from brainstorms which took the direction of acquisitiveness as regards others' property. He had been scarcely two years out of the penitentiary before he turned up as the head of an organized band of burglars, and the experiment in the cure of supposed moral insanity became merely a subject of ridicule. It was interesting to realize as a commentary on this that some of the very oldest skulls we had, from the New Stone Age, bore marks of having been trephined, with such healing after the operation as evidently indicated that the patient must have recovered completely, at least from the operation. They called it letting the bad spirits out that had gotten into the man. Were we not doing exactly the thing when we yielded to the sentimental considerations of theorists and set about relieving our criminals in the same way. Not that we should not make observations, but that the medical history of such cases ought to warn us not to draw hasty conclusions from our observations, but to wait until the significance of the observations had become clear. Dr. Walsh then recalled Dr. Phineas Quimby's

success in the cure of psychoneuroses and the continuance of his success by Mrs. Eddy and pointed out the analogy of their methods to those of Freud. He said he was aware that the followers of each of these modes of therapeutics, Eddysm and Freudism, would indignantly repudiate all question of their having any possible relationship to each other and would proceed to emphasize the fact that they had very special theories of religion and psychology and it was not the theories but the facts that made their successful therapeutics an absolute demonstration. He recommended both of them to Oliver Wendell Holmes essay on "Hahnenanism and Kindred Delusions" to emphasize the rule that facts were not truths unless you had all the facts and that cures as facts were the most delusory thing in the world. The history of the applications of psychology to medicine were full of analogies to Freudism. The idea that Freud had revolutionized psychology was founded on utter ignorance of the older psychology and the history of philosophy generally. What was new in the Freudian doctrine was not true, and what was old in it was often utterly misconceived, but it had caught on just as so many other delusions. The psychoneuroses had had a wonderful lot of cures proclaimed for them. We could understand these better since our experience in the past generation with hypnotism. It would be remembered how hypnotism cured a number of the psychoneuroses until it seemed that we had a great new adjunct for therapeutics. And now the definition of hypnotism that was growing in favor among neurologists and psychologists was that it was induced hysteria. Hysteria was simply supersuggestibility. We cured one form of unfavorable suggestion by producing another, but then long ago Hippocrates said that one pain might drive out another. Curing hysteria by hypnotism, or curing a psychoneurosis by inducing hypnotism often left the state of that person worse than before, as the profession had found; and we now knew that experiences with hypnotism could be traced back in the centuries. The therapeutics of hysteria and the psychoneuroses was dangerous ground. It was extremely thin ice that one had to skate over and history erected a danger signal that everyone ought to see. Dr. Walsh then went on to speak of character analysis, of which we had heard so much in the last few years, and of the recognition of special talents and the selection of men for certain jobs and positions by the external appearance of their heads. Literally hundreds of thousands of dollars had been spent in advertising a system of directions as to how this was to be accomplished, and where money was spent in advertising the outgo would not be continued for any length of time, as in this case it was, unless the sales far more than exceeded. Evidently a great many people had been taken in by the new pseudo-science, the abandoned pseudo-science of phrenology come back again, and hard headed business concerns had paid out actual money in large quantities to "experts" and so-called professors of psychology to tell them all about the men they were to employ from the external appearances of their heads. At the present time we had more panaceas for success in life and remedies for failures, taken right out of psychology than at any other time in the world's history. Psychology was a magical word to conjure with. Of course it was the new psychology. The main thing that was new about was its power to extract representatives of the precious metals from the pockets of mankind. "The one hope of reasonable limitation of the proclivity to be fooled, for there is considerably more than one of them born every minute, is to know about our forefathers, not how they killed each other and let rotten diplomacy disturb them and king's mistresses use them as toys (that is not history, those are the kitchen scandals of humanity), but how men lived and worked and were fooled and how they got out of it in all times just as in our own."

Herelle's Phenomenon.—According to Salimbeni, if one filters through the Chamberland filter the intestinal contents of a dysenteric subject very small spores pass through. These if subjected to culture efforts germinate and develop into myxamebæ. The zymase secreted by this organism can dissolve the Shiga bacillus.—*Gazette des Hôpitaux*.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

MEDICAL COUNCIL OF CANADA.

Toronto, Winnipeg, and Vancouver, June, 1920.

HYGIENE AND STATE MEDICINE.

1. What factors are accountable for the closeness experienced in the air of an ill-ventilated room? Discuss the general effects on health of living in poorly ventilated quarters, and at the same time outline some tests for efficiency in ventilation in school rooms.
2. Discuss possibilities of milk as a carrier of disease, and what steps would you take to prevent this?
3. Given full authority, discuss the individual and public measures you would employ to check the further spread of (a) epidemic meningitis, (b) typhoid fever, (c) diphtheria.
4. What do you understand by "personal hygiene," and what rôle does it play in the field of preventive medicine?
5. What diseases of animals may be transmitted to man through meat or milk, and what preventive measures would you use? Also state how you would recognize these diseases in meat.
6. What diseases are most commonly water borne? Discuss measures to be taken by a community to prevent water carrying infection.

PATHOLOGY AND BACTERIOLOGY.

1. What microorganisms are commonly found in the spinal fluid in acute cerebrospinal meningitis? Describe fully the organism responsible for the epidemic type of the disease.
2. Discuss aortic aneurysm, illustrating the course of its development by detailed reference to gross microscopic findings.
3. Describe in detail the blood picture of splenomyelogenous leukemia. Give the differential diagnosis.
4. Write a brief descriptive paragraph on the morbid anatomy of insular sclerosis.
5. Describe the gross and microscopic appearances of carcinoma of the body of the uterus. How does it differ from that of the cervix uteri? How does it spread?
6. Describe, step by step, your method for determining the presence of streptococci in the blood stream. Describe the microscopic appearances in the case of a serous membrane, the site of streptococcus infection.

ANSWERS.

HYGIENE AND STATE MEDICINE.

1. *Factors accountable for the closeness in the air of ill-ventilated rooms:*—Physical changes in the air such as increase in the temperature and moisture, and lack of movement of the air; the giving off into the air of various organic matters from the bodies of the occupants of the room, these organic substances may come from the mouth, skin, lungs, teeth or clothing, and they cause a disagreeable odor; reduction of the oxygen; and increase of the carbon dioxide.

General effects on health of poor ventilation:—Headache, nausea, vomiting, vertigo, collapse, anemia, general debility, indigestion, lowered vitality, increased liability to various infections and to common colds.

Efficiency in the ventilation may be tested by:—Estimating the amount of air entering and leaving by the inlets and outlets, and the rate of its flow (this may be determined by an anemometer properly placed in the inlets and outlets); the air may be tested for the amount of carbon dioxide which it contains; the evidences of the senses is of value, the presence of stuffiness being particularly noticeable on coming in from the fresh air outside.

Pettenkofer's method of determining the percentage of carbon dioxide in the air:—A large cylindrical container of known capacity, say, 15 liters, is filled with the air to be examined; a known volume of barium hydroxide is then added and shaken up with the air. The carbon dioxide combines with the barium hydroxide to form a barium carbonate, which is insoluble, and also incapable of acting upon an indicator. The barium

hydroxide employed is of known strength, e.g. it may be of such strength that 1 c.c. of the solution neutralizes 1 c.c. of carbon dioxide at normal temperature and pressure. If then we find that 10 c.c. of the barium hydroxide has been neutralized by the carbon dioxide present in the air, we know that 10 c.c. of carbon dioxide is present in 15 liters or 15,000 c.c. of the air examined.

2. The milk may come from a diseased cow; it may become contaminated by the milker, the container, the surroundings, the water used to wash the cans or to adulterate the milk; or it may become contaminated at the dealer's or purchaser's house by being left uncovered, exposed to flies, etc., or by not being kept in a cool place. The only way to prevent the transmission of disease by milk is to insist on a thorough inspection of all dairies and sources of milk supply, and to educate the public in the care of milk between the time of its purchase and its consumption. The inspection should include: the color, reaction, specific gravity, sediment, taste, odor, acidity, total quantity of solids and of water; the percentage of cream, fats, lactose, casein, and ash; the presence or absence of preservatives, coloring matter, added solids, dilution, pathogenic micro-organism, dirt, or other foreign matter. There should also be thorough investigation as to its source, the cows and their environment, the method employed in caring for, milking, storing, and transporting the milk.

Diseases specially liable to be conveyed by milk: Tuberculosis, typhoid fever, scarlet fever, diphtheria, tonsillitis, cholera, and gastrointestinal disorders.

Essentials for the production and preservation of pure dairy milk: Vaughan's rules are as follows: "(1) The cows should be healthy, and the milk of any animal which seems indisposed should not be mixed with that from the healthy animals. (2) Cows must not be fed upon swill or the refuse from breweries or glucose factories, or upon any other fermented food. (3) Milch cows must not be allowed to drink from stagnant pools, but must have access to fresh, pure water. (4) The pasture must be freed from noxious weeds, and the barn and yard must be kept clean. (5) The udders should be washed and then wiped dry before each milking. (6) The milk must be at once thoroughly cooled. This is best done in the summer by placing the milk can in a tank of cold water or ice water, the water being of the same depth as the milk in the can. It would be well if the water in the tank could be kept flowing, and this will be necessary unless ice water is used. The tank should be thoroughly cleaned each day to prevent bad odors. The can should remain uncovered during the cooling, and the milk should be gently stirred. The temperature should be reduced to 60° F., or lower, within an hour. The can should remain in cold water till ready for delivery. (7) Milk should be delivered, during the summer, in refrigerated cans or in bottles about which ice is packed during transportation. (8) When received by the consumer it must be kept in a clean place, and at a temperature some degrees below 60° F."

3. *TO CHECK THE SPREAD OF EPIDEMIC MENINGITIS.*
"Individual measures:—(1) Recognition of the disease by its clinical symptoms, confirmed by the microscopic and bacteriological examination of the spinal fluid and by bacteriological examination of nasal and pharyngeal secretions. (2) Isolation of infected persons and carriers until the nasopharynx is free from infecting organisms, or, at the earliest until one week after the fever has subsided. (3) Immunization may prove of value, although the use of vaccines for immunization is still in the experimental stage. (4) Concurrent disinfection of discharges from the nose and mouth and of articles soiled therewith. (5) Terminal disinfection by cleansing. *General measures* are extremely difficult to carry out effectively; these consist of:—(1) Search for carriers among families and associates of recognized cases by bacteriological examination of the posterior nares of all contacts. Only a thoroughly trained technician can be trusted to isolate the meningococcus, and even such a one will frequently miss them when they are few in number. Cultures from the nasopharynx are most liable to reveal them. (2) Education of the public as to personal cleanliness, washing of the body daily and of the hands in soap and water before eating, keeping hands and unclean articles away from mouth, nose, etc., avoiding the use of common or un-

clean eating, drinking, or toilet articles of any kind, avoiding direct exposure to the spray from the nose and mouths of people who cough or sneeze, etc., and the necessity of avoiding contact infection. (3) Prevention of overcrowding, such as is common in living quarters, transportation conveyances, working places, and places of public assembly in the civilian population, and in inadequately ventilated barracks, camps, and ships among military units" (From Park's *Public Health and Hygiene*).

TO CHECK THE SPREAD OF TYPHOID FEVER. *Individual measures:*—(1) Early recognition of the disease by its clinical symptoms, confirmed by specific tests, the Widal reaction, and bacteriological examination of the blood, feces, or urine. (2) Isolation in a fly-proof room. (3) Immunization or preventive inoculation of all susceptibles who are known to have been exposed, or are suspected of having been exposed to the infection. This immunization is only relative and in no way does away with the need of precautions to prevent infection through water, milk, hands, etc. (4) Concurrent disinfection of all bowel and bladder discharges and articles soiled with them. (5) A general disinfection and cleansing of the room and its contents should be carried out at the termination of the case. *General measures:*—(1) Purification of public water supplies. (2) Pasteurization of public milk supplies. (3) Supervision of other food supplies and food handlers. (4) Prevention of fly-breeding. (5) Sanitary disposal of human excreta. (6) Extension of immunization by vaccination as far as practicable. (7) Supervision of typhoid carriers and their exclusion from the handling of foods. (8) Systematic examination of fecal specimens from those who have been in contact with recognized cases to detect carriers. (9) Exclusion of suspected milk supplies pending discovery of the person or other cause of contamination of the milk. (10) Exclusion of water supply, if contaminated, until adequately treated with hypochlorite or other efficient disinfectant, or unless all water used for toilet, cooking and drinking purposes is boiled before use." (From Park's *Public Health and Hygiene*).

TO CHECK THE SPREAD OF DIPHTHERIA. *Individual measures:*—Early recognition of the case, with isolation, and instruction as to care and disposal of excretions from nose and throat; early administration of antitoxin. *General measures:*—Administration of immunizing doses of antitoxin to all persons exposed to the infection after their susceptibility has been demonstrated by the Schick test; a search for carriers, and isolation and treatment of them when found.

4. By *personal hygiene* is understood the hygiene of the individual (rather than that of the public). It includes such matters as personal cleanliness, clothing, food, exercise, rest, the avoidance of excesses, care of the body in general. It plays an important role in the field of preventive medicine, because neglect of the matters referred to predisposes to many diseases and at the same time lessens the power of resistance to disease. Cleanliness disposes of many microorganisms; proper diet eliminates many bodily disorders which arise from excesses as well as from disturbed metabolism; care of the teeth and tonsils would eliminate many focal infections; attention to such matters as fresh air, and ventilation would obviate many headaches, and other troubles mentioned in *Question 1*: neglect of the eyes is the cause of much trouble;

5. *Diseases of animals which may be transmitted to man through meat* are:—Trichinosis, tape worm, echinococcus, tuberculosis, anthrax, septicemia, pyemia, tetanus, actinomycosis, foot and mouth disease, glanders. *Milk may convey:*—Tuberculosis, typhoid, scarlet fever, diphtheria, tonsillitis, cholera ad gastrointestinal disorders.

Preventive measures should include adequate inspection and supervision of the milk, as described in *Question 2*. For meat, there should be an adequate inspection of the cattle before they are killed, and an examination of the carcasses and internal organs.

Characters of good meat: "Meat when good and fresh should have a marbled appearance, due to streaks of fat between the bundles of muscle fibers. The color should be bright and not too dark, and the surface of the meat should be glossy and not dull. Beef is always darker than mutton, veal, or pork—chiefly for the rea-

son that sheep, calves, and pigs are bled more freely than oxen at the time of killing. The older the animal, the darker and tougher is the flesh. The connective tissue should be glistening and firm. The diaphragm should be firm, and the abdominal and thoracic parietes should show no evidence of adhesions or standing. The pleura should be intact. The bone-marrow should be set and be light red; the spleen, kidneys, and liver should be regular, of a good red, and without variations in color. Good meat is firm and elastic, and does not pit or crackle on pressure. It is juicy, but not wet; and the juice which adheres to the fingers should be of a bright red color. The fat is hard and dry, but feels greasy. The kidneys, spleen, and liver are firm. All lymphatic glands should be firm. The smell of sound meat is well known and characteristic. In order to test this more efficiently the meat should be pierced with a clean knife or skewer in the direction of the bone, and the implement smelt immediately upon its withdrawal. Good meat gives an acid reaction with litmus paper. Good meat, when dried upon a water bath, does not lose more than 75 per cent. by weight."

Characters of bad meat: "Meat that is bad is often soft and watery, some parts are harder than others, and there may be emphysematous crackling. The fat may be liquid or soft, highly colored or even hemorrhagic. A deep dark purple color is seen in meat when the animal has died without being bled, or when some pulmonary congestion or acute septicemia has affected the animal. The lymphatic glands in bad meat may be enlarged, congested, hemorrhagic, caseating, or calcified. The pleura, peritoneum, or viscera may show evidence of disease such as tuberculosis. Pus may be present between the muscle fibers. The carcass may show signs of emaciation. The odor may be that of putrefaction, and the meat may be alkaline in reaction. In advanced putrefaction the meat may become a greenish tint." (Pakes and Nankivell's *Science of Hygiene*.)

6. *Water-borne diseases*, are: Typhoid fever, cholera, dysentery, and some gastro-intestinal disorders.

The community should insist on proper municipal control of the water supply, including protection of the water-shed, and storing and delivery of the water, together with filtration and such chemical purification as may be necessary.

PATHOLOGY AND BACTERIOLOGY.

1. *Microorganisms found in the spinal fluid in acute cerebrospinal meningitis:* Micrococcus intracellularis meningitidis, pneumococcus, tubercle bacillus, staphylococcus pyogenes aureus, streptococcus pyogenes, bacillus of influenza, typhoid bacillus, and colon bacillus.

Epidemic cerebrospinal meningitis is due to the Micrococcus intracellularis meningitidis, which is a biscuit-shaped microorganism, generally united in pairs; it stains by the ordinary aniline dyes, and is decolorized by Gram's solution; it can be cultivated on a neutral glucose ascitic agar; it is claimed that there are four types of this microorganism; it is not motile and does not form spores.

2. *Aortic aneurysm:* "In saccular aneurysm of the aorta it is found that the sac most commonly springs from the convexity of the arch, and that intense arteriosclerotic alterations of the aorta surround its mouth. The orifice is round or irregular in outline, and the edge is rolled over into it somewhat, so as to almost overhang its cavity. The cavity itself may reach a very great size, the sac thus formed pushing aside the surrounding organs or embedding itself in them. Mechanical effects produced in this way are of great variety, depending largely upon the point of origin and size of the sac. Pressure on the recurrent laryngeal nerve produces an alteration of the voice from spasm or paralysis of the vocal cord, coughing, dyspnea, etc. Pressure on the trachea flattens it and causes dyspnea—later the aneurysm may rupture into it, after eroding its wall. The lungs yield and collapse before the aneurysm. Pressure on a bronchus narrows it, and behind the obstruction bronchiectasis arises. When the sac reaches the bony structures of the thorax, which do not yield, it hammers its way through them, appearing under the skin through a hole in the ribs or sternum. If it extends backward to the spine, it destroys the centre of the vertebrae even down to the spinal canal, leaving the yielding intervertebral discs

standing almost unaltered—in the same way it may break through the ribs in the back and appear under the skin there. Then it is not long before the skin becomes thinned out and bluish, and finally the sac ruptures, so that death follows at once. Often it ruptures long before it reaches the skin—into the pleura or pericardium, trachea, or esophagus, or even into the superior or inferior vena cava. . . . The sac is not composed of the stretched-out walls of the vessel, for microscopic examination shows that practically all those elements stop sharply at the edge of the orifice. The elastic tissue and the muscle are suddenly interrupted. Endothelium may persist and attempt to line the sac, but it soon fails in this and is lost. Indeed, nothing but connective tissue, and that essentially new formed, goes to make up the sac. It grows largely by new breaks in the wall which seem to be made good by further formation of fibrous tissue. The current of blood eddies about in the cavity, and its pulsation gives the sac its power of breaking down the resistance of the tissues. But the endothelial lining is imperfect, and thrombosis occurs, and if time be allowed, layer after layer of compact thrombus material may be hammered down on the wall of the sac until it is in large part filled up. Occasionally the aneurysm may be completely obliterated in this way. The character of the fibrous wall is such that little upgrowth of organizing granulation tissue into the thrombus appears, and the lower layers become even more compact, until, on a smoothly cut section, they look like onyx. The wall itself becomes hyaline, and it is often impossible to say, in a microscopic section, where the wall ends and the thrombus begins. In the smaller and fresher aneurysmal sacs the wall, wrinkled and irregular, is generally shining, thick, and rather translucent, and quite uncovered with thrombi or covered with only the merest film." (*MacCallum's Text-Book of Pathology*).

3. In *myelogenous leucemia*, the blood shows a permanent increase in the leucocytes other than the polymorphonuclear variety; myelocytes are present in great numbers, constituting from 20 to 60 per cent. of all leucocytes. The total number is about 300,000 per cubic millimeter as an average, but counts as high as 750,000 have been reported. The number, however, may be as low as 100,000 or even in some the count may approximate the normal. The differential count of the white cells in combination with the usual increase in number is the characteristic feature. The main form is the large mononuclear myelocyte containing neutrophilic granules. They may constitute some 35 per cent. of all the leucocytes. The nucleus is situated, as a rule, in the center and is well staining, it may be eccentric, however, or poorly staining. The large cell with the pale nucleus is seldom found in any other condition than in this form of leucemia. The neutrophilic granules may be lacking entirely and the nuclei show hydropic degeneration. Occasionally small myelocytes with deeply staining nuclei may be present. Eosinophilic myelocytes may be found in large numbers, varying from 3,000 to 100,000 per cubic millimeter. Such an increase is pathognomonic of splenomyelogenous leucemia. The ordinary type of eosinophiles is also increased. Basophiles or mast-cells are increased, sometimes very markedly, this condition being quite characteristic of leucemia. Polymorphonuclear neutrophilic leucocytes are relatively diminished as the myelocytes increase, and form about 46 per cent. of the total. They are absolutely increased to 60,000 or 70,000. Degenerative changes are very common, the cells becoming more cohesive, the nuclei pale and showing karyolysis or rhexis and frequently mitotic figures. Lymphocytes are not very numerous as a rule; they constitute about 10 per cent., although the number may vary considerably. The blood itself may be pale and the specific gravity lowered. Coagulation takes place slowly. The erythrocytes are decreased to about 3,000,000, the hemoglobin is diminished also, 40 per cent., color index about 0.6. Many of them are nucleated and show changes in size and shape. The normoblasts are very common, and megaloblasts are frequently seen. (*McConnel's Pathology*).

Differential diagnosis: In *leucocytosis*, there is only a moderate increase in the number of leucocytes, mainly in the polymorphs; and there are no myelocytes. In *lymphatic leukemia*, there is a marked leucocytosis, but

the increase is mainly in the lymphocytes; there are no myelocytes. In *Hodgkin's disease* there is no leucocytosis.

4. *Morbid anatomy of insular sclerosis*: "Grayish nodules are found distributed through the brain and spinal cord. They vary in size from a millimeter to two or three centimeters in diameter (one twenty-fifth to one inch). They are of firmer consistence than is the surrounding brain substance, but are not quite so hard as is ordinary connective tissue. They consist microscopically of neuroglia tissue, which some assert to be connected with the walls of the blood-vessels, as a rule. Very often the axis-cylinders of nerves can be seen passing through the lesion. The nodules are found most frequently in the white matter of the brain, more especially in the pons, internal capsule, and centrum ovale. They rarely begin primarily in the gray matter, but may invade it secondarily. The roots of the peripheral, especially of the cranial, nerves occasionally contain or are surrounded by these sclerotic masses. In the spinal cord they may extend up and down the gray and white matter for a considerable distance, or they may involve the whole cord at a certain level, turning it into a fibrous mass. The blood-vessels surrounding and in connection with these diseased areas show some evidences of thickening and increased vascularity, but no true inflammatory process, as a rule. The primary pathological change in multiple sclerosis is as yet unknown; many things point to its starting originally from small emboli or thrombi which lead to minute softening, with a secondary reparative and sclerotic process. The fact that the disease follows infective fevers makes such an origin of it seem probable. On the other hand, pathological anatomy does not yet bear out this view, and it is possible that the disease begins by a primary degeneration affecting first the myelin sheaths of the nerve-fibers sparing the axis-cylinders and cell bodies, this being followed by a neuroglia and connective-tissue proliferation which ends in the formation of the small islands of sclerosis. An important pathological peculiarity of the process is that, while it destroys the myelin sheaths of the nerves, the axis-cylinders remain intact for a long time and consequently conduction of nerve impulses takes place imperfectly, directly through the nodular masses." (*Dana's Text Book of Nervous Diseases*).

5. *Carcinoma of the body of the uterus*: "The uterus is generally enlarged, but it may be met with in a small senile uterus. Usually the general shape of the uterus is preserved unless the growth has extended deeply into the uterine wall. It is practically certain that the cancer originates in the endometrium, from the surface epithelium, or from the glands. The growth may be in the form of large nodular masses which project inwards towards the uterine cavity or infiltrate the wall externally. When the tumor projects markedly into the cavity, the uterine wall, as a rule, is not extensively infiltrated. The entire inner surface of the uterus may be involved, but usually the spread does not extend into the cervical canal. Instead of being composed of nodules, the neoplasm may consist of villous masses, which originate from the entire surface of the endometrium. These villous processes may be small or large, and they may be sufficiently numerous to fill the cavity. Diffuse corporeal cancer may, therefore, be met with in a nodular or villous form; but the former is the commoner. Sometimes the cancer is limited to the region of the fundus. . . . The typical appearance is columnar celled carcinoma, of which two main varieties may be found, one in which the irregular tubules that make their way into the walls of the uterus are regularly one cell thick, and the other where the lumen is encroached upon or filled up by many layers of cells. In the former case the malignancy might be considered as affecting the tubules as a whole, and in the latter as affecting the constituent cells also. Of course, both types may be present, with every gradation between them. The growth originates in the endometrial glands.

"*Spread of the disease in cancer of the body*: This is conducted by lymphatic channels in the broad ligament, higher up than those concerned in cervical cancer. These channels go to the lateral aortic lymphatic glands in the lumbar region, but very frequently in this case the interiliac glands are first affected, because

there is a very rich anastomosis between the two sets of lymphatics in the broad ligament. The disease may extend outward to the peritoneal covering of the uterus, so that adhesions form round the organ, and in many advanced cases pus collects in the cavity." (Cameron's *Gynecology*).

6. *To isolate the microorganism in the blood in a case of streptococcus septicemia.*—"The blood is taken from the median basilic vein. The skin over the vein should be prepared with green soap, alcohol, and bichloride of mercury, as for a surgical operation. The syringe should be of some sterilizable variety which is easily manipulated and does not draw with a jerky, irregular motion. Its capacity should be at least 10 c.c. It may be sterilized by boiling for half an hour. Before drawing the blood, a linen bandage is wound tightly about the upper arm of the patient in order to cause the veins to stand out prominently. When the veins are plainly in view, the needle may be plunged through the skin into the vein in a direction parallel to the vessel and in the direction of the blood-stream. After perforation of the skin, while the needle is groping for the vein, gentle suction may be exerted with the piston. Great care should be exercised, however, that the piston is not allowed to slip back and air be, by accident, forced into the vessel. In most cases no suction is necessary, the pressure of the blood being sufficient to push up the piston. After the blood has been drawn it should be immediately transferred to the proper media (glucose-meat-infusion agar and glucose-meat-infusion broth). At least six glucose-agar tubes should be melted and immersed in water at 45° C. Before the blood is mixed with the medium, the agar should be cooled to 41° C. in order that bacteria, if present, may not be injured by the heat. The blood is added to the tubes in varying quantities, ranging from 0.25 to 1 c.c. each, in order that different degrees of concentration may be obtained. Mixing is accomplished by the usual dipping and rotary motion, the formation of air bubbles being thus avoided. The mouth of each test tube should be passed through the flame before pouring the contents into the plates. Three flasks of glucose broth, containing 100 to 150 c.c. of fluid each, should be inoculated with varying quantities of blood—at least one of the flasks containing the blood in high dilution. The most stringent care in the withdrawal and replacement of the cotton stoppers should be exercised. Hiss and Zinsser use, in place of one of these flasks, one containing, in addition to the glucose, 1 gram of powdered calcium carbonate. This ensures neutrality, permitting streptococci, sensitive to acid, to develop and retain their vitality."—(Hiss and Zinsser's *Bacteriology*.)

Streptococcus infection of the peritoneum.—"Microscopically the endothelium of the peritoneum, especially of the omentum, early shows proliferative changes; the cells enlarge; their nuclei become swollen and divide by direct and then by indirect nuclear division. The cells thus produced ("macrophages" of Metchnikoff) thus produced vary in size, but some are indistinguishable from lymphocytes. The surface of the endothelial cells is covered by a layer of fibrin containing leucocytes, and there is small round-cell infiltration of the subendothelial tissues. Coarsely granular eosinophilic cells constitute a considerable proportion of the immense number of leucocytes attracted to the blood vessels of the part; this local accumulation is correlated with the diminution of eosinophilic cells in the peripheral circulation. At a later stage the cell infiltration of the underlying structures becomes more intensive and extensive, and the peritoneal endothelium is destroyed. If the inflammatory process be short-lived the endothelium survives and the fibrin is eventually absorbed, so that the formation of adhesions is prevented. If the inflammatory process is continued the endothelial cells are destroyed and adhesions form."—(Osier and McCrae's *Modern Medicine*.)

(To be continued)

Museum of Foreign Bodies from the Air Passages.—According to Leegaarde, who is touring the United States, Chevalier Jackson has a private collection of between 800 and 900 foreign bodies which he has removed from the bronchi.—*Norsk Magazin for Laegevidenskaben*.

Miscellany.

Pasteur Institutes of the World.—This list compiled from *La Presse Médicale* for November 17, 1920, xxviii, 84, comprises only the branches of the parent Institute in Paris. None of the independent institutions modelled upon it are included. The offshoots are enumerated in the order of their foundation. The Saigon branch founded by Calmette in 1890, the present director being Yersin. The Nha-Trang branch at Hue in Anam, also under the direction of Yersin and making a specialty of the bovine plague. The Lille Institute dates from 1894 and was established by Calmette. Ten years later the branch at Brazzaville was opened in the Congo for the study of sleeping sickness. The branch at Algiers dates from 1910 and was first under the charge of Calmette. He was succeeded by the brothers Sergeant and special research was made into malaria. The directors later had charge of the antipaludic campaign on the Eastern Front during the war. Since 1910 the following branches have been established in Africa: Tangiers, Casablanca, Bamakou, Dakar, Tananariva, Reunion Island, and Tunis, the latter under charge of Nicolle. One has also been started in Hanau, China, and the latest to be established is at Athens. The total, including the parent institution, equals fifteen. These are all full fledged bacteriological and pathological institutions for the combating of contagious diseases and have no connection with the so called Pasteur antirabic institutes for combating rabies alone. The so called "Pasteur" institutes in many large centers of population for the latter intent—that at Constantinople, for example—are such by courtesy only. This distinction is probably not understood by the majority of medical men.

Inhibitory Action of Sodium Cinnamate in Tuberculosis.—Corper, Gauss, and Gekler, in the Research Department, National Jewish Hospital, Denver, Colo., conducted studies on the inhibitory action of sodium cinnamate in tuberculosis, from which it was found that repurified sodium cinnamate, in concentrations up to 2 per cent., has no tuberculocidal action within three days, but is distinctly inhibitory to human tubercle bacilli in 5 per cent. glycerine agar in a concentration of 0.05 per cent., while in rabbit blood medium, both fresh and inspissated, it is inhibitory only in a concentration of about 0.2 per cent. Pure sodium cinnamate does not persist in the blood of rabbits after a single intravenous injection (1.0 to 1.25 grams per kilo) for more than one day, being present in a concentration of from 0.6 to 0.8 per cent. after one-half hour, from 0.1 to 0.2 per cent. after three hours, from 0.06 to 0.08 per cent. after six hours, and from 0.01 to 0.02 per cent. after twenty-two hours. By continuous intravenous injection of a 2.5 per cent. solution of pure sodium cinnamate a concentration of 0.08 to 0.16 per cent. of the blood can be maintained for a period of eighty-three hours in the rabbit. On account of its hemolytic action when administered over a prolonged period of time (exceeding three days) sodium cinnamate cannot be used as an inhibitory agent in tuberculosis. In vitro sodium cinnamate has both a hemolyzing and gelling action upon the whole citrated bloods of rabbits, dogs, and man.

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TYPHUS FEVER AND QUARANTINE.

BY ALVAH H. DOTY, M.D.,

NEW YORK.

HISTORY furnishes abundant evidence that protracted wars which physically exhaust a nation are followed by devastating outbreaks of infectious diseases. The principal reasons for this are not difficult to determine—poverty, filth, and overcrowding—frequently associated with an inability on the part of the Government to enforce protective measures. These factors diminish individual resistance to all forms of disease. We would expect the outbreaks to be limited where the people were intelligent and the Government stable and capable of enforcing sanitary regulations. Conditions in France at the present time bear witness as to the truth of this deduction. Although this country was practically the seat of hostilities and the scene of most extreme desolation during the recent war, a quick recovery has taken place and we have no report of the ravages of what are known as quarantinable diseases—cholera, plague, typhus fever, and smallpox. These diseases are so widespread in the Far East, and, with the possible exception of smallpox, are so thoroughly identified with that section of the world that it is a common belief that they have their origin there. Since one or more of this group of diseases are always present in the East, it was expected that under the conditions of war, and following the war, there would be a rapid and widespread dissemination. There has been no disappointment in this direction.

Certain factors in the East contribute to the perpetuation of this group of diseases. The prevalent native religion is antagonistic to modern sanitary methods. The natives are taught not to respect them and the Government officials are afraid to enforce them. In other sections the Government has no interest in the matter and is quite in accord with the local popular opinion; indeed, modern sanitary methods are regarded as a menace to the health and happiness of the people. In other countries in the East, the Government, although well meaning so far as enforcement of health protective measures are concerned, is unable to make any progress in this direction, chiefly for want of money and cooperation.

Topography or climatic conditions cannot be held largely responsible for the continued presence of these diseases in the East, for we have indisputable evidence that during the middle ages they spread to western Europe and caused an enormous mortality for a number of years, because the con-

ditions now present in the East then existed in western Europe.

We may very properly believe it to be true that the spread of quarantinable diseases depends chiefly upon an unhealthy and insanitary condition of the people, associated with but little or no enforcement of modern protective measures, and that they may be surely held in check if proper means are employed. Among intelligent people and under modern sanitary regulations there is no reason to fear that an outbreak of these diseases may not soon be controlled and eliminated. Experience with modern protective methods fully justifies this assertion.

Unfortunately, the public tends to believe that since typhus fever, plague, and cholera are not controlled in the East, their appearance in the United States is apt to be followed by the same serious consequences that occur in the alleged home of these diseases. Unfortunately this erroneous belief is encouraged by some public health officials who have not had long practical experience with these conditions. Those who have dealt with quarantinable diseases only in Eastern countries, where the conditions for their dissemination are most favorable and uncontrolled are apt to be pessimistic, believing that like results may follow an outbreak in the United States. This reasoning is absurd and quite inconsistent with the facts.

Outbreaks of typhus fever have occurred at various times in New York City and have been successfully handled with no alarm on the part of the public—for instance, an outbreak occurred in the eighties and one in 1893. The latter outbreak, as it was well known at the time, was traced to some newly landed immigrants in New York who soon afterwards developed the disease and transmitted it to many others in a crowded tenement house district in the lower part of the city some days before the Department of Health became aware of its presence. General sanitary measures were promptly carried out and an exhaustive investigation was made to detect the presence of not only typical, but mild, ambulant and irregular cases—it may be said in passing that this careful investigation is the secret of success in dealing with outbreaks of any infectious disease. The cases found were removed to the hospital and their clothing disinfected and suspects were kept under careful observation with the result that the outbreak was soon brought under control and the disease disappeared.

At the time of the outbreak of typhus fever, which occurred in the eighties, the Department of Health was unable to provide proper hospital care for the cases of typhus fever discovered about the city—almost entirely in the tenement house sec-

tions—and it was necessary to keep many of them under observation in their own apartments. As far as possible the sick were isolated and cleanliness insisted upon. There was but little disinfection, for the Department of Health had very limited equipment for this purpose, yet with these simple protective measures, the outbreak was successfully dealt with.

These results illustrate what the usual sanitary measures can accomplish in the presence of an outbreak of typhus fever. If successful results were obtained with the limited facilities to which I have referred, we may be assured that with the hospital service and the complete equipment now at the command of the Department of Health of New York and other cities, there is no reason to believe that the outbreak of any of the quarantinable diseases cannot be promptly and successfully dealt with. It may be of interest to note that of the large number of cases found during the outbreak of 1893 in New York, only four of them occurred outside of the tenement and lodging house districts of the city. By far the greater number of cases were found in lodging houses, which at the time were very primitive and in a most insanitary condition. In many instances the inmates were huddled together about the floor like sardines in a box, or their hammocks were swung very close together. Under these conditions every factor was present to cause a rapid dissemination of the disease. In sections of the city where people lived under healthful surroundings, the disease did not even appear, much less spread as it did in poorer sections of the city. This also teaches us a way of successfully combating the disease.

Every necessary and reasonable means must be taken to prevent the importation of communicable diseases, for they are not pleasant visitors and they carry with them a heavy mortality. There is no justification, however, for the enforcement of ridiculous and drastic regulations which are usually associated with more or less hysteria. In the end these are sure to do more harm than good and ultimately defeat their purpose, besides they go far to impair the commercial activities of the country cause fear and discontent among the people and fail to secure the cooperation of the public which is so very essential to successful results. I have too much faith in modern sanitary science to believe that reasonable protective measures are not equal to any emergency. In the presence of an outbreak of infectious diseases, the public should not be alarmed but should be encouraged and made to believe that the emergency will be successfully dealt with, which is true.

We rely for protection against imported infectious disease chiefly upon maritime quarantine—we rely too much upon it, and not enough upon local departments of health, who should be prepared to assume their part of the responsibility if emergencies occur. An attempt to secure 100 per cent. of safety in dealing with outbreaks of infectious disease always fails. This means the enforcement of regulations which are impractical, drastic and even brutal. They cause unnecessary inconvenience and hardship for those who travel by sea and seriously injure the business of the country. Such measures have gained for maritime quaran-

tine an unenviable reputation since its establishment in Venice during the fourteenth century. In the early history of quarantine, vessels arriving from foreign ports were required to place their cargoes on deck for a number of weeks for so-called purification, however, the actual media of infection—the passengers and crews—were allowed to go ashore whenever they pleased. Vessels and their cargoes were sometimes sunk or burned to prevent the transmission of infectious agents. Such methods were in force as late as the eighteenth century, and I am sorry to say it must be recorded that unreasonable measures, although to a less degree, are still in force and may be recognized at the quarantine stations throughout the world.

When maritime quarantine was first organized the "fomites" theory which holds that any exposed article is able to transmit infectious agents, was supreme—although this is a fallacious belief, it unfortunately still exists to a certain extent. It is only within the past twenty-five or thirty years that those who have given careful practical investigation to the subject have been convinced that the incitants of infection are commonly transmitted by persons and not by things. This knowledge is of great value to those who are responsible for the public health for it simplifies their work and allows them to give close attention to the examination and observation of persons brought under their jurisdiction, who, when infectious diseases occur, constitute the important medium of infection and not vessels, cargoes, baggage and the like.

The function and need of maritime quarantine would be greatly diminished if each section of the world enforced proper sanitary regulations within its boundaries and was mindful of the health and comfort of others and careful to note and publish the presence of outbreaks of infectious diseases among its people, in order that the various countries may better protect themselves—however, this condition is not to be expected, at least for a long time, therefore, for the present we cannot dispense with quarantine, however the danger of imported diseases and their sequelæ, both in transit and at the port of destination, which involves loss of life, great expense and injury to commerce, and the detention and annoyance of those who travel by sea would be reduced to the minimum if persons from infected districts abroad, upon arriving at the ports of departure, were promptly and properly dealt with and kept under daily observation and inspection, sufficiently long to insure reasonable evidence that they were not a menace to health. This would constitute the first and most valuable line of defense against imported infectious diseases. Aside from the greater protection of life and health it would be of financial gain to all involved. It is within the power of the Federal Government to enforce this important method of protection.

It has been proposed that the Federal Government, in dealing with the present outbreak of typhus fever, require the detention at quarantine for a number of days of vessels arriving from foreign ports. These vessels include some of the largest steamers which ply between New York and Europe. It is also proposed to include the detention of first-class passengers as well as the second cabin and steerage passengers.

During my quarantine service which covered a period of fifteen years, I never found a case of typhus fever, plague, or cholera among the first class passengers on vessels arriving from foreign ports, and rarely a case of any form of infectious diseases, although cases of quarantinable disease were frequently detected among the steerage passengers of these vessels who had come from infected centres, principally in the East.

First-class passengers live and travel under healthful environments, they rarely visit infected centres; if so, they protect themselves while there; furthermore, they have nothing to do with steerage passengers while on shipboard. Therefore, it is manifestly improper and unreasonable that they should be held at quarantine except so far as it is necessary to ascertain their physical condition, where they have been for an indicated period prior to their embarkation, and to obtain their home address. After this information was obtained and they were found free from infectious diseases, they were allowed to proceed to the city. Although the result of this plan was kept under careful observation during my term of service as Health Officer of the Port, there was no evidence presented that any unpleasant occurrences followed.

Among second cabin passengers there may occasionally be found one or more of the type of steerage passengers and these may have previously affiliated with them in transit from the interior, but having sufficient funds conclude to travel second class. This must be borne in mind in dealing with this grade of passengers. Steerage passengers, particularly those arriving from the East, are commonly ignorant, unclean in their habits and usually come from centres where filth and poverty, and overcrowding exists, and where some form of quarantinable disease is present, therefore, they constitute a distinct menace to the public health and should be subjected to a most careful examination at both the port of departure as well as the port of destination. The examination should be made not only to detect well marked cases of diseases, but more important still, the *mild ambulant or irregular ones which constitute the most dangerous medium of infection*, for they are quite apt to pass unrecognized and transmit infectious agents to others.

In dealing with suspected groups, either among the passengers or crews, no examination is complete without the use of the clinical thermometer, yet the great value of this instrument depends wholly upon the extreme care with which it is used. It must be of the best make, carefully tested and there should be a sufficient number on hand to prevent unnecessary delay of the vessel. The register should always be examined immediately before placing it in the mouth of the person under observation. The details of the examination should be under the personal observation of a dependable officer in order that nothing may occur to render the examination worthless. In many instances, particularly during the yellow fever period, persons under observation at the New York quarantine were found to have drunk ice water or placed pieces of ice in their mouth just before their temperatures were taken. Special means were necessary to prevent this. The thermometer when properly used is

particularly valuable in the detection of mild or ambulant cases and during the stage of invasion.

Delousing as a preventive measure in dealing with typhus fever is receiving at the present time very extended consideration. All newly discovered sources of danger, so far as the transmission of disease is concerned, are quite apt to be promptly accepted without reservation. For instance, when the germ origin of disease was announced it was believed that danger existed everywhere—in food, drink and almost every article with which we come in contact, and some time elapsed before it was understood that only certain organisms are dangerous, and that we might safely eat and drink and enjoy life without fearing disaster from this source. A similar condition prevailed when it was learned that the variety of the mosquito known as the "Stegomyia" was the medium of infection in yellow fever. Immediately this insect, which is a common one, was looked upon as a constant source of danger, which is untrue, for it is only a menace after it has bitten a person having this disease—at other times it is as harmless as any other variety of the mosquito.

So far as I am aware no one doubts that the body louse is a medium of infection in typhus fever and it has already been proclaimed as a most dangerous parasite, notwithstanding the fact that it is commonly found in almost every country in the world and generally regarded as harmless. The fact is, that it becomes a dangerous factor only after it has been attached to the body of a person having typhus fever. At other times it is not to be feared, although quite uncomfortable to its host.

Without discussing other possible means of infection in typhus fever, or the extent to which delousing should be performed, I will cite the quarantine experience of fifteen years regarding the treatment of passengers arriving from typhus fever infected districts. During this time foreign vessels were constantly arriving at this port bringing immigrants who had recently left sections of the East where typhus fever was present—there was plenty of evidence that a large per cent. of them had body lice. Within the period to which I refer, a very extended outbreak of typhus fever occurred in Russia and I visited that country with the view of becoming familiar with the environments and surroundings of those who were arriving here from the infected districts. I found that they came from sections of the country where the most insanitary conditions existed and that poverty, filth and overcrowding was in evidence everywhere, and with but little or no Government supervision; furthermore, these people who came under my observation were practically escaping from Russia, for they had been denied permission to depart and were subject to severe punishment for doing so, therefore it could not be expected that they would give any attention to methods of protection against disease. Upon reaching New York they were subjected to careful examination and if found to be well, and there were no suspicious cases under observation, they were released without delousing or the disinfection of their clothing. If typhus fever or other quarantinable diseases was found on board, the clothing of the sick was disinfected and the remainder of the steerage passengers held

for observation; however, no general disinfection was performed. During this period, although these people went to every part of the United States, I know of no instance where an outbreak of typhus fever followed.

I have no desire to belittle the danger of the louse as a medium of infection in typhus fever; however, I believe the importance of absolute delousing is overemphasized. As a result of experience, I do not believe it is necessary to carry out this process except in dealing with cases of typhus fever or cases suspicious of this disease. Unless some line of demarcation is decided upon, this matter will be dealt with from a theoretical and hysterical standpoint and not in a uniform manner which is so essential to success. The louse is an objectionable parasite and delousing may well be insisted upon as one of the desirable measures of personal cleanliness, but not as an indispensable and vital safeguard against pestilence—furthermore, this renovating process should be carried out at ports of departure and not at United States ports. The fact is that the most valuable and successful means of preventing an outbreak of typhus fever is an extended and exhaustive examination to detect not only well marked cases, but the mild or unrecognized ones which are chiefly responsible for the dissemination of infectious diseases throughout the country.

I may say in conclusion that every city and town throughout the United States should be under the observation of an efficient health officer who is capable of dealing promptly with outbreaks of infectious diseases or suspects which may appear in their locality, possibly due to some infected person who has passed quarantine unrecognized. These officers should be instructed as to the importance of a thorough and extended investigation whenever a case of infectious disease has been discovered or when suspicious cases are under observation and that they should know the danger of mild or unrecognized cases as media of infection. Unfortunately many of the small towns throughout the country have no health officers—frequently the health officer is a layman, entirely incompetent to deal with emergencies, and it is largely for these reasons that extended outbreaks frequently occur throughout the United States.

147 WEST FIFTY-FIFTH STREET.

A DISCUSSION OF SOME DETERMINANTS OF MORBID EMOTIONALISM.*

BY TOM WILLIAMS, M.B., C.M.,

WASHINGTON, D. C.

THE subject I have to speak upon is, "Some Determinants of Morbid Emotionalism," or rather "Emotivity." I should first say what is meant by "emotivity." Emotivity is a state which hitherto, until this present century, was dealt with in a purely introspective and observational manner. Indeed, it was rather neglected by the more modern psychologists. Without psychologizing about emotion and emotivity we must understand that there can be reaction or reactivity without a state of feeling, which

is emotivity, even in the case of the unicellular organisms, which have no differentiated nervous systems. We cannot conceive that an ameba, for instance, which is repelled by a particular stimulus, does not have, at that moment, a state of feeling. And as we pass up the animal scale we are able to observe the difference between the manifestation of what we call a state of feeling or emotion, and the more purely purposive manifestations which we associate with the cerebrospinal nervous system. So that we must remember that an emotion is not merely a function of higher psychic perception, or a critical process; it is a function of the whole organism, and in it the whole organism participates.

What shall we regard as morbid in emotivity? We are all subject to emotivity, indeed the individual who is not emotive is not normal, he is morbid. For instance, in regard to a speaker—and I am now going to have recourse to the much-derided process of the ultrapsychologists, namely, introspection—I propose to introspect my own feeling in appearing before this highly distinguished audience. Instead of having the feeling of deep emotion, which I should have perhaps, I find myself in a state, at this moment, of comparative indifference. I think that is probably a morbid phenomenon, because one should face an audience in a state of high emotivity. That is, perhaps, due to a long process of attrition, of wearing down, which I have undergone, so that I am sorry I cannot reach the state of necessary emotionalism which our colleague Crile called the "kinetic drive." Prof. Robertson last night exhausted my "kinetic drive," at least, what of it remained after listening to the address of the president yesterday; for he aroused in me not only emotions of appreciation for the exceedingly erudite inductions he performed, but also one or two of the combative or antagonistic reactions of Crile. These, not having resolved, remain, according to some colleagues whose doctrines I do not share, in a state of conflict in what they call the unconscious, and this should to them account for my comparative indifference in the present situation. The real explanation is in habituation plus a certain fatigue.

Having disposed, then, of the lack of emotion, let us try to find out what kind we ought to consider morbid. We should not consider as morbid an individual who has been suddenly bereaved of some one he loves very dearly and falls into a state of depression. But we should call it morbid if that state were to continue for a period which we consider unduly long. But I cannot see that we are able to draw a hard and fast line to determine when an extraordinary state is one of morbidity and when it is not, whether it be six months, or twelve months, or eighteen months, or for life. Who shall say when a widow should doff her weeds? I speak only in a symbolical sense, taking the widow's weeds as denoting a state of highly disturbed emotivity. Shall we call it morbid when an individual faced by imminent danger which he does not know how to avoid falls into a state of terror? We do not do so. Why, then, do we say of certain individuals who do fall into these states that they should be regarded as morbid, while of others we say they should not? Is it not a matter of convenience of description and teleological judgment on our part? In the early days of the war—at least in America—

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it was the fashion to exalt the horrors of the battlefield and to say that no human being could face the awfulness of the emotions aroused thereby—that is, that the emotions could not be dominated by the will or by reflection or by discipline. That was found, before very long, not to be the case. It was found that even the most terrifying situations, which were at first viewed with such alarm as not being tolerable, were conquered by the education of the men in the feeling that such situations ought to be faced. And when that is the case, the average individual could face the situation, no matter how terrible.

That leads me to speak of one of the factors in the determination of the emotivity we consider morbid. If that individual soldier—and it is as true of situations in civil life—can learn to face such situations, and with impunity, or with equanimity, why is it that other individuals do not face the situations with similar equanimity?

There are three kinds of reason perhaps, and I propose to say only a few words upon two, devoting the rest of my time to the third.

The first type is that described in the president's address of yesterday—the state of inadequacy of neural reactivity, whether that is due to an active toxic influence preventing due elaboration of the processes of which we shall speak later, or whether it is due to actual physical deficiency of the neurons induced by what we call organic disease.

We all know of the unreasonable irascibility, the euphoria, and the depression at different times of the general paralytic, whose cortex is in a process of disintegration. We know of the unreasonable terror and the unreasonable responsiveness to mild stimuli of the patient intoxicated by such a poison as that of the Eberth bacillus in the course of typhoid fever. We know the same kind of patient who is alcoholic.

These pathogens we know, but while we know of the unreasonable depression of mind and spirits of the individual we call melancholic its pathogen escapes us. But while it is premature to attempt to say that such conditions are due to any kind of physical deficiency, or to any kind of physical presence which we do not know, as the president endeavored to show us yesterday—and I may say I fully agree with his train of reasoning and with his conclusion—yet I think we can find a type in the normal individual who has for example, "the blues" which has been induced by a nocturnal debauch, the blues of "the morning after," which we cannot fail to recognize as a physical state of a toxic nature. Many such persons cannot form true judgments, and hence the whole world seems blue; they are in a state of morbid disturbance, and their affectivity is in a painful state on account of their general intoxication, not necessarily impinging upon cerebral elements, but perhaps impinging upon end-organs in the viscera (cenesthesia), and producing a painful state, which we do not call pain, but which we designate distress. This is a state which, not only directly but perhaps through the peripheral nerves, affects the central nervous apparatus, so that the feeling provoked is one of distress, painfulness, and morbid affectivity. And we know how rapidly that state disappears in the course of nature, or by the intervention of the

calomel-giving doctor. These then are emotional perturbations of chemical genesis.

The *second type* of morbid emotivity which I shall speak of is that which seems to be inherent in certain individuals, that is to say, constitutional emotivity (Dupré). I question whether many of these are not really in the third category of which we shall speak, the hereditary element in them being not so important as so many of us are apt to suppose. (See my study on the Genesis of Phobias in International Clinics, iv, 1919.)

The *third type* is what I like to call the emotivity which is induced—that which is bred by induction. It is by far the commonest, in my own mind and experience; but it is perhaps the least common in the experience of most of my audience, who perhaps deal with individuals of the first class. The patient who is brought to me because of emotivity, because of what he calls "nervousness," can often be found to have fallen into this emotional state because of some stimulus, not of a chemical, but of a physical or dynamic character, of the physiological kind we call psychogenetic. That is to say, he has met with a circumstance, or a series of circumstances, which have aroused in him an emotion which he is unable to transcend. The person has previously been normal; often he is in other respects normal except in reference to this particular kind of incident which aroused the emotion. Such patients as we call "phobiacs" are the prototype of that situation. Perhaps I cannot do better than read the notes of one such case, and perhaps allude to one more, the particulars of which I have brought with me, so that we may have the basis of a discussion on the mechanism of such cases.

The first case is that of a boy, *æ*t. 8, who had developed hallucinations, which had occurred only when he was alone and whenever he was alone. The hallucinations were accompanied by a loud cry and a twisting backward of the neck and contortion of the body, so that a distinguished professor regarded him as epileptic. His father and maternal uncle were declared to have had similar attacks in childhood. The mother was over-anxious about the boy, and was "hysterical" and uneasy when he was out of sight. Examination showed no physical signs of disease of the nervous system or of any other system. In amnesia I found him to be a very sensible little fellow. My questioning soon showed that the hallucinations were not true ones, and that he never actually saw, felt, or heard what he feared. Since he clearly recognized that he had actually never seen anything to be afraid of, it was a simple task to convince him that the wild animals he feared were only imagined, that, in fact, there was nothing to fear, and that he was quite safe, even when alone. It was impressed upon him that he must learn to be a manly boy and to depend upon himself. In order that he might learn not to be so timid, firstly he was told to go out alone every day, at first half a block, then a whole block, and finally round the corner, all the time remembering the need of manly behavior. Secondly, he was told that he must go to sleep alone, so as not to be such a trouble to his parents. Thirdly, he was shown exercises to suppress the wriggling tendencies of his body. Having convinced the child of the unreasonableness of his fears, the parents, especially the mother, were dealt with rationally. It was explained to them that his trouble was a phobia against being alone—an affective state induced by the idea that something dreadful might happen to a little boy unprotected by adults—an idea induced by the foolish anxiety of his mother, of which he was very well aware, whenever he was out of her sight. His morbid reaction had become a habit, which, with practice in self-reliance as outlined, could be overcome. As a result no further attacks have occurred for ten years.

That is a very simple example of induced emotivity, brought about by nervous apprehensiveness on the part of the mother, who was alarmed whenever the boy went out of her sight; and he showed the alarm very strongly, imagining possible dangers. As he found no real dangers, he seized upon the only danger which looked like being real—that connected with farm animals, that they might jump on his back, and from the likelihood it was easy to imagine that they did so. When the thought seized him he would utter a loud cry and have a so-called automatic epileptic seizure.

The second case is more complex.

A woman of thirty-three, who, having frequent attacks of palpitation, polypnea with chilliness, moisture, and cyanosis of the extremities, rigidity and pain in the neck and back, nausea, and a sensation of great weakness and dizziness, suspected she had heart disease, of which she had a great dread. Examination showed no physical disease, the only signs present being those of hyperthyroidism. She had been an exceptionally strong girl, without worries except anxiety over the health of an invalid mother. She had always feared high places, but thought nothing of it, as the other members of her family all felt the same way. There was no fear of the dark and no social timidities other than a dislike of being conspicuous. Having an overpowering fear of losing consciousness on account of this palpitation and heavy sensation of oppression, she had for eight years been unable to remain in a church or theater or, unless accompanied, to cross a wide street.

When asked to relate the first occasion upon which she had experienced the trouble she was able to recall, after some effort, that in a small, ill-ventilated church, on a hot summer day, she had begun to feel an overwhelming sense of illness during the sermon. The compulsion to leave the church was intense, but as she sat near the front, well back in the pew, she was unwilling to create a disturbance by leaving, so forced herself to remain. This attack was followed by others, which occurred more often as time went by, although at first avoidable by sitting near the door.

The diagnosis was that the agorophobia and claustrophobia were hysterical in origin, arising from the powerful suggestion of the recollection of a particular experience, made efficacious now only by the timorous imagination of the patient. For the hypermotivity of hyperthyroidism is occasioned by numerous circumstances, whereas in her case emotion was only contingent upon very definite circumstances. Hence the hyperthyroidism was considered as secondary. Relief of the chronic emotional strain was believed sufficient to cure this.

Reeducation was forthwith begun. The patient was at first unwilling to undertake it, giving the excuse that she had never been willing to introspect, but she accepted the necessity of doing so when it was explained that a person is under an obligation to know himself and that it is futile to oppose this need. It was explained that her dread of a close or open place was due to her ignorance of the mechanism of the consequences of a wrong way of looking at things and the consequent emotions, and that only when she obtained a true insight into her own psychological machinery would she be able to control it. The power of induced ideas and the feelings produced thereby were explained to her. After a while she accepted the explanation, adding: "It must have been fear, for on the first occasion, when leaving the church, one of the maids said: 'What frightened you?'" She added that she was naturally a self-contained person and was relieved after the relating of her feelings. When asked to write an account of her view of her own psychology she did so, showing a clear grasp of the power of conceived ideas, and concluded by saying: "It is difficult for me to understand that these signs of illness are not illness at all, but are caused by an induced impression. But now with the assurance that there is absolutely nothing wrong with my physical makeup, my problem seems to be to rid my mind of the fear which has unconsciously but completely controlled by thought."

So the next step in the treatment was to demonstrate

the truth of this. I accompanied her to a large square and made her cross it alone. This feat accomplished, though under great strain, she declared that it had been performed better than at any time since the start of the trouble. Later she attended church with only momentary discomfort, when she reasoned concerning it and concluded that nothing could happen. I concluded with the final adjuration that since she realized she was well, all then depended upon herself. She remains well a year later.

Thus, violent, persistent, long continued agoraphobia and claustrophobia were traced to a single incident upon which they were dependent. They were removed in less than a week by efforts directed toward giving the patient an understanding of their mechanism, indeed, compelling her to grasp it and then compelling her to take an exercise which afforded a practical demonstration.

The following is another case showing the real determinant of morbid emotivity. It is one of long standing fear of death which was removed in a week. The rapidity with which the genesis was discovered in this case is not singular, in fact, I have found it the rule.

Last spring a man, aged 30, was referred to me by Dr. Sterling Ruffin because of a nervous breakdown. Superficially and in his own estimation he appeared to be simply agitated, terrorized, and quite incapable of conducting the business which had brought him to Washington. His face was congested, his eyes were bloodshot, and he trembled violently. Indeed, the friend whom I first saw doubted his willingness to see me. In spite of this, a single interview sufficed to discover that this abject picture was not caused by physical disease, but was the result of phobias. The origin of these was ascertained in part at the same interview, and during the following few days the genesis was penetrated adequately to permit the man to return to his Western home, no longer incommoded by the morbid fears which had incapacitated him.

This man's fear had originated during the excitement and horror caused by the bursting of a large dam in the city where he lived. His efforts to reach his home and rescue his mother were impeded by the crowd, whereby an anxious terror was induced. This persisted as a fear of water and of storms. Eventually the wind became the most conspicuous feature which aroused fear. Fire would also do this. Recently the phobia was becoming associated with circumstances more and more numerous and he had become less and less fit for his business, which was of an exacting nature. He had been sent to Florida for a change, and while there got better. He quickly relapsed, however, upon returning to work. The real meaning of these phobias was fear of death—and it was this that had to be dealt with before his peace of mind could be restored.

It was very necessary in this case that each step he took should be expressed by him in writing before my review. It was in one of these exercises that he made the significant declaration: "Perhaps I don't amount to much anyway." He made the further statement: "I have concluded I will be just what I make myself."

This patient was the antithesis of some of those we often see in that so far from having a sense of inferiority he felt himself to be a highly superior individual. He was an only child, spoiled, and things had always gone well with him, even in business, where he was protected and almost petted by the heads of the firm. It was not until the sense of humility was aroused that he was able to deal with the groundwork of his fears.

What is the lesson of that second case for this study? Is it not that here is a case of a state of chronic emotivity (which was pervading more and more the patient's whole personality, so that it was becoming difficult even to go out of the house at all, so that she would not go out alone), being *entirely*

due to a particular stimulus which aroused an emotion only in a particular situation? We were here in the process of development of what has been called pantophobia*—a fear of everything, which this patient would eventually have developed, which is often declared to be a constitutional emotivity and therefore inaccessible to therapeutics. In reality, this pantophobia, when properly penetrated into, was a particular individual phobia in a definite situation, the clarification of which enabled the patient to understand the psychological processes which had eventuated in the emotivity whereby, by a considerable effort of the will which enabled her to grasp the new concepts, she was caused to get rid of the consequent emotivity entirely.

Therefore in such cases—and they are the vast majority—the emotive state is purely induced. It depends primarily upon perceptual elements; the patient has perceived the situation, just as the ameba perceived a situation, a stimulus from which it recoils, because it creates in it a state of unpleasant feeling. The individual perceives a stimulus which creates a state of unpleasant feeling—an impression which she seeks to avoid. There is a teleological reaction which she does not know how to avoid, because she does not know the nature of the stimulus. Why? Because she is not possessed of adequate knowledge to envisage that stimulus correctly in its true relation to herself and to others. In other words, it is a fault of commission, psychologic induction of cognition which permits of the development of the kind of emotivity which we describe as morbid.

Therefore the emotivity must be attacked, not directly by the soothing process of substituting another emotion for it, because that does not destroy it, it only covers it over temporarily. It must be done by attacking its primitive cause, which is cognitive. Because of that the patient fails to appreciate the true situation with which she is faced, and breeds from that false view an emotion which, under the circumstances within her knowledge, is perfectly legitimate and proper. We are, therefore, dealing fundamentally with a false belief, a pathogen not primitive emotion at all. We have the best prototype in the conditioned reactions of the dogs of Pavloff's experiments, of which, of course, we all know.

It has been said that the emotion should cease as soon as its determinant has ceased. That is true, and in most cases that is what happens. The psychological stimulus from without, which creates the emotion, disappears, and the patient is then no longer in a state of emotivity. Why in some cases does it not disappear? It is simply a matter of failure of resolution of the problem by the patient. The patient who has lost a dear one is gradually able to become reconciled to it, and to say, "Yes, we have lost this dear friend, but our life had to be lived, and there are others alive who need us, and so we should not always continue to mourn," and so on. And the other factor, so-called time, which means the gradual onset of comparative indifference because of other interests, comes to the rescue also.

In the other case the stimulus does not actually

*A contrast in psychoanalysis where a case of pantophobia was successfully dealt with by methods not those of Freud (J. Abnorm. Psychol., 1911).

cease; it only appears to do so. As a fact, kept to the fore by memory, the stimulus becomes more and more strong, and the stimulus is followed by the patient's reproduction of the emotions appropriate to stimulus, although not to the apparent situation. I will read to you a letter I had just before leaving, which very well shows that:

Whenever I read anything that seems to corroborate my fear I cannot wait for some one to help me to forget it. The trouble is that there are certain things that I have heard and read appropos of the same idea (that of fear) that have been lingering in my mind for years to terrify me. I should have talked to you long enough when you were here to allow these things to rise to the surface. I left the meeting that night partly because, when I found you speaking about phobia, I was afraid you might tell or delineate too clearly the effects of fear. Whenever I write or speak of it I want to hurry past it. I had to force myself to write out in that summary the exact words, lest thinking of it might make it worse. After the psychoanalysis* was such a failure my will-power seemed to become more and more flabby.

Then the war made it evident that the worst could happen; so it is difficult for me to get adjusted right away to the thought of even trying again to get better. However, under the stimulus of your visit, I find some things much easier.

Although I cannot voluntarily yet put myself in a really difficult position, anyhow I am this much better that I find myself considering such undertakings as a trip to a summer resort, which was heretofore fraught with too many dangers to be at all attractive, and I seem to be willing to enlarge my sphere in a way I did not consider at all some weeks ago.

You see that there the patient realizes very well how stimuli might mount to sensitized receptor situations, and hence has too much fear of their import. And she knows that when she comes into contact with any matter which will touch those receptors she will pass into this panic. This patient, whom I saw for two days only, had had these fancies since sixteen years of age.

Another person who had pantophobia (see "Prevention of Suicide" *Am. Journal of Insanity*, 1915), was a man, æt. 27 or 28, who feared everything and was in a state of complete inadaptability on account of this intense emotivity. He had a strong belief that his condition was hereditary, because on both his father's and his mother's side the heredity was extremely bad: there were asylum cases, all were neurotic, one brother died of epilepsy, and the other was a tramp—left his home young for the purpose of being a tramp. Yet in ten days that patient was restored to efficiency because it was discovered that the source of his fear though not a single incident, yet was a series of incidents induced by a very unwise relative who, having the bringing-up of the boys, believed that fear was a necessity for good discipline, and that only by fear could they be well trained. He therefore carried out stern measures and deliberately induced fear in the boys. This persisted in this man until he was 28 years of age and unknown to him in regard to its mechanism. This man has since faced difficulties in securing position in his profession, that of attorney in a large Western city. He has married, has two children and since the treatment has never had a relapse. That, therefore, is a very important case

*Alluding to a period of four months of treatment by a psychoanalyst without benefit. He had persisted in searching for a repression, of which there was no evidence, to account for symptoms of which the mechanism was clear enough.

from the point of view of differentiating between the condition which we label "hereditary," and that which can be induced and reconditioned.

Our psychotherapeutic measures then are those which are adapted to the reconditioning of patients who are in a state of emotionality which we regard as morbid.

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ACUTE PURULENT OTITIS MEDIA IN CHILDREN.

BEING A DISCUSSION OF THE ETIOLOGY, BACTERIOLOGY, DIAGNOSIS, COURSE AND PROGNOSIS, PROPHYLAXIS AND TREATMENT OF ACUTE PURULENT OTITIS MEDIA IN CHILDREN, WITH A PLEA FOR MORE CAREFUL INSPECTION OF EARS, AND MORE PERSISTENT TREATMENT OF INFECTED ONES.

By JAMES G. CALLISON, M.D.

NEW YORK.

THE preservation of the special senses, especially those of seeing and hearing, is secondary in importance only to the saving of the life of the individual. Infections of the eye, easily seen and often alarming, both to the physician and to the parents, usually receive the attention their importance warrants. Infections of the ear, often insidious in onset and free from systemic manifestations, frequently fail to receive the consideration their seriousness deserves. This is amply borne out by the large numbers of adults encountered who are deaf or nearly so as a result of ear infections dating from childhood. It is only at a later stage of life, when the impaired hearing is an economic or social handicap and the damage to hearing is irretrievable, that a persistent effort is made to cure the discharge. In frequency of occurrence, acute purulent otitis media forms the third great group of children's ailments. Involvement of the respiratory tract—colds, acute adenoiditis and pharyngitis, bronchitis, and pneumonias—form the first group; intestinal upsets the second group, and ear infections the third group. As all the acute infectious diseases of children, together with the ordinary colds, list acute purulent otitis media as complications, it is most essential that each physician who is called upon to treat these little patients should be able to diagnose the condition and intelligently direct its treatment. It is the aim and object of this paper to contribute something to this end.

Etiology.—Acute purulent otitis media in children is practically always secondary to a nasopharyngitis. I say "practically" out of deference to members of the profession who claim that sometimes there is another method of infection. A very large majority of the children that suffer from running ears are also sufferers from adenoids, and are temporarily or permanently mouth breathers. The extension from the pharynx to the middle ear occurs in two ways. In the ordinary "colds" of children the adenoids are swollen and interfere with breathing and drainage from the epipharyngeal space. As the child lies on its back the secretions from the nose collect in the epipharynx and are added to the secretions of the pharynx itself. In the act of swallowing, coughing, or gagging, there is a violent

contraction of the pharyngeal constrictors, together with the palatoglossus, palatopharyngeus and levator palati muscles, causing a reduction in size of the epipharyngeal or postnasal space and the opening of the eustachian tubes. By this means contaminated secretions are forced from the epipharynx into the middle ear. This infectious material initiates an inflammatory process, and as this is established in the middle ear the mucous membrane becomes swollen and congested, and the otitic end of the eustachian tube is occluded, resulting in a closed abscess cavity.

In other instances of inflammation of the mucous membrane of the nose and throat the infection is severe from the start, and there is a rapid spread of the inflammatory process by lateral extension along the pharyngeal and nasal mucous membrane to neighboring structures. In this process of lateral extension the eustachian tubes participate and the infection is thus carried into the middle ear. These are the cases, of course, that give the more violent, fulminant symptoms. And they are also, in my opinion, the cases that respond more rapidly to treatment, in that they are recognized and receive treatment at an earlier stage. From this class, also, are the cases that go on to rapid mastoid infection, in spite of the most careful treatment.

In such systemic infections as typhoid fever and lobar pneumonia, proved to be primary bacteremias, there may be a true hemogenic implantation of the infecting organisms. This may be true also of infections of unknown nature, such as influenza. However, such a method of initiating an acute purulent otitis media is not proved. In scarlet fever and measles, infections of undetermined nature, the path of extension to the middle ear is not known. The otitis media may be due to the specific organism, whatever that may prove to be, responsible for the condition. As a streptococcal pharyngitis is a prominent symptom of both of these conditions, however, I am of the opinion that the ear infection is of a streptococcal nature, and that the involvement is by direct extension.

Bacteriology.—The bacteriology of acute purulent otitis media in its early stages, investigated by cultural methods, should prove an interesting field of investigation for the department of bacteriology of some of the ear, nose, and throat hospitals. As usually returned, the report on smears from acute ears is that of a mixed infection, which is undoubtedly correct. These cases are all infected from the throat, and the bacterial flora of that region is always varied. The pathogenic organism predominating in the tonsils and adenoids seems to be the *Streptococcus hemolyticus*, and this organism predominates in ear cultures at the later date when cultures are called for. Next in importance to the otologist is the *Streptococcus capsulatus*, or the *Pneumococcus capsulatus*, No. 4, as it has come to be called from its agglutination reaction. This organism is responsible for the severe, destructive, insidious mastoid infections so much dreaded by the otologist. These are more common in adults than in children. Of less importance are the *Streptococcus viridans* and the pneumococcus infections, while staphylococcal infections are only of secondary importance. There is a great variety of bacteria,

non-pathogenic, carried up from the epipharynx with the infectious material, but these undergo rapid bacteriolysis and phagocytosis and disappear, bearing no causal relationship to the ear infection.

Diagnosis.—There is but one method of detecting all cases of acute purulent otitis media in babies and small children in the early stages—that is, a direct inspection of the tympanic membrane. In no other way can the changes in the contour and color of the drum and auditory canal be appraised at their true value. With the number and perfection of the pocket battery otoscopes now on the market, there is no excuse for inability on the part of any physician who is called upon to see children to make such an inspection. As has been said in regard to another instrument allied to another specialty, it might be a good plan to tie the otoscope to the stethoscope. The importance of this aural inspection in the examination of children comes next after the abdominal inspection, and is of much more importance than the examination of the chest. The reason for making this hard-and-fast statement is that the otological condition is amenable to treatment, while the response of chest conditions to the administration of drugs is at least questionable. Aside from the redness and bulging of the drum membrane in acute purulent middle ear infections, there may be no other symptom. There may or may not be pain in the infected ear, and the symptom of the localization of pain in children is easily overlooked or misinterpreted. In addition to the pain in the middle ear, there may sometimes be a slight pain in the tragus on pressure. Likewise, there may also be pain over the mastoid, especially at the tip, in the early stages of the infection. Fever may or may not be present as an accompaniment of acute ear infections. If fever is already present, as it usually is prior to the purulent invasion, its significance in a child in the midst of or recovering from a cold, measles, scarlet fever, or other acute infection, is difficult of interpretation. It must be remembered also that simple pharyngitis in children may give a temperature of 102° or 103° with no other involvement.

In some cases these children look septic to a degree difficult to explain in the absence of a careful ear examination, but this is not a constant symptom. In some rare cases, where the eustachian tube remains open, pus may be present in the middle ear without bulging of the drum membrane. Such cases present extreme difficulties of diagnosis, and sometimes leave experienced otologists in doubt as to the actual condition present. At a later stage of the infection there is a discharge from the infected ear, and the diagnosis is established. But the condition should not be allowed to progress to that extent where anyone can make the diagnosis from a dirty pillow. Of the four cardinal symptoms of acute purulent otitis media, pain, fever, discharge and bulging of the drum membrane, only the last is constantly present and unmistakable in its interpretation. The extent of the change in the fundus of the canal varies from a simple "bellying" or "ballooning" of the membrana tympani to a collapse of the superior canal wall, with a pushing outward of the membrane to such an extent as to obliterate the fundus landmarks, or even to render it doubtful where fundus and canal wall join each other. But

the question is not so much one of extent of the changes in contour as it is one of whether such changes are present.

Course and Prognosis.—The course of acute purulent otitis media may take one of three general variations. These, in the order of their desirability, are as follows: First, an uncomplicated progress to a cure. Second, there may be the development of a mastoiditis, with operation and recovery. Third, and most undesirable, the ear may continue to discharge, through neglect or improper treatment, and become a case of chronic purulent otitis media, with the accompanying loss of hearing. If the disease is terminated without undue delay, and the drum membrane is returned to normal, there will be no effect on the patient's hearing, which will return to the normal for that individual, that is, to his normal of before the attack. If the process involves the mastoid bone, with destruction of its cellular structure, and a proper mastoid operation is performed, with recovery without undue prolongation of the middle ear infection, then the hearing should still be returned to the condition in which it was before the ear became involved. If the mastoid operation is incomplete, and the middle ear infection continues for an undue time after the operation, with the formation of granulations in the middle ear and attic and the ultimate existence of scar tissue after healing has occurred, then the hearing will not return to normal. If the existence of the mastoid involvement is overlooked, then the patient is liable to the complications of a neglected mastoiditis—brain abscess, meningitis, sinus thrombosis, and septicemia. A discussion of these, however, is beyond the proper limits of this paper, but more properly comes under a discussion of mastoiditis.

In those neglected or improperly treated cases of acute purulent otitis media that are allowed to become chronic the amount of useful hearing that remains to the patient is problematical, but will be slight. In addition to this loss of hearing, the patient rests under such a load of danger to his life that he is not usually accepted as a risk by life insurance companies until he has undergone a successful radical mastoid operation. Aside from this danger to life in chronic purulent otitis media, the care of such an ear is a burden to the patient, and he is, in many instances, obnoxious to those associated with him because of the disagreeable odor to the discharge from the ear.

Prophylaxis.—There is only one important item in the prophylaxis of acute purulent otitis media in children: Adenoids must be removed from all children who show any tendency to mouth breathing when asleep, and from all children subject to recurrent colds. Even in the absence of these symptoms, if a digital examination of the epipharyngeal space reveals the presence of adenoids in excessive amount, they should be removed. Mother and nurse must be repeatedly queried as to whether the child sleeps with its mouth open. Too much stress cannot be laid on this one condition. If the child's whole postnasal space is filled with adenoid tissue, or nearly filled, it will, with the slightest pharyngeal congestion, "catch a cold," and run the risk of having this cold extend to the middle ear through the eustachian tube. In the few cases in which nasal obstruction occurs in children this must be relieved,

If the child continues to have a "running nose" after a complete adenectomy in competent hands, then the question of an ethmoidal infection must be considered and, if present, must receive the proper operative treatment. Nasal sinus infection in children is rare, as all the sinuses are rudimentary in character at the ages under discussion. In addition to removing adenoids and nasal obstruction and infection when present, that series of precautions calculated to prevent children from taking colds should be instituted, if anyone knows what will accomplish that result.

Because of its importance in relation to acute purulent otitis media in children, a word here as to the technique of adenectomy may be permissible. The preferable method for the removal of adenoids is the use of the La Force box adenotome. Under general anesthesia, introduce the box of the adenotome under the soft palate by turning it sidewise, the child lying flat on its back. Now lift the instrument, raising the soft palate with it, and feel for the posterior end of the septum. When this is felt, with the shaft of the instrument midway between the upper and lower teeth, the instrument is pushed directly toward the occiput to engage the adenoids. The blade is now sent home, cutting through the mass of adenoid tissue in the box. This maneuver should be repeated twice, introducing the instrument to the median line in the same way and then sliding it laterally, first to one eustachian bulb and then the other, bringing away the adenoid tissue adhering to the lateral wall of the epipharynx. Now wrap a piece of gauze tightly around the index finger and introduce in under the soft palate, using a wiping motion upward to remove any small fragments of adenoid tissue that may have been left behind. Follow this with a wiping motion downward under each eustachian bulb. The advantages of the La Force box adenotome are twofold: *First*, the removal of the adenoids is more complete than with any other instrument; *second*, it is not possible to injure the mucous membrane of the posterior pharyngeal wall or traumatize the eustachian bulbs. The blade is so guarded that rough handling by inexperienced operators can do no damage. The use of the curette in removing adenoids is to be condemned, except in the most experienced hands. The removal is less complete, and the amount of traumatism to surrounding parts is much greater. Also, when the mass of adenoid tissue is caught in the box of the adenotome and removed by the surgeon he is not left in any doubt as to whether the adenoids have been removed. With a curette, if the bleeding is at all free, as it usually is, the operator is frequently in doubt as to the amount of adenoid tissue removed.

Treatment.—Once a purulent condition has established itself in the middle ear of a child, no time should be lost in making a wide opening through the drum membrane. This should be done under general anesthesia, unless the purulent condition has supervened on a severe lung involvement. In that case the physician in charge must judge whether the shock of the general anesthesia or the shock of opening the drum without anesthesia will be more injurious to the patient. The practice, in some clinics, of opening inflamed drums without anesthesia or under so-called local anesthesia is to

be severely condemned. No otologist who hopes to hold his patients would think of opening the eardrums of adults without an anesthetic, and if he did make such an attempt widely it would be wise for him to provide himself with a baseball mask or some other mode of protection. Simply because one is the larger, and the child has no choice in the matter, is no justification for inflicting pain on the child one would not be willing to bear one's self.

The choice of the anesthetic to be used must be left to the physician who is going to administer it, if he is at all experienced. Ethyl chloride in experienced hands—Gwathmey has now declared it safe (*New York Medical Journal*, June 19, 1920)—is an ideal anesthetic for these short operations. The patients go under quickly, remain under lightly, and come out quickly, and there is a minimum of post-anesthetic nausea. Also, there is less stimulation of the secretions than with almost any other anesthetic. However, all anesthetists are not agreed as to the element of safety in the administration of ethyl chloride. Until they do come to some agreement among themselves, there seems some reason to fear any anesthetic containing a chlorine radicle. These include chloroform, ethyl chloride, and somnoform, a combination of ethyl and methyl chloride. If an inexperienced anesthetist must be accepted, the following would seem to be a safe rule: In children under six months, a few drops of chloroform on a handkerchief, with careful watching and prepared to change to ether on the slightest indication. From six months to two years, ether is safe and the primary anesthetic stage gives ample time to do a double myringotomy, so that there is but little nausea in most cases. From two years up, when the respiratory muscles have sufficiently developed for rebreathing, nitrous oxide alone or combined with oxygen is a very satisfactory anesthetic. However, this requires more apparatus than is usually available.

The incision of the drum membrane should be begun by inserting the myringotomy knife deeply into the opening of the eustachian tube and carrying the incision up across the drum membrane in front of the handle of the malleus, and if much inflammation is present, out on the canal wall through the crucial ligament. The knife is then returned to the entrance of the eustachian tube (the experienced otologist quickly distinguishes this spot by the feel of the knife), and the second incision is carried downward, backward, and upward behind the handle of the malleus. This double incision forms a horseshoe-shaped flap of the drum, supported on the handle of the malleus, and is the form of incision most likely to remain open when the pressure behind the drum membrane has been relieved. This free opening relieves the pressure produced by the collection of pus and allows the pus to escape, rather than be forced into the mastoid antrum. It must be remembered also that the opening of the drum membrane is done for the purpose of conserving the hearing, as well as preventing mastoid infection, and the opening in the drum membrane must be kept open until a cure of the purulent condition has been effected.

Having established free drainage through the drum membrane, the treatment divides itself into two categories, that directed to the nasopharyngeal

space, whence the infection originates and the source from which it is maintained, and that directed toward the relief of the purulent condition in the middle ear itself. Babies and small children cannot be taught to gargle, and besides a gargle does not reach the spot that is maintaining the infection—the adenoids. For this reason I am accustomed to instruct the mother or nurse to place the child on its back and allow about a medicine dropper full of some antiseptic solution to flow through the nose into the post-nasal space. This should be done every two hours, at the same time the ear is irrigated. For this purpose there is nothing superior to Dobell's solution, or this may be diluted with an equal amount of physiological saline. It will also improve the action somewhat if enough adrenalin chloride is added to make a strength of 1-10,000. The alkali in Dobell's solution helps to dissolve the mucus from the nose and throat, the carbolic acid acts as an antiseptic and astringent, the adrenalin helps in contracting the tissues and improving the drainage; the whole hastens the return of the nose and throat to a condition of health—otherwise it cures the "cold." As the nasal discharge lessens it is sometimes advisable to substitute argyrol or some other astringent antiseptic for the Dobell's solution used in the nose. If the pharynx, including the tonsillar region, shows much inflammation, this treatment of the nose can be supplemented by swabbing the throat. This is conveniently done by wrapping a piece of gauze or other soft cloth about the finger and moistening it with Dobell's solution and swabbing the pharynx thoroughly.

Before the incision of the drum membrane, while the ear is under observation, the use of drops of any kind for the prevention of inflammation and pus in the middle ear or for the relief of pain is to be wholly condemned. This practice is quite analogous to the administration of morphine in a suspected case of appendicitis. The morphine does at least relieve pain. In the case of drops of phenol and glycerin, at best there is but a slight analgesic effect, and they alter the drum appearance to such an extent as to render an accurate judgment on inspection difficult. The various forms of hot applications in the canal, oil or water, have even less justification. These burn and blister the drum, or else render it water-soaked, to such an extent as to wholly mask the condition behind the drum on inspection, while they give no relief from the pain, and the burned, blistered drum even adds to the discomfort present. It is scarcely worth while to remark that there is no absorption of drugs from the skin of the external auditory canal and the outer layer of the drum membrane, and that if there were absorption its effect would not be exerted locally, but through the blood stream. If it is desirable to make some attempt to relieve pain before the incision of the drum membrane, the use of an ice-cap to the side of the head is rational and does not interfere with the diagnosis on inspection. Either the ice-cap or hot water bag may be used if it is desired to make an attempt to prevent the inflammation from advancing into the ear. The effect of either is very doubtful, as their nearest approach to the middle ear is a full inch or more from the seat of the inflammation.

If there is a free flow of pus from the middle ear after the incision of the drum, as there usually is, the external auditory canal should be irrigated with some antiseptic solution every two hours. If, at the time of making the incision in the drum membrane, no actual pus is demonstrated and the bleeding is slight, the beginning of the irrigations may be deferred till the next morning. This for the reason that if a drum is opened in which there is no infection in the middle ear, deferring irrigations will allow the drum to react and there will be less chance of introducing infection by the irrigation. On the other hand, if there is pus present in the middle ear at the time of making the incision, or if the bleeding is free, indicating an early stage of congestion and infection, then the irrigations should be instituted within the hour of making the incision. This will prevent the firm adherence of the blood clot over the line of incision, and thereby improve drainage. As children's skins are very tender and easily irritated, some antiseptic should be selected for the irrigation that is as slightly irritating to the skin as possible. For this purpose I am accustomed to prescribe boric acid, a teaspoonful in two glasses of lukewarm water. The mother or nurse should be instructed to pull the auricle outward, backward, and downward, to outward and backward, depending on the age of the child; to use a syringe the tip of which can be inserted deeply into the canal, and to use a slight amount of force. The syringing must be persisted in until the ear canal is free from collected pus. After the syringing is complete the canal should be carefully dried with a bit of cotton wound on a toothpick and insinuated into the canal to absorb any moisture present, and a few drops of some antiseptic solution placed in the ear. The following prescription answers the purpose very well, but is not ordered till the second or third day after the performance of the myringotomy:

Tincture iodine	gtt. xv.
Phenol, 95 per cent.....	gtt. xv.
Alcohol	5 ij.
Distilled water, qs. ad.....	3 j.

As the amount of discharge from the middle ear lessens, the intervals between the irrigations should be lengthened until the ear is irrigated three times a day. This number of irrigations should be continued until an inspection of the ear reveals a drum membrane so far restored to normal that the incision is healed and the landmarks restored.

If the skin becomes irritated and eczematous under the irrigations with water and the antiseptic drops long continued, it should be protected by applying some ointment with a vaseline base each time before the irrigations are to be carried out. Borated vaseline or boric ointment are as good for this purpose as anything else. The insufflation of dry powders into purulent ears is to be wholly condemned. They will, in too many instances, form hard cakes in the fundus of the canal, in this way interfering with the escape of pus, rather than retarding its formation. Unless the child is in the hospital or under the care of a very competent nurse with special ear training, I am of the opinion that gauze wicks placed in the ear are to be equally condemned. When a gauze wick is placed in the

canal in a case of acute purulent otitis media it should be changed at intervals of from four to six hours if the discharge is at all free. Otherwise the wick becomes foul and defeats the very purpose for which it was used—the rapid carrying away of the pus. The changing of a wick requires the most deft manipulations to prevent traumatism, thus giving the added risk of furuncle formation. But the real danger of using gauze wicks in the canal of a child is the failure on the part of the parents to carry out instructions. Each otologist sees cases in which a gauze wick has been placed in the canal in a case of purulent otitis media, and the patient has shown up in the office of another otologist or in a clinic days or weeks later, perhaps with a developed mastoiditis.

The time required to effect a cure varies widely with different patients, but perhaps between one and six weeks will be a safe limit as to time requirements. It is necessary, however, to fix mentally a definite time limit for the treatment of a case of acute purulent otitis media in a child. And beyond this the discharge must not be allowed to drag along. I am accustomed to place this time limit at between three and four weeks time, depending on the physical condition and progress of the individual patient. If at the end of this time the discharge does not give very definite indications of ceasing, it becomes necessary to consider more vigorous methods of treatment. The first of these is the removal of the adenoids. If the child is under two years of age, and if the tonsils are not particularly hypertrophied or infected, I am accustomed to remove only the adenoids at this time, leaving the tonsils until a later date. The pharynx seems to need the presence of the tonsillar mass for its proper development; also, the less that is done in an operative way at this time, the less recuperative load is thrown on the system of the child. It is surprising the rapidity with which a rebellious case of running ear will yield to treatment after removing the adenoids, even though they do not seem to be particularly bad.

If the adenoids are removed and the discharge threatens to become chronic, it becomes necessary to consider the advisability of performing a mastoid operation, even in the absence of positive symptoms of mastoid involvement. Under no consideration must an acute ear be allowed to become chronic. A healed mastoid wound with good hearing is preferable to a chronic running ear and the loss of hearing. If the infection has so far involved the antrum that the discharge does not yield to the usual forms of treatment, then the preservation of the hearing is so important as to justify this further step.

206 EAST SEVENTEENTH STREET.

A Possible Carrier of Encephalitis.—Lemierre relates the case of a man who recently developed the lethargic type of encephalitis. He was apparently infected from his daughter who had gone through the same malady nearly three years before. She had then been seen by Netter who had followed up the case during the interval. The girl herself escaped a second attack. On account of the presence of an epidemic it could not be so surely held that the girl was a carrier. The latter had apparently not wholly recovered from her original attack and on last September suffered a sort of recrudescence of some of her old nervous symptoms.—*Le Progrès Médical*.

A CONCEPT OF X-RAY PATHOLOGY.

VIII.—ODONTOPATHIES.

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To be conversant with the embryological development of the teeth is a desirable asset to the roentgenologist interested in the study of odontopathies generally; but the medical roentgenologist is more interested in dental pathology from the viewpoint of focal infection. First will be considered the x-ray anatomy of odontal structures in the adult.

There are five structures of immediate importance to the x-rayist. Successful x-ray technology demands that these structures be clearly revealed on the odontogram. It has been found a useful expedient to enlarge the odontogram through the use of the following technique: An Eastman Brownie No. 1 enlarging camera, or similar enlarging camera, is used in exactly the same manner that it would be used in preparing an enlargement of an ordinary photograph. The dental film is placed at the proper end of the enlarging camera. Instead of using print paper at the back end of the enlarging camera there is substituted a sheet of duplitzed x-ray film. Instructions for enlarging accompany the camera and are so elementary as to preclude any necessity for discussion at this point.

It is better to use duplitzed rather than single coated films for the reason that the duplitzed films are not only faster but furnish a slightly plastic effect that adds much to the perspective of the structures and in a great measure offers an adequate substitute for stereoscopy. The purpose of the enlargement is to secure clearer definition of the linear orientation of the maxillary and dental shadows. The enlarged film produced in the manner described above is no longer a "negative" but a positive; that is, opaque structures appear as dense shadows on the enlargement, contrary to the effect produced on the original dental film. When a print is prepared from an enlarged x-ray the opaque structures appear radiopaque in the print, as they are in the original x-ray film. The finished film or print, or the original odontogram if the enlargement is not made, should show: (1) Alveolaris. (2) Stratum durum. (3) Alveolodental membrane. (4) Cementum and dentin. (5) Pulp canal. These are diagrammatically represented in Fig. 17. The pulp canal is the central dark radiopaque tube; the cementum and dentin are radiopaque and are represented by the light area immediately surrounding the pulp canal. Investing the root of the entire tooth is a membranous tissue, the alveolodental membrane which serves the dual function of contributing to the nutriment of the tooth and to its support. It is radiopaque and shows as a dark area entirely surrounding the root. There is then a radiopaque or white strip of hard, compact bone that lines the alveolus. This is the stratum durum. Then comes the reticulated spongy or cancellous network known among roentgenologists as the alveolaris. (There is some objection to the term alveolaris in its use as a noun for the spongy portion of the mandible; but common usage in x-ray laboratories seems to determine the persistency of the word.)

Pulp Canal Pathology.—The pulp canal may be the site of an acute inflammation. Bacterial invasion of the cavity is followed usually by an accumulation of inflammatory products admixed with gaseous accumulation. The purulent material in an acute process is radiopaque; so that the normal radiolucency of the pulp canal assumes radiopacity in acute pulpitis. The gases of decomposition gradually accumulate, exerting increasing pressure as their volume augments. They are then expelled through the apical foramen or through a cavity in the crown of the tooth. Their intermittent collection and expulsion causes intermittent pressure to be exerted on the contained nerve and gives rise to the characteristic "jumping" toothache. Sometimes there accumulate in the pulp canal calcareous concretions called pulpoliths or pulp stones. They cause pain owing to the irritation by pressure on the nerve. They may occur in the canal or in the crown cavity. Their x-ray diagnosis is usually readily accomplished and consists in observing a radiopaque nodule in the radiolucent pulp canal stripe. It is seldom that cases of acute pulpitis are referred to



FIG. 17.—Diagrammatic representation of a tooth showing the central pulp canal in black, the cementum in white, the alveolodental membrane in black, the stratum durum in white, and the alveolaris in white and black.

the x-rayist. Acute pulpitis is of interest only in that it bears an etiological relation to alveolar abscess. When the infectious material is expelled through the apical foramen into the alveolodental membrane, this succulent tissue may become infected and give rise to the condition known as periodontitis.

Periodontitis.—A rapidly coursed infection may localize immediately in the vicinity of the apical foramen; but if more insidious it may spread laterally either along the distal or the mesial surface. As the infection spreads the alveolodental membrane loses its radiolucency and acquires radiopacity. When the etiology of the periodontitis is incident to a pulpitis, progress of infection in the alveolodental membrane is distinctly recognized as originating at the apical foramen and directed crownward; but if the infection is begun at the gum surface of the tooth, as in pyorrhea alveolaris, the course of infection in the alveolodental membrane is readily observed to progress from the crown toward

the apex. Generally, periodontitis of apical origin is localized, while the periodontitis of gum origin (pyorrhea alveolaris) attacks the entire membrane. The alveolodental membrane is elastic and while it serves as a support for the tooth it also shares the function of acting as a buffer. When the inflammatory products accumulate the pressure that they exert dislodge the tooth to the side opposite the infection. If the infection is apical the tooth is pushed forward out of its socket; if the infection is mesial the tooth is distorted distally, and, if the infection is distal the tooth is thrust to the mesial side. This can be recognized at once on the x-ray film. Normally the alveolodental membrane shows as a radiolucent stripe of equal width entirely surrounding the tooth. The part of the membrane involved in periodontal inflammation becomes radiopaque and its width is increased. So that periodontitis manifests, in x-ray pathology, as an increase in radiopacity and a distortion in alveolodental space between the affected and unaffected side.

The alveolodental inflammation may assume chronicity, when it invites osteoplastic deposit. The root of the tooth accumulates calcified strata. Continued periodontitis stimulates cementoblasts so that an exuberant addition of cementum accumulates on the root. When the addition proceeds at the expense of encroaching upon the alveolodental membrane, and the process is confined to the odontal side of the stratum durum, the lesion is called

Pericementitis.—Pericementitis is readily visualized on the x-ray film by the roughening and irregularity in the outline of the root. Cementoblastic proliferation may continue to an exaggerated amount, the root becoming tortuous and enlarged. As it expands it virtually eliminates the alveolodental membrane until it approximates the stratum durum. If the proliferation still continues it may crush the stratum durum and invade the alveolaris. The condition is known as

Hypercementosis.—The difference between periodontitis and hypercementosis is one of degree; but the x-ray pathology is important for the reason that in hypercementosis mechanical difficulties present in tooth extraction, the hypercementosed apex making for difficulty.

The alveolodental infection, instead of pursuing the chronic course and giving rise to periodontitis or hypercementosis, may remain acute. Acute products of suppuration are more osteolytic than the chronic products, and they exert their erosive action on that bony structure less able to defend itself immunologically. Immunological defense rests with nutritive proficiency. The cementum of the tooth is better nourished than the stratum durum of the socket; so that the stratum durum is first to suffer in erosion incident to pyogenic infection. When the pus is localized the stratum durum in the immediate vicinity is gradually dissolved until it is completely burrowed, the pus then entering the spongy alveolaris.

Alveolar Abscess.—When the stratum durum has been perforated and the pus has entered the alveolaris the condition is known as alveolar abscess.

The alveolodental membrane is delicate and is protected in part by the mantle of stratum durum that overlaps it. When the stratum durum is removed either by trauma or as the result of osteolytic

destruction, two important phenomena arise; first, in proportion to the amount of stratum durum divested, support of the tooth by the alveodental membrane is lost; and secondly, in proportion to the amount of alveodental membrane exposed, an area for supply of tooth nutriment is destroyed. In a great number of cases operatively controlled by careful dental surgical technology, it was determined that when an amount of stratum durum equivalent to the distal third of the root was divested, the impaired support and the loss of nutriment resulting was such as to preclude the possibility of operative interference (apicectomy) with the view to saving the tooth; but if one-third or less of the distal root area of stratum durum is divested, apicectomy should be tried with the hope that successful rescue of the tooth results. Success rests in proportion as less stratum durum is lost. From this it is clear that the x-ray identification of the stratum durum is useful for two cogent reasons. First, its continuity must be elicited and if broken, evidence is certain of an alveolar invasion; secondly, the extent of stratum durum destroyed must be determined for guiding the dentist in positively indicating the advisability to operate or not to operate.

A chronic abscess manifests the same x-ray pathology that does an acute abscess, that is, a break in the continuity of the stratum durum at some point and connected with this break a radioparent rotund shadow in the alveolaris. Whether acute or chronic, the important feature is the break in the continuity of the stratum durum for the diagnosis of abscess. It is imperative to observe that no area of alveolar radiopacity can be considered an alveolar abscess unless the immediately adjacent stratum durum is burrowed. This x-ray criterion serves as a means positive for the differentiation of artefacts, sinus shadows or foramen radiopacities oftentimes mistaken for abscess.

The term granuloma is used with a special meaning in odontopathy. It refers to an abscess encapsulated in a fibrous membrane. Its origin is in every way identical to that of the acute or chronic abscess from which it differs only in the fact that a fibrous capsule forms around the purulent accumulation. There is no absolute distinction, by means of x-ray signs, indicative of granuloma; nor is it desirable that there should be. Acute abscess, chronic abscess and granuloma all register as radiolucent areas with a loss in stratum durum and a loss in alveolar cancellations; and to the clinician all indicate a locus of infection of potential equality in their contribution to the pathogenesis of systemic disease.

Occasionally, the nidus of infectious organisms may be hematogenous, conveyed by the capillaries to the alveolaris in the region of the alveoli. The bacteria may become deposited and they may incite in-

flammation, the first stage of inflammation being that of hyperemia. In these cases the acutely inflamed alveolaris becomes engorged with blood and cellular infiltration so that the spongy meshes are filled with a material nearly as radiopaque as bone; and the alveolaris loses its x-ray characteristics of reticulation and assumes an evenly diffused area of radiopacity. The condition may simulate clinically an abscess and the patient referred for x-ray, when the odontogram will reveal the congested locus readily diagnosed hyperemia. All of the infectious conditions mentioned, pulpitis, periodontitis, pericementitis, hypercementosis, and alveolar abscess, are in reality various stages of the same condition. They represent different degrees of acuity or

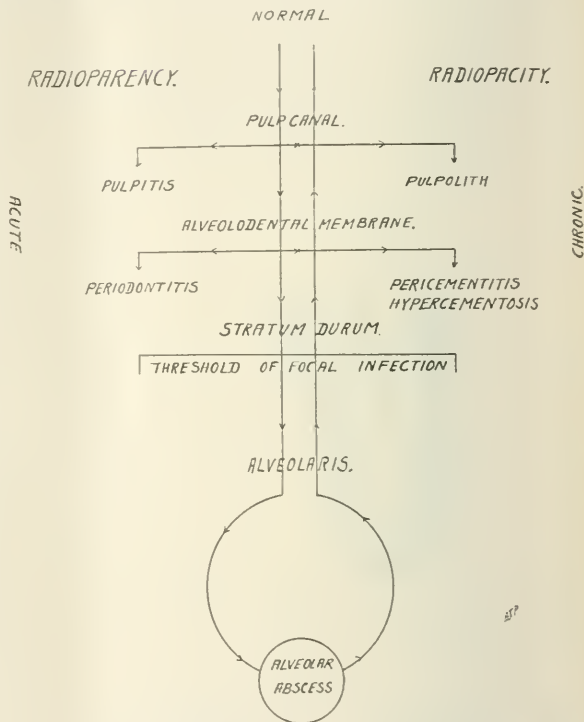


FIG. 18.—Diagram illustrating the events in infectious odontopathies. The arrow indicating the progress of infection which may be diverted at any branch on either the acute or chronic side. The stratum durum is the threshold of focal infection.

chronicity and all tend to one goal, the production of the alveolar abscess. When the alveolar abscess is formed it becomes a focus of infection and may or may not be of extreme importance in the etiology, sometimes obscure, of systemic disorder. For clinical purposes, when the infection remains localized on the odontal aspect of the stratum durum, focal infection is practically overruled; but when it perforates the stratum durum and invades the alveolaris the locus may be potentially a source of danger. The nomenclature devised is simple and fulfills every need in truly expressing the stage of infection, in leading to an inference of the possibility of focal infection and in

guiding the operative dentist in selecting the method of election for inferring in any case. In general, radiolucency or radioparency point to acute infection; radiopacity points to chronic infection. The entire syndrome may be represented diagrammatically as in Figure 18.

The invading organism enters the pulp canal through a defect in the crown and incites an acute pulpitis in which the pulp canal radiolucency assumes radioparency; or the infection may become chronic and pulpolith form, when the progress is revealed as a radiopacity. Infection may progress and extend through the apical foramen into the alveolodental membrane, where, remaining acute it gives rise to the radioparent periodontitis, or if it becomes chronic may occasion radiopaque cementoblastic proliferation leading to pericementitis or hypercementosis depending upon the degree of proliferation. From the membrane infection may progress and attack the stratum durum, perforate and invade the alveolaris and form the alveolar abscess revealed by a radiolucency in which radiolucent area the cancellous structure of bone is wanting. Alveolar abscess may be acute or chronic, with or without a fibrous encapsulation, but in all cases is revealed by practically simple x -ray pathology. The infection may subside, the alveolar abscess gradually disappear and the infection retrace its course through the stratum durum through the alveolodental membrane out of the pulp canal. At any point in the progressive or retrogressive process of the infection, the process may stop and assume chronicity. In the diagrammatic representation the course of the inflammation is shown as a continuous line. At any stage in the course, there may be an aberrant deviation either to acuity or to chronicity, indicated by the arrowed branches.

The classification of infectious odontopathies thus presented is based upon a simple understanding of the pathology incident to the process; upon pathological changes incident to the various structures involved in the various steps of the infection; upon well-defined and easily recognized x -ray signs. The nomenclature used in describing the affections is simple, ample and comprehensive and makes for a standard that should be acceptable to all. Not only is there an efficiency gained clearly in eliciting the x -ray pathology, but certain surgical criteria are revealed with an accuracy that cannot be attained through any other avenue.

Pyorrhea Alveolaris.—In Riggs' disease the endameba buccalis has been thought to be the etiological factor, it having been found in great numbers in the purulent secretion that forms between the gums and the roots of the teeth. Whether due to the endameba or to some other cause the infection begins at the gum and invades at once the alveolodental membrane. It exerts an osteolytic action affecting first the stratum durum. In reality, the first lesion is a general periodontitis; and in its early stages it cannot be distinguished, by the x -ray, from a periodontitis of bacterial origin other than pyorrhea excepting for the fact that most usually pyorrhea affects the entire alveolodental membrane, whereas periodontitis of pulp canal origin is generally localized either at the apex or laterally in the membrane.

When the pyorrhea has existed for little time it

erodes with completeness the stratum durum before it attacks the cementum of the tooth; and after it has existed with any virulence, and the stratum durum has uniformly and entirely dissolved, then, and only then, the cementum of the tooth is attacked and becomes irregular in outline. This is an important x -ray criterion useful further to differentiate pyorrhea from other conditions. In pyorrhea the stratum durum is divested from entirely around the tooth and the tooth surface is roughened and irregular. No x -ray inference of pyorrhea should be given that does not clearly show a complete divestment of stratum durum.

Differential Diagnosis.—The importance properly to diagnose alveolar abscess makes it imperative that there be discussed conditions most likely misinterpreted in diagnosis.

The mental foramen in the lower jaw and usually located in the region of the apex of the second or first lower bicuspid may be mistaken for an abscess cavity; but if the stratum durum be traced around an uninfected tooth, it will be found continuous and the mistake absolutely precluded.

The anterior palatine foramen, occurring in the region of the apices and between the roots of the upper central incisors may sometimes be erroneously diagnosed an abscess cavity; but here again a tracing of the stratum durum will make for positive differentiation.

In the region of the upper bicuspid and molars, the various chambers of the antrum of Highmore may carelessly be considered abscesses; or, more frequently, the antrum is considered perforated because the root, usually buccal, of the molar is apparently projected into but really only photographically superimposed on the antrum shadow. When this apparent projection into the antrum is visualized, a tracing of the stratum durum around the root will clearly reveal that the case is one of superimposition and not one of antrum perforation.

The inferior dental canal running its course parallel to the mandibular ramus may inadvertently be regarded as a fistulous tract. It can be readily appreciated as non-pathological by the fact that it connects with the mental foramen, and the mental foramen is soon recognized as a physiological perforation and not as an abscess.

Impacted Molar.—The third molar may sometimes be impacted against the molar preceding it. The third molar may have its axis at right angles to the jaw or its axis may incline even as much as 90 degrees to the angle of the tooth in front of it. The diagnosis of impaction is made on the absolute proximity of the second and third molars. The clinical symptoms that may arise from an impacted molar are dependent upon two factors; first, the degree of impaction as determined by the proximity of the two teeth; and, secondly, by the determination of the presence of suppuration investing the impacted molar. Suppuration, generally accompanies impacted molars that lie in a horizontal plane. In these cases the pus accumulates under the inferior plane of the molar and soon burrows into the cancellous tissue of the jaw bone. An impacted molar should be radiographed from various angles in order to make certain that the impaction is not a photographic appearance resulting from the superimposition of distorted tooth shadows. If several odonto-

grams made at widely varying angles all show absolute proximity of a second and third molar, impaction is identified as certain.

Teeth other than molars may be impacted. These are readily identified on the odontogram.

Developmental Anomalies.—The *x*-rayist should be familiar with the general embryological knowledge incident to tooth development. In preparation for the development of the teeth, the tooth band is formed in each jaw following the line of the future alveolar ridge. The band is continuous from one end to the other and soon thrusts out ten buds which develop into enamel organs of the twenty deciduous teeth. As the enamel develops the connective tissue of the primitive jaw undergoes certain changes; the cells growing into its cavity becoming more highly specialized, and forming the dentin organ. The two are surrounded by the dental follicle. These two parts constitute the tooth germ and develop highly specialized cells which produce the various parts of a tooth—the enamel, the dentin and the alveolodental membrane. The permanent teeth are formed in a similar manner.

The teeth begin to calcify at about the fourth fetal month. The temporary teeth are completely calcified at the end of the second year, when the roots are fully formed and the apical foramina are established. It is to be remembered that the apical foramen of a young tooth flares; that this normal appearance should not be confused for the pathological widening sometimes seen in elder persons as a result of pulpitis and incipient apical abscess.

About the middle of the second month of fetal life bone formation starts in the jaw. Several centers of ossification appear and quickly unite, their contour establishing the primitive jaw at the end of this time. First forming an open gutter beneath the tooth follicles, the bone soon surrounds their lateral walls, finally inclosing each follicle in a separate compartment, the sides arching over and practically completely encapsulating the developing teeth. The condition is reached about seven or eight months

pairs, the central incisors first, then the laterals, then the molars. Next the cuspids usually appear and finally the second molars. It is customary for all the temporary teeth to be erupted by the end of the second year.

Temporary teeth are only a short time intact; and the process of decalcification, which begins about the fourth year at the apices of the central incisors, soon follows in order reverse to the process of eruption. This phase of decalcification is completed in about three years, when the remaining part of the tooth is cast off.

Of the permanent teeth, calcification begins in the sixth year molar, the other teeth following in sequence until all are fully calcified between the 18th and 20th years.

Formation of the permanent teeth takes place above and below the temporary ones. The crowns of the permanent teeth gradually force their way to the surface, erupting as first permanent molars about the sixth year. At about the age of twelve, the second permanent molars erupt. Normally the third molars should erupt between the eighteenth and twentieth years, but they may be retained causing unerupted third molar, frequently a source of trouble. At twenty years of age there should normally be thirty-two teeth entirely erupted, their roots fully formed; that is, dentition should be completed.

Thoma in his atlas of "Oral Roentgenology" gives the following table relative to the chronology of human dentition:

Chronology of Human Dentition. The approximate time of the beginning and completion of calcification, eruption, decalcification and loss of the teeth is given in the following table. Variations from these dates are, however, very common. As it is often of greatest importance to know the condition exactly in order to decide on the advisability of extracting or retaining a temporary tooth, to determine whether the root canals are completed, or to discover whether the apical foramen is widely open or closed, it is wise to diagnose the case by means of a Roentgenogram, which discloses the exact condition.

	Tooth	Time Calcification Begins	Time Calcification Completed	Time of Eruption	Time Decalcification Begins	Time Tooth Shed
Temporary Teeth	Central incisor	4th fetal month	17th-18th post-natal month	6th-8th post-natal month	4th year	7th year
	Lateral incisors	4th fetal month	14th-16th post-natal month	1st-9th post-natal month	3d year	8th year
	Cuspids	5th fetal month	24th post-natal month	17th-18th post-natal month	9th year	12th year
	1st molars	5th fetal month	18th-20th post-natal month	14th-15th post-natal month	6th-7th year	10th year
	2d molars	5th-6th fetal month	20th-22nd post-natal month	14th-24th post-natal month	7th-8th year	11th-12th year
Permanent Teeth	Central incisor	1st year	10th-11th year	7th-8th year		
	Lateral incisor	1st year	10th-11th year	7th-8th year		
	Cuspids	3d year	12th-13th year	12th-13th year		
	1st bicuspid	4th year	11th-12th year	10th-11th year		
	2d bicuspid	5th year	11th-12th year	11th-12th year		
	1st molar	8th fetal month	9th-16th year	6th-7th year		
	2d molar	5th year	17th-18th year	12th-14th year		
	3d molar	9th year	18th-20th year	17th-20th year		

The mandibular teeth precede those of the maxilla by short intervals.

after birth. As the advancing erupting teeth progress, simultaneous absorption of the bone begins. The temporary teeth erupt shortly after their crowns have been completed. As the crown advances the root progressively calcifies so that, in the great majority of instances, when the crown is fully erupted the root is at the same time fully calcified. The tooth having assumed its final position, it is held firmly in place by the support of the newly-formed alveolar process. Teeth generally erupt in

Irregularities of Tooth Eruption.—Teeth may be misplaced and found in any part of the maxilla or mandible such as the nasal cavity, the maxillary sinus or the lower borders of the mandible and ramus.

They may be unerupted or impacted. The *x*-ray study of impacted and unerupted teeth is important both as a diagnostic and as a determining criterion in pointing to the operation of election for interference. Unerupted and impacted teeth, perhaps be-

cause of the pressure which they frequently exert on the tissues toward which they are growing, may cause a reabsorption of soft parts and the lodging of an infectious nidus.

Partially erupted teeth are frequent observations; particularly so in the case with the wisdom or third molars. The x-ray shows exactly the mechanical defects and usually reveals associated infection.

Teeth may be congenitally absent, the absence involving their temporary or permanent structures, especially the third molars and the lateral incisors.

Supernumerous teeth are sometimes found, varying the mammalian formula. They are perhaps caused by epithelial remnants, parts of the tooth band forming a primitive enamel organ into which connective tissue papillae grow.

Tooth and Jaw Fractures.—Tooth fractures result from violence and are readily detected under x-ray examination. Fractures of the jaw will be more completely considered in a separate presentation.

Root Canal Fillings.—With the advent in dental surgery of root canal fillings, the x-rayist is burdened with the additional responsibility of guiding the operator in root canal filling. There is little difficulty in recognizing a canal filling, the gutta-percha or other material used for filling the cavity being radiopaque and easily distinguishable from the remaining tooth structure. The question of completeness in the matter of filling the canal is important. Properly to determine this the x-rayist must exercise every caution in producing minimum distortion. If this caution is not exercised a partially filled root canal may be reported as a completely filled one.

Secondary Complications.—A maxillary sinusitis or empyema of the antrum of Highmore is, in about 75 per cent of the cases, due to dental origin following as a sequel to all abscesses. This applies to acute and chronic sinusitis.

Pharyngitis sometimes occurs as a complication of abscesses involving impacted third molars. Impacted wisdom teeth sometimes occasion a tonic spasm of the muscles of mastication, a condition called trismus.

Ophthalmic disturbances may be secondary to oral conditions either through nervous irritation or as the result of hematogenous infection, iritis, cyclitis, choroiditis, retinitis and glaucoma (at times) being examples.

In a similar manner certain aural disturbances, preeminently otitis media and otalgia, may arise.

Various gastrointestinal affections have been traced to primary foci of infection of the mouth. Septic gastritis, septic enteritis, appendicitis and colitis, gastric and duodenal ulcers and gall-bladder diseases may sometimes stand in etiologic relation to primary foci of infection.

Affections of the heart, either of the muscle as myocarditis or of the valves as endocarditis are not infrequent sequels to primary infectious odontal foci.

Certain nervous manifestations have been traced to abnormal odontal conditions either because of mechanical impingement upon a nerve course or, as the result of perversion in nerve metabolism incident to infectious toxins derived from dental abscesses.

Various arthritides are in some cases associated with oral foci; and the different forms of infectious arthritides, of gouty arthritis, and atrophic and hypertrophic arthritis should incite a search of the odontal structures for the survey of the possible presence of infectious loci.

Since Billings redirected attention to the clinical entity of focal infection, and Rosenow advanced evidence tending to prove the transmutation of bacteria from avirulent to virulent capacities, much fervor has been wrought and unnecessary alarms sounded in the question of dental abscesses. There can be no doubt that oral foci of infection in many cases contribute, if they are not responsible for, to the etiologic pathogenesis of certain systemic disorders; but the x-rayist should not be accessory to a decision leading to the unrestricted extraction of teeth unless the x-ray evidence is absolutely indicative of the wisdom of the measure. The question has already been discussed under the title of alveolar abscesses and infectious odontopathies. It is reiterated here only in the trust that greater caution be exercised in advancing opinions relative to the potential harm incident to a focus of infection. In many cases the matter has been underrated; in equally numerous cases, it has been overrated. The x-rayist is in the position to strike a just balance between etiology and pathogenesis if he will examine infectious odontopathies with the scrutiny outlined under this heading.

SOME FALLACIES OF CHRISTIAN SCIENCE.

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BEFORE entering into a discussion of these problems, let me once and for all definitely define my position as to Christian Science.

Some years ago I felt that it offered a means of therapy, that in the blind faith and peculiar ecstatic state of mind that this so-called Science developed, there was a means of reaching a psychoneurotic at least. True it is that occasionally an individual seemed benefited thereby, but this was due entirely to the autosuggestive effects of the methods employed. Unfortunately, the average medical adviser has no patience with these high strung individuals, he or she is bromided, hyoscined, or what-not when his physician should rather delve into his mind with a knowledge of the social or other forms of psychology that medical schools do not teach. The result is that these individuals, illy adapted to life's real problems and unable to stand for themselves, reach out for an anchor, a haven of rest and the smooth, unctuous promises of Christian Science with its optimistic, business-like healers gain the upper hand to the detriment, not of the medical profession, as this deluded group would have us believe, but of the individual and his family. I unequivocally feel that the methods of this so-called church are, to say the least, criminal.

One attends their meetings and hears nothing but tales of miraculous cures, never of their failures or of their difficulties, and if one asks why

such and such a thing occurs, he receives the dogmatic (I feel like writing, dogged) reply, "They did not have sufficient faith. Their thought was wrong." Would that we Medicos might as easily escape from our failures—which we so gracefully admit, by the way—for can Christian Science offer us a Cabot, one Mayo, or one Osler, one healer who will classify his or her cases and admit their failures?

I stated a while ago that their methods were criminal. I believe that this is putting it too mildly. Let me cite instances from my own experience.

Case I.—I was, in my early practice, engaged to confine a woman, a Christian Scientist. When I arrived at her home, I found present a healer, a Christian Science nurse, a fanatic husband, and a woman who would have naught of medical aid. I was present only because the law required a trained accoucheur to sign the birth certificate. To say the least, I was interested, for I wanted to see what such a mental state could do toward ameliorating labor pains and facilitating labor. Let me picture the scene. The woman in bed reading a Christian Science pamphlet, the healer seated at the bedside reading aloud at times, the Christian Science nurse and the husband at the foot of the bed praying, while I, the physician, was not permitted to interfere—"The baby should come as God wished." Clinical results were as follows:

The woman moaned and groaned from pain. ("Just keep thinking of the Right," said the healer.) The labor itself was prolonged. ("If you would only keep your thoughts right," said the disciple of Mrs. Eddy.) The woman finally gave birth to a child, with a median perineal tear well into the rectum, which I was not permitted to repair. "For that tear is not a physical thing," said the scientific interloper. Sepsis set in three days later and finally the disciple of Æsculapius treated the case to a successful conclusion. A brilliant result, I suppose at some later Science meeting, for the tenets of Mrs. Mary Baker Eddy.

Case II.—I was called to attend a woman, age 60, whose husband promptly told me that his wife was dying from shortness of breath, but, "We are Christian Scientists—will you diagnose the case for us?" I found the woman with a marked cardionephritis, with the abdomen distended markedly by ascites. She could not lie down and breathe, despite her faith, and begged for relief. I did a paracentesis abdominis and removed eight quarts of fluid. Medical advice was proffered, but they would have none of it. Science would cure her. In one month I was called again. The patient presented the same picture as formerly. I again tapped the abdomen. I asked the patient why, if she had so much faith in Christian Science, the fluid re-formed. "Oh, well," was her reply, "I did not keep my thoughts pure or right enough. That is the reason." "But why have a physician remove the fluid?" was my next question. "Because," she stated, "this is a condition of bad faith, of the corporeal, so we use diseased methods to relieve until Love and Faith are triumphant." For a period of six months Christian Science imperfectly applied presented recrudescences of the fluid, while paracentesis abdominis, in its imperfect way, saved the patient from death by diaphragmatic pressure and cardiac failure. Ad interim, medication which would have been beneficial was refused. She then succumbed from cardiac dilatation and general anasarca—a triumph, I am sure, for Christian Science, for her faith had brought her back to the "Great Mind" that Mrs. Eddy calls God.

Case III.—This case well illustrates how convenient "pain" even though it "does not exist" can be even to the ardent Christian Scientist, and how "masses" may develop even though there is no "corporeal" disease when that filthy, material substance, money, is at stake.

I was called to examine a man said to have been injured in an automobile accident, six months after the occurrence, who said that he suffered from dizziness and pain in the head and that a tumor had developed over his right eye, all said to be due to his injury, and de-

manded "remuneration for his pain and sufferings," and yet he had been for six years "a student of Christian Science." I wondered when he would graduate or perhaps the presence of the cash remuneration was to be his diploma, for surely then "all pain and anguish" would vanish, due, of course, to his perfectly developed "faith."

Case IV.—A man had seriously smashed and lacerated his index finger. So much so that one of my associates deemed it necessary to do a partial amputation, but the patient would have none of it, until his practitioner had been called. It was decided that it would be wisest at least to sew up the wound, and an anesthetic was advised. But, no, the Scientist "would stand the treatment. There was no pain." My associate being of a practical turn of mind and not given to discussion agreed to do this. With the first needle prick, the patient gave a scream of pain and suffered so that the practitioner then requested him to take gas, "so that your hand will remain still while the surgeon sews it up." Notice the diplomacy of the healer. No mention of pain—probably the gas administered was part of the vaporous spiritual thought that transcends pain, that Mrs. Eddy speaks of. At any rate, it worked. Surely, a brilliant demonstration of the non-existence of the corporeal and of the pains of the body.

Case V.—This case will exemplify one of the most serious dangers to which Christian Science exposes both the individual and the community. I was requested by a Christian Science friend of mine to "take a look at my baby," a charming youngster of four years, of whom I was very fond. The youngster had a very evident measles. Feeling that I did not want to incur my friend's ill-feeling, I told him the condition of things and explained to him the dangers of pneumonia, ear disease, etc., to his child and also of his duty to his neighbors. "Keep the child warm and isolated and maintain his general hygiene" was my advice, "and if you want a healer call him in," for I believed after all that the practitioner could do no harm, but I was to learn a bitter lesson. The healer ridiculed the idea of the measles and ordered the child to play in the streets and declared that prayer would cure the little patient. The clinical results were as follows:

The child developed lobar pneumonia and empyema and died, the end result of improper care and exposure. Two neighbor children and a cousin that visited the family developed measles.

Was this case and its after effects ever quoted in a reading room meeting, or was the poor child and its infected neighbors guilty of wrong thoughts and a breach of Love, or did the Scientist healers believe that it would be wisest literally to obey the command of The Christ, "Suffer little children to come unto Me," and believe that death from a "non-existent process" would be the best way to consummate His command?

The following is the story of the end results of Christian Science in an interesting family. Dr. B. married Dr. F., and both built up a splendid surgical practice. Mrs. B., formerly Dr. F., later became interested in spiritualistic and so-called psychical research and finally joined the Christian Science Church. Gradually her interests became fanatical and she interfered with her own husband's practice by discussing problems with his patients and insulting their inherent intelligence. She became a very successful healer herself; her children, a wonderful boy and girl, were brought up to all the tenets of the new faith. The husband, in desperation, joined his wife's church to find familial peace if he could. My Science friends here have a wonderful proof (?) of the potency of Mrs. Eddy's doctrines; wonderful examples of the fact that "even doctors leave their work to enter our creed," . . . but, and here let me describe the end results. The wife plied her profession as a

healer and made a fair amount of money, until she developed kidney and heart disease at 52 years of age. As a friend of theirs since my childhood, I was called in to see her for diagnosis only. She gradually went down hill and in two years died of dropsy and cardiac dilatation. The daughter at 16 years developed tuberculosis and died in one year, primarily because no medical aid was sought until too late.

The father, broken in health and wealth, came to me one day and exclaimed, when I mentioned Science, "Don't ever bring that accursed name into my house, it has ruined our home and my life." I shall make no further comments on these poor people. Probably the intelligent reader will draw his own conclusions.

Cases could be multiplied to hundreds in my own personal knowledge. Neglected tuberculosis, mistreated cancer, pus conditions in appendix, gallstones, with consequent death, because surgical interference was not instituted until too late, come under the scope of dangers that this so-called Science reflects upon the ill, or shall we say, to appease our friends' desires, those whose thoughts have been so wrong, so non-loving, that evil gained the upper hand? Granting them even the latter statement, does it not seem logical, if diseased (?) medical methods, corporeal treatment, etc., does save lives and the health of these unfortunates, that perhaps these methods may even be God-given?

Mrs. Eddy, in her "Science and Health" makes much of the book of Genesis, and gives us her own poetic interpretation of that book. Of course, the God, the Master Mind, made it possible only for her and her pupils to understand, yet I would humbly suggest that perhaps the poor benighted doctor may have some God-given interpretation also. For example, Genesis states that the Lord created all things and had made all things subservient unto man. These things, our Scientist friends would probably sum up into nice lamb chops, well-broiled steaks, vegetables, edible crustaceans, anything that will keep their corporeal "mind" in good condition, nourishing it when it is well. For some strange reason, however, they cannot accept the digitalis plant for heart disease, yet they have no objections to the tea plant's stimulating qualities. They use clay to work in, but cannot see its value in infection; the earth may produce the gold to purchase the wherewithal—yes, and even pay for the practitioner—yet mercury, iron, and other beneficent metals are withheld in process of disease.

It seems to the doctor that when the wonderful Mind was conceived; that when this wonderful Mind called upon all subminds to be subservient, that in some way or other, he wished us to find and use the drugs that are provided by nature (a part of the Great Mind, by the way, according to Mrs. Eddy) to restore us to health.

If one seeks for the mystical and looks for the hand of God, can our Science friends point to a more appropriate story than that of the discovery of quinine? An Indian chieftain in Mexico, so the legend goes, had developed ague and so serious was his condition that, according to the tribal customs, he was driven into the forest to die. Taking with him his dog, he wandered into a morass. Sud-

denly he saw his dog eat of the bark of a tree. Being tired and sick and hungry, and reasoning that if the bark of the tree was good for his canine companion it might be edible for man, he ate thereof. Bitter it was, but what magic had occurred the next day! There was no chill, no fever. For some time he ate daily of the bark and waxed in strength and health and was able to return to his tribe a well man. That is how cinchona or quinine was discovered. Surely an act of God, if one believes in folk lore at all, and would Science have us believe that His gentle hand that pointed to this drug through the agency of one of his lower animals (or "minds") was directed in a way harmful to man?

And so it would be possible to point out, using Biblical authority and interpretation, that the physician after all has his part to play in life—that we are but "Servants of the God—the Great Mind," whatever you choose to call the "Infinite."

Nor do the criticisms of Christian Science cease here. Often the view is expressed that it is good for vacillating, nervous minds, and that it brings relief where physical methods fail. For some time I was disposed to believe this so, but continued observations fail to prove it true; that in fact Eddyism is the *cause* frequently of the development of psychopathic states in normal individuals.

The patient with a neurosis needs, not an artificial state of mind as created by Science, to combat his troubles, but a true understanding of the mechanism of his psychic state. Here the physician should be the guide. All toxic and other processes should be examined for and treated. Social and other difficulties should be investigated and corrected. Psychoanalysis and other methods should be employed to delve into the background of the patient's mind. In other words, the true way to correct neurotic manifestations is to show to the patient his norm—to explain to him, to have him understand clearly the "why and wherefore" of his condition—then there is a *true* solution for his difficulties, not a neural anodyne as Christian Science would be—leaving the psychic struggles unsolved and ready to react against the patient under new stresses and strains. It is the old picture, corresponding in physical diseases to the practitioner who heals by a true knowledge of pathogenesis and handles his knowledge intelligently to cure his patient with the physician who treats symptoms . . . and relieves them, but leaves the causative factor to continue its damages.

This paper has been the result of continual investigation of Christian Science . . . Mrs. Eddy's and her co-workers' literature has been studied, patients under their care have been observed; patients have been referred to them for treatment. I have personally known a group of healers intimately and studied their methods, and have for a period of time lived in the homes of Scientists. I have tried to keep an unbiased mind, but as time progressed and I was able to evaluate their methods and their end results, I am firmly convinced that it is a system that is noxious to everything—the individual, the community, and the State; it is a disseminator of contagious diseases; it withholds necessary treatment from deluded patients; it en-

dangers the lives of individuals ill from surgical conditions . . . and offers nothing in return but "Blind Faith," so blind in fact that recently, when in discussion with a friend who for eight years has professed Science, who has studied it regularly, and has as his closest friends many well known healers, I drew him to a logical conclusion in regard to disease—he stammered and then blindly replied: "I can't answer you, but there are some who can." Never, except in the Middle Ages, was Faith so blind—when an individual is willing to submerge his own ability to reason and accept the thoughts of another absolutely.

I have attempted here to point out certain dangers involved in the tenets of this cult. I have cited specific cases (any of which I shall be glad to corroborate), in the hope that perhaps a citation of facts will help somewhat to batter down the walls of that citadel of Ignorance and Blind Faith—"Christian Science."

ROOM 234, CONSOLIDATED REALTY BUILDING.

HYDROCELE IN CHILDREN.

By MAXWELL QUACKENBOS, M.D., M.R.C.S. (Eng.).

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In the seventh month of fetal development the testis is situated in the small peritoneal fossa at the internal abdominal ring. The descent and inguinal invasion of the testis within its peritoneal investiture, the processus vaginalis, occurs during the eighth month to reach the normal scrotal location at term, at which time that part of the former peritoneal sac in relation to the spermatic cord, the funicular process, is obliterated along its inguinal course of a quarter of an inch, while the distal portion of the covering remains patent to form the tunica vaginalis of the testicle.

A variety of anomalies may result from the delayed or imperfect fusion of the processus vaginalis. Increased intraabdominal pressure from muscular effort, as crying or straining, is the essential factor in the clinical manifestation of the congenital defect. Persistence of the fetal state, that is patency of the funicular process, if sufficiently large in caliber to admit gut or omentum, leads to a vaginal type of oblique inguinal hernia, whereas a small aperture may result in the production of a congenital or intermittent hydrocele due to the gradual ebb and flow of the serous peritoneal fluid. In passing it will be recalled that this, a hydrocele of a potential hernial sac, is not reducible by taxis.

In the female the peritoneal tube is termed the canal of Nuck, and faulty closure according to degree may likewise lead to a hernia or an encysted hydrocele of the round ligament. The inherent tendency of the anatomical defect to approach the normal and eradicate the developmental error is well illustrated by the fibrous ring occasionally observed at operation within the sac of long standing adult herniae. A similar condition occurs when the congenital hydrocele is converted into the infantile variety by the fusion of the funicular process at its upper end, severing the peritoneal communication. Closure of the lower end of the funicular process at the point of junction with the tunica vaginalis

results in the funicular type of hydrocele or oblique inguinal hernia, the latter constituting 95 per cent. of all congenital hernia (H. J. Stiles). When the patent funicular process is effaced at each extremity a hydrocele of the cord may make its appearance. The simple types of hydrocele delineated can by virtue of their several complications inculcate deference in the attempt of their radical cure.

Exception is taken to the misnomer congenital, meaning present at birth, as applied to hydrocele, a collection of (serous) fluid of the coverings of the cord and the testicle. The clinical recognition of the defect and its attendant swelling is not noted until the infant is several months old, frequently many months old. Post-mortem examination of infants shows the peritoneal cavity singularly free from serous fluid. The hydrocele in my observation is almost invariably present on the right side, although the anatomical defect is usually bilateral, present in both inguinal regions. The descriptive term, intermittent, is preferable to depict the occurrence of a hydrocele associated with a patent processus vaginalis.

That patency of the processus vaginalis, excluding the fetal condition, may remain latent until adolescence (or for an indefinite period) is shown by the incidence of the encysted hydrocele of the round ligament not uncommonly seen at this age, or the occurrence of a primary hydrocele of the cord following some profound muscular exertion. (R. Johnston, *Brit. Journal of Surgery*, viii, 29. Any collection of serous exudate, as a rule, is endogenous, secondary to some morbid process. Given the presence of the structural defect as discussed, in a young individual, accompanied by straining, is there a discernible causative factor in these cases of primary hydrocele? While it is exceedingly difficult to attribute any cause which in all instances would make one regard hydrocele as a symptom, still it is a more or less well known fact that hydrocele occurring in children is occasionally symptomatic of a subacute or chronic infective process. I believe that the situation of the focal lesion is to be found in the mesentery of the caput or its vermiform appendix in the majority of cases; I mention from my experience two cases in infants where the subsera of the processus vaginalis was studded with tubercles and three others where enlarged mesenteric glands were palpable under anesthesia, the peritoneal process however being healthy. Such infants may be breast fed. On analogy infantile hydrocele, or that of the round ligament or the cord would appear to be similar to a tuberculous hydrosalpinx. In the infantile type of hydrocele puncture of the sac by a trocar and withdrawing of the fluid generally effects a cure. In one patient, a boy of five years, the hydrocele repeatedly recurred after aspiration, and when I opened the sac a piece of detached omentum was found stuck on to the wall of it. In older children less frequently than tubercle, rheumatism may be the cause of the localized chronic peritonitis, and I have seen a funicular variety of hydrocele apparently cured by enucleation of the faecal tonsils. I am convinced that hydrocele in children should be regarded as a symptom of a localized subacute or chronic peritonitis unless actually proven otherwise, for in many instances the surgical cure of the hydrocele

is only remotely associated with the general and ultimate welfare of the patient.

Not all cases of hydrocele require operation, *i. e.* excision of the distended peritoneal process by the inguinal route. Inspection of the throat and for palpable enlargement of the afferent tonsillar lymph nodes, or examination in a warm bath for mesenteric glands may indicate the treatment to be followed. An inguinal truss or pad and bandage (in conjunction with local applications of tincture of iodine) sometimes leads to a cure. Phymosis is remedied and the minute preputial orifice if present corrected by meatomy according to the method of T. H. Kellogg. This consists in preventing the union of the cut areas by the introduction of a suture of double horse hair through the base of the incision, the knot of which is located in the wound. The tightly tied suture cuts out in five or six days. I have found it far more efficacious than the usual lubricated plug.

Medicolegal Notes.

Remaining Within the House—Meaning Under Insurance Policy.—The Arkansas Supreme Court holds that under a health policy providing for benefits if the insured should be compelled by disease to "remain continuously and strictly within the house" under the treatment of a regular physician, the fact that the insured took air and exercise under the direction of his physician would not preclude recovery; but the insured could not recover under the terms of the policy if the disease was one which required him to remain outside of the house rather than within it.—*Inter-State Business Men's Acc. Assn. v. Sanderson* (Ark.) 222 S. W. 51.

Misrepresentations of Applicant for Insurance as to Indigestion.—Section 639 Kentucky statutes provides that all statements in an application for insurance shall be deemed representations and not warranties, and, unless material or fraudulent, shall not prevent recovery on the policy. An applicant for a certificate of insurance in a benefit society, with knowledge that he was subject to indigestion, or had symptoms of serious disturbance in his digestive system, stated he had never had diseases or symptoms of colic, gallstones or indigestion, or other diseases of the digestive system. The Kentucky Court of Appeals, after examining in detail the evidence of several attending physicians and medical examiners for insurance companies, on the subject of the materiality of such diseases to the risk, held that the insured's widow could not recover.—*Sovereign Camp v. Thomas* (Ky.) 222 S. W. 69.

Physician May Disclose Information Received from Patient to Prevent Spread of Contagious Disease.—A novel case has recently been decided by the Supreme Court of Nebraska. Neither court nor counsel had been able to find any prior cases bearing directly on the question. A guest in a small hotel consulted a practicing physician, who informed him he believed his disease to be syphilis, and who later warned the proprietor of the hotel against the danger of contagion, so that the guest was forced to leave. He sued the physician for damages for alleged breach of duty arising from confidential relationship between physician and patient. The statute as to the disclosure of confidential communications to the witness stand did not, of course, apply to the case. There is, however, another provision of the Nebraska statute that a license may be revoked for unprofessional or dishonorable conduct, and among the acts of such misconduct, defined by the statute, is the "betrayal of a professional secret to the detriment of a patient."

By this statute, the court holds, a positive duty is imposed upon the physician, both for the benefit and advantage of the patient as well as in the interest of general public policy. It is often necessary for the patient to give information about himself which would be most embarrassing or harmful to him if given general circulation. This information the physician is

bound, not only upon his own professional honor and the ethics of his high profession, to keep secret, but by reason of the affirmative mandate of the statute itself. A wrongful breach of such confidence, and a betrayal of such trust, would give rise to a civil action for the damages naturally following from such wrong. But the doctor's duty does not necessarily end with the patient, for, on the other hand, the malady of his patient may be such that a duty may be owing to the public and, in some cases, to other particular individuals. Recognition of this fact is given by the Nebraska statutes, which delegate power to the state board of health and to municipalities generally, to require reports of, and provide rules of quarantine for, diseases which are contagious and dangerous. An ordinance in Omaha enacted under such power, providing quarantine of communicable venereal diseases, has been sustained by the Nebraska Supreme Court in *Brown v. Manning*, 103 Neb. 540, 172 N. W. 522. The court holds that the word "betrayal" in the statute quoted is used to signify a wrongful disclosure of a professional secret in violation of the trust imposed by the patient. No patient can expect that if his malady is found to be of a dangerously contagious nature he can still require it to be kept secret from those to whom, if there was no disclosure, such disease would be transmitted. The information given to a physician by his patient, though confidential, must be given and received subject to the qualification that if the patient's disease is found to be of a dangerous and so highly contagious or infectious nature that it will necessarily be transmitted to others unless the danger of contagion is disclosed to them, then the physician should, in that event, if no other means of protection be possible, be privileged to make so much of a disclosure to such persons as is necessary to prevent the spread of the disease. A disclosure in such cases would, it follows, not be a betrayal of the patient's confidence, since the patient must know, when he imparts the information or subjects himself to the examination that, in the exception stated, his disease may be disclosed. In order that such a privilege of making a disclosure be available to a physician, however, he must have had ordinary skill and learning of a physician, and must have exercised ordinary diligence and care in making his diagnosis; otherwise he could be subjected to an action for negligence in making a wrongful report. *Harriott v. Plimpton*, 166 Mass. 585, 44 N. E. 992. In making such disclosure a physician must also be governed by the rules as to qualified privileged communications in slander and libel cases. He must prove that a disclosure was necessary to prevent spread of disease, that the communication was to one who, it was reasonable to suppose, might otherwise be exposed, and that he himself acted in entire good faith, with reasonable grounds for his diagnosis and without malice. It appearing to the court that the facts disclosed by the record in the case showed that the occasion was privileged, that the defendant had reasonable grounds for his belief, that he made no further disclosure than was reasonably necessary under the circumstances, and that he acted in good faith and without malice, judgment for the defendant was affirmed.—*Simonsen v. Swenson*, (Neb.) 177 N. W. 831.

Notice of Disease to Medical Examiner is Notice to Insurer.—The Texas Court of Civil Appeals holds that where a medical examiner of a benefit insurance society was notified that the applicant for insurance had suffered from influenza, and this fact was noted in the report he made to the body having general authority over fraternal insurance, the insurance society was charged with knowledge of that fact and could not rely on the applicant's statement that he had not suffered from disease, under the rule that, although the answers of the insured may be untrue and incomplete, and this fact under the contract would avoid it, the insurer may by its conduct, or that of its officers, be held to have waived its right, and be estopped from having the policy declared void for misrepresentation or breach of warranty. While the Texas statute (Rev. St. 1911 art. 4847) permits contracts against waivers by subordinate bodies and their officers, there is no such law as to general officers or agents, and no provision in the constitution of the society against waiver by general officers would have any basis in law.—*Sovereign Camp, Woodmen of the World, v. Nash* (Tex.) 220 S. W. 235.

MEDICAL RECORD.

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THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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THE WORKING TOGETHER OF DENTISTRY AND MEDICINE.

WE recently referred to the growing art of chiropody or podiatry, and suggested that it would be the part of wisdom to absorb that as a medical specialty, teaching it in the curriculum of the medical school. If that is not done we shall before long find podiatry as a fully developed branch of the healing art with schools of its own and with educated practitioners demanding recognition as healers and relievers of human suffering. This mistake of aloofness or assumed superiority was made when dentistry began to acquire a standing as a branch of therapeutics, with the result that the two professions have long existed side by side, semi-antagonistic, and mutually ignorant of each other's teaching.

It is only recently that the inconvenience of this quality in surgical and medical practice has begun to enter the minds of practitioners of both the professions, and in consequence there has been a mutual drawing together of the leaders in these two branches of the healing art. The recognition of root abscesses and Riggs' disease as foci of infection bearing upon distant organs and even the brain, has served to show the mutual dependence of the two professions, but it was during the late war that the recognition of dentistry as a potential or actual branch of surgery was effected, this being forced upon the Army Medical Department by the brilliant reconstructive work of the members of the Dental Reserve Corps. There will still be accidents calling for skilled work of this nature, but it is along the line of preventive medicine and hygiene that the cooperation of dentist and physician will produce its greatest results. The public must be instructed in mouth hygiene, which is inseparable from general hygiene, and for this work reciprocal action of members of both professions on the platform and in the press is needed to feed the public appetite for knowledge of how to care for the body.

In many other ways the dentist and the physician could work together to mutual advantage, and as a beginning an "exchange of pulpits" would greatly promote the desired rapprochement. It is seldom that a dentist reads a paper before a medical society

and a physician speaking before a dental society is a still more rare object. This is not as it should be, for practitioners in either profession have much to learn from those in the other, and preventive medicine as well as therapeutics would profit greatly by this mutual instruction. The MEDICAL RECORD has from time to time published papers of great practical value written by dental surgeons, and the medical press generally would no doubt welcome other such contributions.

But the hygienic welfare of the community would be promoted by a still closer drawing together or indeed an amalgamation of the two professions. The holder of a medical degree could obtain the D.D.S. by a two year post-graduate course in a dental college. He might not in that time acquire a great degree of mechanical efficiency, but his new knowledge would render him proficient in the line of preventive dentistry. The comparatively new field of dental hygiene offers great possibilities for good to the right men. There are upward of 140 registered dental hygienists in the 1920-21 official list just issued for New York, and there is room for many more. These dental hygienists are an important factor in the scheme of prevention. Some are working in dental offices, others are engaged in public medicine. The Presbyterian Hospital is, we understand, the first hospital in this city to undertake this prophylactic work, and it has two men of this class, graduates of Columbia University, on its staff. We look to see this oral hygiene movement extend to the large commercial and manufacturing concerns in the country and be adopted as a recognized branch of industrial medicine. It would extend much more rapidly and surely could the two professions of dentistry and medicine be brought together as one strong body working as a unit in the field of preventive hygiene and therapeutics.

THE PHYSIOPATHOLOGY OF UROBILINURIA.

IN the physiological state the bile pigments thrown into the intestine are completely reduced to urobilin. This urobilin of intestinal origin has been given the name of stercobilin, but from the chemical viewpoint they represent a single product. Absorbed by the intestinal mucosa, this urobilin is carried to the cells of the portal zone and there utilized for the production of normal bile pigments. The latter are taken up by the cells of the suprahepatic zone and afterwards are thrown into the biliary ducts and then into the intestine. Consequently, the cycle of intestinal urobilin derived from bilirubin is perfectly continuous and regulated.

Besides the urobilin derived from bile pigment another urobilin is derived from hemoglobin. The red blood corpuscles are incessantly renewed, but many of them, escaping the hemolyzing action of the spleen, become hemolyzed in the blood plasma. This intravascular hemolysis—which continues the splenic hemolysis—is a physiological phenomenon, bringing about an incessant liberation of a quantity

of hemoglobin in the blood in direct relation to the intensity of the hemolysis, and therefore very small in normal conditions. This hemoglobin immediately undergoes the reducing action of the plasma which degrades it successively into all the derivatives up to the final term of urobilin and the urobilinoids. Carried to the kidneys for elimination, these urobilinoids and urobilin undergo another reducing action belonging to the renal parenchyma and there transform into urobilinogen. Such is the origin of the urobilinogen whose presence in the urine is perfectly normal.

The duality of the origin of urobilin—intestinal and intravascular—readily indicates the pathological circumstances in which urobilin is susceptible of appearing in the urine. The first is when the liver only imperfectly fulfills its function of arresting intestinal urobilin, either because this product reaches the liver in too large amounts—disturbances of the intestinobiliary functions—or because the indoplectic power of the hepatic cells is decreased from hepatic insufficiency. This is also the case when the amount of urobilin formed in the blood is so excessive that it cannot be reduced by the renal parenchyma, the intravascular hemolysis being exaggerated, so that only a portion of urobilin is transformed into urobilinogen while the excess passes without being transformed.

Finally, when dyshepatia exists a certain quantity of bile pigment is diverted to the blood, but in these circumstances two different conditions are to be distinguished: either the amount of pigment introduced into the circulation is very small, in which case the reducing action of the plasma may act on a portion of this bilirubin, transforming it into urobilin; or the quantity of pigment circulating is so great that this reductive action becomes exhausted in the early phase of degradation of the bilirubin without transforming the slightest amount into urobilin. In the first case, which corresponds to mild icteric states, there is urobilinuria; in the second case—which corresponds to the period of full development of icterus—there is no urobilinuria.

The simple application of chemical laws explains why urobilinuria is present at the commencement and end of icterus, but is absent during the height of the process. Thus urobilin may form in very different conditions, while urobilinuria will develop in all pathological states arising from a functional insufficiency of the liver, a disturbance of intravascular hemolysis, intestinobiliary disturbances, and icterogenous dyshepatia. In these conditions, when urobilinuria is present, the question to be solved is its origin. The first research to be made is that of the bile pigments in the blood, the only criterion of biliary icterus, and if the result be positive the urobilinuria is evidently related to a mild cholemia whose origin must be discovered and which is usually related to an icterus at its onset or decline. The urobilinuria is then the urinological symptom of a dyshepatia usually accompanied by hyperhepatia, that is to say, an entirely different condition and one that is almost the opposite to that of hepatic insufficiency.

The search for bile pigment in the blood being negative, indicanuria should be looked for, and if present the process is a hemapheic icterus, hemapheic being merely a mixture of indican and urobilin, as Dufau has demonstrated beyond doubt. In this case, the urobilinuria is symptomatic either of a disturbance of the intestinobiliary flux that other symptoms will render evident, or of an indoplectic insufficiency of the liver. It is only in the latter case that the urobilin can be said to be the pigment of a diseased liver and that hepatic insufficiency really exists.

Finally, if urobilinuria is not accompanied by either cholemia or indicanuria, the case is then a true urobilinic icterus, that is to say, whose coloring matter is not bilirubin but in reality all the urobilinoids derived from it. This true urobilinic icterus is met with in two circumstances. In the first place, when the quantity of hepatic bilirubin—which is the origin—is so minute that it is transformed into urobilinoids as soon as it is diverted to the blood, and secondly, when disturbances of intravascular hemolysis exist.

Now, the latter disturbances are met with not only in hemolytic icterus in the true sense of the term, but likewise in a large number of hemolyzing affections, and this is why it is not uncommon to encounter urobilinuria without cholemia or indicanuria in acute or chronic processes such as scarlet fever, appendicitis, typhoid, malaria, various types of intoxications, etc. Therefore, it is only after eliminating each of these processes that true hemolytic icterus can be considered, the diagnosis of which will be established by blood analysis.

It has been said that urobilinuria might develop during slow absorption of collections of blood. Unquestionably, bile pigment and urobilin are to be found in the fluid of old blood collections, but it is yet to be shown that this local urobiligenia can bring about urobilinuria. The notable diffusibility of urobilin should indicate the contrary.

As to the relations which might exist between urobilinuria and the presence of bile salts in the urine, it seems hardly possible to determine them precisely so long as the presence of these salts can be detected only by a reagent as indirect and uncertain as Hay's reaction. Nevertheless, it is more than likely that urobilinuria and cholemia are not necessarily subordinated to each other, and that in all cases Hay's reaction must not be accepted as a criterion of the biliary or hemolytic origin of an icterus.

SALTS OF RARE EARTHS IN TUBERCULOSIS.

FOR over a year Grenet and Drouin have been using salts of cerium in the treatment of tuberculosis and their report was recently given out at the Brussels Medical Congress. Mirande in the *Journal de médecine et de chirurgie pratiques* for October 10, 1920, xci, 19, gives a review of the paper and also of some activities by Lumière, Chevrotier, and Renon along similar lines. Frouin has been at work since 1912 on the behavior of tubercle bacilli in the presence

of these substances. He began with cerium and at first studied it in relationship with bacteria of various kinds. He then took up lanthanum and finally neodymium and praseodymium. The sulphates of the latter metals in a concentration of 1-1000 hindered the development of cultures of the tubercle bacillus. Injections of these various salts tested produced an intense leucocytosis. Lumière and Chevrotier studied the action of cerium salts on the growth of the tubercle bacillus and Renon seems to have made only clinical studies of the salts.

The metals tested all belong to the so-called cerium group, including samarium, neodymium, praseodymium, etc. Hence the author uses an expression, "ceric medication," to cover the entire subject. The sulphates of this group appear to be the best salts for clinical study. Thus far there seems little to choose between them, and they have been used also in combination. In the clinic the concentration of the solutions has been 2 per cent. and the intravenous dose 2 to 5 cgm. (the salts are not used in any other route). Twenty daily injections are followed by an equal number of days of rest.

The lesions at first mentioned are external and surgical in character, comprising cutaneous tuberculosis (lupus), suppurative adenitis, and the like. In the majority cure has resulted. The diseases are arrested and much involution follows. Pissavy has reported these findings before one of the medical societies with special reference to some joint cases—knee and ankle—in which the results were striking. On the other hand, in a case of tuberculous osteitis in which there were numerous foci the treatment was wholly ineffectual. In every one of the cases reported by Pissavy general improvement was noted irrespective of local behavior.

The results were so encouraging that pulmonary lesions were next submitted to trial. There were controlled in all 52 cases which were treated by Grenet and Drouin and by Esnault and Brou. In chronic apyretic forms without hemoptysis the tolerance of the organism to the treatment was perfect and the usefulness of the treatment is for the present limited to this selection. In the opposite type the medication would appear to be mischievous and this applies to acute exacerbations in chronic cases. The course taken by the properly reacting case does not differ from that under other successful plans of treatment. The leucocytosis, however, if this is an index of successful treatment, is very high.

The reviewer, Dr. Mirande, in making his own comments, states that the results merit the title of apparent cures in surgical and certain medical manifestations of tuberculosis. The chief interest in the treatment is that it is perhaps the first example of successful chemotherapy of tuberculosis, assuming, of course, that it acts directly on the bacillus. The results are certainly better than those obtained with salts of gold and copper used on the same theory. But no bacteriolytic power has yet been demonstrated.

SPOROTRICHOSIS AND SURGERY.

MOURE discusses this subject in the Surgical Number of *La Médecine* for October, 1920, ii, 1. The sporotrichum, he states, is the most important of the pathogenic fungi, thus putting it above the ray fungus of actinomycosis. The time has gone by when a cold abscess can be straightway set down to the action of the tubercle bacillus. Histologically there is a close resemblance between the two affections, and in artificially inoculated sporotrichosis tuberculosis is closely mimicked. The fungus is not easily recognized in the sporotrichotic pus. It occurs on vegetables, leaves, fruit, etc., and infection may result from local abrasions and punctures, and by ingesting the parasite. Different types of disease are produced in the inoculation and ingestion types. The gumma produced in the connective tissues resembles that of tubercle and syphilis, while the lesion at the external port of entry with its regional gland packet suggests the primary external lesions of those two affections. The fully developed disease suggests with its polymorphous lesions now one and now the other of the two maladies. On the whole the author adds little or nothing to text book accounts of sporotrichosis. The main point of interest in connection with surgical treatment is negative; surgery is contraindicated, as in the case of syphilis. Potassium iodide clears up one disease as it does the other, and may be used for diagnosis. If the disease clears up, then syphilis has to be excluded. This should be easy, in theory, by serodiagnosis, but the author does not even mention the Wassermann, laying the full diagnostic stress on locating and recognizing the sporotrichum.

LION BITES.

Dr. BODI, of the Italian Somaliland, gives an account of lion and leopard bites in the *Giornale di medicina militare* for October 1, 1920, lxviii, 10. Many deaths occur annually—almost entirely among the indigenous—in which either one of the felidæ or the crocodile is accused. There is a notable difference between the wounds inflicted by the felidæ and the reptile in question, for the former, which attack living victims only, inflict clean wounds. The crocodile, on the contrary, secretes its carcasses until they become decomposed. In Benadir—the Italian Somaliland—the lion does not attack mankind by choice, preferring cattle and goats; but nevertheless the beast is greatly feared by the natives, who use reason in dealing with the leopard and crocodile, but are thrown in panic by the larger cat. When the natives *en masse* attack the lion reprisals may occur as in the case narrated by Boidi in which several of the attacking party were injured. One subject received four or five lacerated and contused wounds over the breast. The author irrigated these with physiological serum and then applied iodine tincture. Seventeen suture points were inserted. These measures, however, were not satisfactory, for by the fourth day healing had not begun and there was a distinct gangrenous odor which heralded the formation of a great necrotic defect. It became apparent that gas gangrene was at work, which involved the musculature of the anterior thorax. The cavity which formed suggested

the marsupial pouch of the Australian mammal, and drainage became impossible by the openings already present. The author made counter incisions over the abdomen, and by means of irrigation and iodoform gauze the cavity was eventually made to heal, and sixty days after the lion's attack the condition was satisfactory. The experience was altogether exceptional in lion bites among the aborigines.

News of the Week.

Pre-Nuptial Physical Examinations for Women.

—The Oregon Legislature has passed a bill requiring women as well as men applying for marriage licenses to be examined as to mental and physical fitness. A law requiring examination of men has been in force for some time in Oregon.

More Children Die from Accident Than from Epidemic Disease.—Statistics compiled by the American Red Cross show that accidents take the lives every year of 20,000 children under the age of fourteen years. The figures show that 167 out of every 1,000 child deaths, between the ages of five and nine, are due to accident, while between ten and fourteen years the ratio is 177 to 1,000. In the year 1917, there were more deaths from accident than from epidemic disease, the percentages being 17.7 for accidents and 17.1 for epidemic disease.

Druggists Protest Against Narcotic Rules.—The new regulations issued by the New York State Department of Narcotic Drug Control, with the alleged intent of more effectively coping with the illicit use of drugs, were condemned by the pharmaceutical societies throughout the State at a hearing on February 21. The druggists particularly object to the regulation requiring them to copy prescriptions and dispensing blanks in triplicate, as it will impose an unnecessary burden on them and will not in the smallest degree affect the sale of narcotics to addicts since such sales are confined to illicit purveyors. The regulations became effective on March 10 unless the pharmacists and physicians make a protest sufficiently vigorous to influence Commissioner Herrick to take other action in reference to the ruling.

Measures Against Typhus in Italy.—Signor Corradini, Under-Secretary of the Interior, has issued a statement declaring that the Italian Government is taking vigorous measures to prevent the entrance into Italy of infectious diseases, especially typhus. Dr. W. W. King of the United States Public Health Service, usually stationed at Naples, has been ordered to Trieste where he will cooperate with the Italian authorities in handling the typhus situation.

Health Officers Confer on Typhus Situation.—At a conference of the State Health Officers of all the northern tier of seaboard States and the United States Public Health Service, held in Washington, February 26, plans were made to coordinate the quarantine work of the different North Atlantic ports. Additional facilities will be provided in New York and Baltimore. The Secretary of the Treasury will be asked for an additional \$20,000 for improvements.

Government Pays for New York Quarantine Station.—The Federal Government has sent a check for more than \$1,500,000 to the Treasurer of New York State in payment for the quarantine

station on Hoffman Island. Dr. Leland C. Cofer will be retained as Health Officer of the Port and will be granted additional facilities.

Child Health Demonstration.—The National Child Health Council announces plans for a child health demonstration in some one community in the United States. The object will be to assist the community in working out a well-rounded program for the health of its mothers and children. This will be one of the steps in the development of a comprehensive and well-balanced child health program on a national scale. A test of the soundness and permanency of this demonstration will be the permanency of the results in the life of the community. For that reason the attitude of the citizens and officials toward it will be one determining factor in the selection of the community. Announcement will be made within a few weeks of the plans of the Council as to the selection of the community and of the conditions which are considered desirable in order that the demonstration may be of most service to the country. Organizations represented in the National Child Health Council are the American Child Hygiene Association, American Red Cross, Child Health Organization of America, National Child Labor Committee, National Organization for Public Health Nursing, and National Tuberculosis Association.

Steel Corporation Approves of Rehabilitation Hospital.—Officers of the Reconstruction Hospital for the Rehabilitation of Industrial Casualties announce that the Carnegie Steel Corporation is the first large industrial corporation to pledge support to the hospital. Dr. William O'Neill Sherman, chief surgeon of the corporation, in a telegram to the hospital authorities said it would be easy to prove the humanitarian and economic value of the hospital and that it was only a question of time until such institutions would be functioning in every large city and industrial center in the country.

Maternity and Baby Bill Held Up.—Final passage of the Senate maternity and baby welfare bill at this session of Congress has been made doubtful by the refusal of the House Rules Committee to give it privileged status.

Investigation of Fox Hills Hospital Asked.—The Executive Committee of the American Legion, Department of New York, announces that it will recommend a Congressional investigation of conditions at the Fox Hills Hospital, Staten Island. Certain of the committee have visited the hospital and state that the buildings are wholly unsuited for sick and wounded; that there is lack of discipline and control of patients; there is a lack of doctors and nurses, and that very unsanitary conditions were observed.

Smallpox in New York.—Recently three cases of smallpox were reported to the Department of Health within four days. In all nine cases of smallpox have been reported since January 1, as compared with 25 for the same period of last year. In one of the three recent cases the victim had entertained twenty-one friends within three days from the time his disease was diagnosed. These inspectors of the Health Department are endeavoring to locate.

"Siamese Twins" Arrive.—A showman has just arrived in this country with "Siamese twins," which

he has brought from Czechoslovakia. The twins are forty-three years of age and one is the mother of a healthy and normal son ten years of age. The twins were shown privately to physicians in New York and then taken away to begin a show tour.

Typhus Case Develops on Twentieth Day.—Dr Leland C. Cofer, Health Officer of the Port of New York, announced on February 26 that another case of typhus fever had been discovered among the immigrants detained on the Italian ship *San Giusto*, which arrived three weeks ago with twenty cases of typhus among her passengers. This makes the thirty-fourth case at Quarantine. The fact that twenty days elapsed in this case before symptoms of the disease manifested themselves has decided the New York Health Department to continue its inspection of typhus suspects for twenty days.

Health Work in Industry.—The National Industrial Conference Board in a recent report states that health service in industry and the economic value of medical inspection of workers has proved so satisfactory that it has become an integral part of industrial organization. In a recent investigation by the Conference Board of Physicians in Industry it was found that thirty-four plants, representing fifteen industries, employing 400,000 men, have introduced physical examination of workers, all to immense advantage.

Harvey Society Lecture.—Dr. S. B. Wolbach, Associate Professor of Pathology and Bacteriology, Harvard University, will deliver the Eighth Harvard Society Lecture at the New York Academy of Medicine, Saturday evening, March 12. His subject will be "Typhus Fever and Rickettsia."

New York Infirmary for Women and Children Again Open.—This institution which has been remodelled and newly equipped was formally opened at a reception given by the Trustees and Medical Board on the afternoon of February 24. Dr. Simon Flexner spoke on "Lethargic Encephalitis and Allied Pathological States."

Scholarships in the New York Post-Graduate Medical School and Hospital.—Under the terms of the Oliver-Ren Endowment there will be available this year six scholarships providing in full the expenses of tuition at the New York Post-Graduate Medical School. The scholarships are open to practising physicians of the United States, but according to the wishes of the donor, physicians of Pennsylvania will receive preference. Applications may be sent to the President of the New York Post-Graduate Medical School and Hospital, Twentieth Street and Second Avenue, New York City.

The Late Dr. Eva H. Knight.—The following minute was adopted at a meeting of the Women's Medical Association of New York City on February 16, 1921: The Women's Medical Association of New York City has learned with sincere sorrow of the death of Dr. Eva Helen Knight. In the death of Dr. Knight, this Association and the medical profession have lost a colleague who enjoyed the respect and affection of all who were privileged to know her. Through her long years of public medical service, first as physician to the Board of Health and later as physician to the Board of Education, she was a real force in promoting the health of the teachers and children of the city of New York. Dr. Knight's work in this field was untiring and she brought to it in addition to her thorough profes-

sional training, a sprightliness of personality, and loyal comradeship that made her trusted and loved by her medical associates, her patients and the teachers and pupils of the city.

In Dr. Knight's death, this Association and the medical profession have suffered a great loss, and it is but fitting that we record the affection and esteem which we felt for her, by spreading this resolution on our Minutes and sending a copy to her family and to the medical journals.

EMILY LEWI, *Chairman*,
ANGENETTE PARRY,
FRANCES COHEN.

Obituary Notes.—Dr. J. Russell Taber of Brooklyn, N. Y., a graduate of the College of Physicians and Surgeons, N. Y., in 1874, died suddenly of heart failure, on February 22, at the age of seventy years.

Dr. EDWARD MOSES CHILDS, a graduate of the New York Medical College in 1877, died suddenly of heart disease at his home in Brooklyn, on February 23, at the age of sixty-nine years.

Dr. KATE J. JACKSON of Dansville, N. Y., a graduate of the Women's Medical College of the New York Infirmary in 1877, died at the home of a relative in South Livonia, N. Y., on February 24.

Dr. WILLIAM J. JONES, JR., a graduate of Cornell Medical College in 1899, died at his home in New York City on February 25.

Dr. TOBIAS GERHART of Angelica, Pa., a graduate of the Medical Department of the University of Pennsylvania, in 1864, died on February 21, at the age of eighty-five years.

Correspondence.

CENTENARIANS AND OVER.

TO THE EDITOR OF THE MEDICAL RECORD.

SIR:—In your issue of February 26 appears a paragraph headed "Woman Reaches Ripe Age of 109." This type of unauthenticated statement may pass in the lay press, but should not go without question in a scientific journal.

I have collected the biographies of more than 100 persons who lived to be a little more than centenarians and I have yet to find an authenticated case of the duration of life beyond 103 or 104 years. The cases of those living beyond this age, where attempts have been made to prove them, are found almost always to refer to Indians, Negroes, or some ignorant foreign peasant; persons who have no accurate family records and who lived at a time and place where no accurate vital statistics were kept.

I recently read in a lay paper, of a woman in a Yiddish Home, alleged to be 110 years of age. I went to see her and she turned out to be an ignorant Russian peasant, who might have been a few years over 90. I unwittingly nearly caused her death, for I sent in a photographer to take her portrait; when he touched off a flash light, she thought the devil had come for her and went into hysterics followed by serious collapse!

Centenarians find their age a subject of interest and curiosity, and this, combined with poor memory and the fact that all who knew them in childhood are usually dead, often leads to gross exaggeration regarding their age.

I should be exceedingly interested if we could obtain a careful physical examination and physiological study of a genuine case of a person living beyond 103 or 104 years of age.

NEW YORK.

W. GILMAN THOMPSON, M. D.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, February 8, 1921.

Medical Developments at University College, London.—The Rockefeller gift of £1,250,000 to University College, London, has rendered possible many important medical developments which are now beginning to be inaugurated. The Senate of London University is about to establish a Chair of Embryology in the Faculty of Medical Sciences at University College, and the first occupant of the Chair will soon be appointed. The appointment will be a whole time one and the salary will be £1,000. Moreover, a site has now been decided upon for the new Anatomy Building provided for by the Rockefeller gift. It is to be built in Gower Street adjacent to University College and University College Hospital. The houses which at present occupy the site are being demolished. It is expected that building operations will begin in October, 1922. It is interesting to note that it was in one of these houses that Darwin commenced to write his "Origin of Species."

There is also to be instituted at University College a Readership in the History of Medicine, to which Dr. Charles Singer has been appointed.

A Gynecological Clinic at the Royal Free Hospital.—A new departure has been made in the medical education of women by the appointment of a woman professor to fill the recently established Chair of the Gynecological and Obstetrical Clinical Unit established at the London Royal Free Hospital School of Medicine for Women. This unit is part of the scheme just instituted in London University, whereby professors paid by the University and abstaining from private practice, are in future to take the place of practising surgeons and physicians, unpaid by the University, in the training of students in the hospital wards. The original scheme was to set up twelve units, and up to the present time two units have been organized at St. Bartholomew's Hospital, two at University College Hospital, two at the London Hospital, one at St. Thomas's Hospital, and now one at the Royal Free Hospital. That at the latter institution is the first to be established in gynecology, a subject which it certainly seems ought to be the special province of medical women. In addition, prenatal clinics are to be developed at the Royal Free Hospital on a really adequate scale, on a scale indeed which as yet has not been attempted. The new unit is to consist of sixty-eight beds, twenty-three gynecological and forty-five obstetrical.

Congress of Radiology and Physiotherapy.—A great deal of interest is being taken at the present time in radiology and especially in physiotherapy, which is now taught on scientific lines in most of the medical schools. Therefore American medical men will like to know that a congress organized by the Electrotherapeutic Section of the Royal Society of Medicine and the British

Association of Radiology and Physiotherapy will be held this year in London on April 14, 15, and 16. Sir Humphry Rolleston will be the president, and there is a long list of vice-presidents. Dr. G. Harrison Orton is the secretary general, Dr. Stanley Melville and Dr. I. Justin Wilson are the Hon. Secretaries for General Correspondence; Dr. N. S. Finzi is the Hon. Secretary for Radiology; Dr. G. Murray Levick for Electrolgy, and Dr. C. V. Mackay for Physiotherapy. The provisional program contains the titles of many papers to be read by French, Belgium, and British delegates.

Report on Influenza.—A really remarkable report on influenza has been sent out recently by the Ministry of Health. It is too long to detail and too technical in parts to refer to or to quote from at length, it must suffice to deal briefly with a few of the facts adduced and suggestions brought forward. With respect to the influence of weather upon epidemics in general and upon influenza in particular, the investigators who give their results in the report say that these results are sufficient to establish a *prima facie* case in favor of the view that an unseasonable deviation of weather on the side of coldness played some part in the mortality of the epidemics. They not less clearly testify against any claim that weather conditions rank among the primary factors of the pandemic or epidemic prevalences. They state that there may be complete confidence that the cruder generalizations of the old hypotheses are unsound, and that the part played by the meteorological peculiarities of the pandemic years was a minor one. The report is the most exhaustive ever published on the subject. Dr. Herbert French gives a full description of the clinical features of the disease, and especially of the pneumonic type, if it may be so termed, as observed by him and colleagues in military camps. Professor Andrewes discusses the bacteriology, but arrives at no definite conclusions. He is inclined to think that the Pfeiffer bacillus, so long believed to be the primary cause and still so believed by some, is a secondary infection. As for a filter-passing virus being the primary cause, Andrewes is non-committal, as while he deems this view suggestive, he says what is obviously true that the evidence in favor of this hypothesis is not sufficiently convincing for a final verdict to be given. He also says what is equally evident that the complications to which the pandemic has owed its abnormal mortality have been due to secondary infections, but whether when he goes on to say, in which Pfeiffer's bacillus and the hemolytic streptococcus have played the predominant part he is on quite such sound ground may be open to doubt. Certainly all evidence goes to show that the hemolytic streptococcus has played a sinister rôle as a complication, but it appears to be somewhat begging the question to place Pfeiffer's bacillus among the secondary infections until more confirmatory proof has been given that such is the case than has been forthcoming as yet. A large number of observers are still of the opinion that Pfeiffer's bacillus is the primary cause. It may be said that the report deals with every phase of the influenza problem and is one that reflects the greatest credit on the contributors and compilers.

Progress of Medical Science.

Boston Medical and Surgical Journal.

February 17, 1921, clxxxiv, 7.

1. Hemorrhage from the Stomach and Esophagus. Fred B. Lund and John A. Foley.
2. Lacerated Wound into Knee-Joint, Treated by Complete Closure and Immediate Active Mobilization. Lyman Allen.
3. Prostatic Troubles from the Practitioner's Viewpoint. Richard E. Dickson.
4. The Diagnosis of Some Chronic Shoulder Injuries. William Pearce Cousens.
5. Fracture Dislocation of Third Cervical Vertebra. Louis A. O. Goddu.
6. Benign Growths of the Stomach. A. S. Merrill.

1. Hemorrhage from the Stomach and Esophagus.—Lund and Foley report four illustrative cases. In acute cases the ulcer may heal while the stomach is kept at rest in the treatment of the first hemorrhage, so that the bleeding is never repeated. In chronic ulcer there has been a generally accepted dictum that after a second hemorrhage one should operate. This may be a good working rule, but it is also a fact that the second hemorrhage may be fatal. The use of the actual cautery in operations for ulcer has greatly simplified the treatment of hemorrhage and made it much safer than before, while transfusion furnishes a ready means of changing a patient at once from a bad to a good operative risk. It is safer to transfuse and operate at once and cauterize the ulcer than to wait the doubtful result of a second profuse hemorrhage. In order to cauterize the ulcer, however, one must first find it; and it is well known that superficial ulcers can sometimes not be seen or felt through the stomach wall from the outside. They can be found by passing the wall of the stomach in review, so to speak, through an opening in the anterior surface. The presence of the "sentinel gland" is an aid in the finding of the ulcer. A positive x-ray may also aid in the location of the ulcer.

New York Medical Journal.

February 19, 1921, cxlii, 8.

1. A Minimum Course in Psychopathology for Medical Students. Edward J. Kempf.
2. Studies on the Action of Various Salts on the Liver After Their Introduction in the Duodenum. Max Einhorn.
3. Ileocolostomy and Exclusion in Dilatation of Cecum and Colon. H. Iloway.
4. Thyroid Deficiency in Otolaryngology. James G. Callison.
5. Exophthalmic Goiter and Surgery. Israel Bram.
6. Ulcer of the Cornea. Homer Tuttle.
7. Some Toxicological Aspects of Surgical Rubber Goods. Walter I. Galland.
8. The Medical Student's Problem. George H. Hyslop.

5. Exophthalmic Goiter and Surgery.—Israel Bram, in the concluding paper on this subject, summarizes as follows: Surgery is indicated in Graves' disease when: 1. Marked pressure symptoms of cervical and thoracic structures are evident. 2. Malignant degeneration of the thyroid occurs. (Marked pressure symptoms and malignancy are unusual occurrences during the course of thyroid hyperplasia.) 3. A local structure (tonsils, appendix, pelvic abnormalities), which, by a careful process of exclusion, is found to have an etiological bearing on the syndrome. Surgical removal of such diseased tissues, in breaking the continuity of the vicious circles upon which the symptom complex depends, may bring about a cure. Surgery is indicated in the vast majority of cases of Graves' disease, for: 1. The pathogenesis of the disease points to the thyroid as playing but a small part in the causation of the syndrome. 2. The symptomatology of the affection is as widespread as the body itself, favoring strongly the pluriglandular theory. 3. Physiology indicates that, in the human being, it is almost as dangerous to attack surgically an overactive organ, such as the thyroid, as to attack surgically an overactive heart. 4. On clinical grounds Graves' disease does not fall in the realm of surgery, as indicated by the considerable mortality rate, frequent operative accidents (e.g. myxedema, tetany, vocal paralysis), postoperative sequelae (acute exacerbations, acute psychoses), recurrences, and the lack of conclusive proof of complete surgical cures. As has been suggested, surgical interference with the thyroid, by reducing the recuperative powers of the patient, prolongs the state of invalidism and favors profound de-

generative changes of the tissues of the circulatory and nervous systems, rendering the prognosis less favorable and the task of the internist tedious. 5. On empirical grounds, Graves' disease belongs strictly in the field of the internist, who, having made endocrinology his field of special endeavor, is capable of demonstrating complete and permanent non-surgical cure of every case of the disease in which the vital structures are not badly damaged and a reasonable degree of cooperation is obtainable.

7. Some Toxicological Aspects of Surgical Rubber Goods.—Walter I. Galland gives the following method for the rapid qualitative determination of the presence of antimony or lead in a rubber article: Cut up about a gram of the rubber into fairly small pieces with scissors, and place in a porcelain casserole or evaporating dish. Add five to ten c.c. of concentrated nitric acid, and heat gently on an asbestos board over a Bunsen flame. It is best to carry out this reaction under a hood. Evaporate to approximate dryness, and add five to ten c.c. of concentrated hydrochloric acid. Boil gently until chlorine fumes cease to be evolved, adding sufficient hydrochloric acid to make up for loss by evaporation. Do not continue boiling too long a time, as antimony chloride is definitely volatile. Add one hundred c.c. of water, stir and filter, and pass hydrogen sulphide through the heated filtrate till thoroughly saturated. A yellow precipitate is presumably antimony (or arsenic). The antimony precipitate will dissolve in warm yellow ammonium sulphide solution. A black precipitate is most probably lead. The lead precipitate is insoluble in the ammonium sulphide solution. Summarizing, the writer emphasizes the following points: 1. Manufactured rubber contains many substances added in the course of manufacture, some of which may be poisonous. 2. Antimony pentasulphide is present in many rubber compounds, and can be dissolved from the rubber by various solvents. 3. It is possible that antimony may at times be dissolved from tubing by alkaline arsenaphenamine solutions. 4. The presence of poisonous substances in rubber compounds destined for medical or surgical use is a menace. 5. Rubber compounds can and should be manufactured for surgical use free from deleterious substances.

Journal of the American Medical Association.

February 19, 1921, lxxvi, 8.

1. Cancers in Public Health Service. John A. Farrel.
2. A Comparison of Rectal with Colon Injections of Eupinephrin, with Reference to Pressor Effects and to Glycosuria. Henry G. Barbour and Frederick H. Rapoport.
3. The Management of the Urinary Tract of Paraplegic Patients. Vernon C. David.
4. Pioneers in Embryology. C. M. Jackson.
5. The Cause of Epileptic Seizures in Tumors of the Temporo-sphenoidal Lobe: A Contribution to the Study of Epilepsy. Russell G. MacRobert and Laurent Feinier.
6. Creatin and Muscle Tonus in Man. Frederick S. Hammett.
7. Traumatic Subcutaneous Emphysema and Review of the Literature. Report of Cases. W. Clifford Gardner and James T. Jones.
8. The Prognosis of Nephritis in Childhood. Richard F. James.
9. The Use of Digitalis and the Infusion in Therapeutics. Soma Weiss and Robert A. Hatcher.
10. The Action of Casarea Sacrada. Hugh McGuigan.
11. Massive Infection of a Vaccinated Person with Bacillus Typhosus. Brooks C. Grant.
12. Hydrosalpinx with Twisted Pedicle: Report of Case. C. A. Roeder.
13. The Retinitis of Diabetes Mellitus: Preliminary Report. H. P. Wagoner and R. M. Wilder.
14. Intra-aural Pressure in Disease. Charles E. Kieley.
15. Unusual Rupture of the Intestine. J. B. Bushbuck.
16. The Prolapsus Disturbing Stage of Endometritis Obliterans. Max Strumsky.

2. A Comparison of Rectal with Colon Injections of Eupinephrin, with Reference to Pressor Effects and to Glycosuria.—Barbour and Rapoport, in this determination, conducted two series of experiments on rabbits, the first series dealing with the effects of the respective injections on blood pressure, the second on the carbohydrate metabolism. The results on blood pressure are summarized as follows: 1. An injection of 1 mg. of eupinephrin per kilogram caused greater increases in the blood pressure of rabbits when given by rectum than when injected into the colon. The average blood pressure increase after rectal injections was 11.5 mm. of mercury; after colon injections, 4.2 mm. of mercury.

2. The highest rise of blood pressure observed in all of the experiments, due to an injection of 1 mg. of epinephrin per kilogram into the rectum, was 28 mm., while the highest rise from a similar amount into the colon was 12 mm. 3. The earliest effect on the blood pressure after the epinephrin was injected into the rectum was seen in thirty seconds, whereas the earliest effect after an injection into the colon was seen in 150 seconds. 4. The average time necessary for a maximum effect on the pressure after the rectal injections was 141 seconds; after the colonic injections, 275.8 seconds. The effects on carbohydrate metabolism are summarized as follows: 1. Colon injections of epinephrin in rabbits gave more profound glycosuria and diuresis than rectal injections. 2. The average amount of dextrose obtained from injecting 0.5 mg. per kilogram into the colon was 0.158 gm., while from the rectal injection it was 0.088 gm. 3. The greatest amount of dextrose obtained from the injection of 0.5 mg. of epinephrin into the colon was 0.208 gm., while the greatest amount obtained from a rectal injection was 0.121 gm. 4. The average twenty-four hour urine volume after injecting 0.5 mg. epinephrin per kilogram into the colon was 142.5 c.c.; after injection into the rectum it was 120 c.c. From these experiments it is concluded: 1. Epinephrin is absorbed both from the rectum and from the colon in rabbits. 2. Injected into the rectum, epinephrin causes a greater rise in blood pressure than when injected into the colon. 3. When epinephrin is injected into the colon it causes a greater degree of glycosuria and diuresis than when injected into the rectum.

8. The Prognosis of Nephritis in Childhood.—Richard F. James undertook the study reported to determine (1) how many patients that had had acute nephritis recovered entirely; (2) how many developed the chronic type; (3) the present condition of the chronic type; (4) the ultimate prognosis. During the last sixteen years he has examined in the Children's Hospital seventy children who had had nephritis. The examination included the cardiovascular system, hemoglobin, uranalysis, present health of the child, record of the patient's condition while under treatment, and the etiology. It seemed that nephritis has its etiology chiefly in such acute diseases as may be caused by infections with organisms of the streptococcus, staphylococcus or pneumococcus type. Sixty-seven patients were admitted originally with a diagnosis of acute nephritis and three with chronic nephritis. Nine of the sixty-seven cases, or 13.3 per cent., terminated in the chronic type, and of these only two could be considered severe. The average age on admission was 6½ years, the oldest patient being 12, the youngest 2. At the time of the examination the average age was 10; the oldest patient was 19, the youngest 4. The average length of time observed after discharge from the hospital was five years; the maximum, sixteen years; the minimum, three months. All of the sixty-seven patients who had had acute nephritis are living under normal conditions, on ordinary diet; and in every case the urine was found to be negative. This fact is considered of importance in that it signifies that kidneys that have been injured are no more susceptible to infection than normal kidneys. The histories of five cases are recorded to show the possible time that elapsed during which there was no recurrence despite the fact that several of the patients had acute infections during that period. In the group of twelve chronic cases the etiology was as follows: tonsillitis, four; following appendectomy, one; measles, one; purpura, two; scarlet fever, four. The two most severe cases followed purpura. The average age on admission was 7 9/12 years; the oldest patient was 11 7/12 years, the youngest 2 years. The average age at the time of examination was 11 years, the oldest patient was 14½, the youngest 6 5/12 years. The average length of time seen after discharge was two and one-twelfth years, four were seen five years and two between one and two years after discharge. Of the twelve patients examined eight had albuminuria, four did not. The writer considers that in acute nephritis the greater percentage of patients recover absolutely, yet no one is justified in saying a child is well by one or several negative urinary findings, until after the child has lived under ordinary environment and on a regular diet for a considerable period. Then, with the urine negative, chemically and

microscopically, one may say the child is cured. The prognosis in the acute exudative type, with edema and a diminished urinary output, is less favorable than in the acute hemorrhagic type without edema. In the chronic type there is no specific guide to prognosis. Patients with mild chronic nephritis recover. Diseased portions may recover even if there is considerable degeneration, and neighboring portions of the kidney may hypertrophy and carry on the extra work. It is surprising to see the amount of damage a kidney may receive and yet apparently recover. Many will stand severe infection without acute exacerbations of nephritis, but they are more prone to follow upper respiratory infections.

The Lancet.

January 29, 1921, cc. 5.

1. The Hunterian Lecture on Colectomy. Sir W. Arbuthnot Lane.
2. Legg's or Perthes' Disease. The Differential Diagnosis of Affections at the Hip in Children. H. Buckley Roderick.
3. The Frequency of Latent Syphilis in a Medical Department. Th. E. Hess Thaysen.
4. The Action of Quinine on Pregnant Uterus. Hugh W. Acton.
5. An Unusual Fatal Case of Infection with B. Enteritidis of Gaertner. J. W. McNee.
6. A Simple Procedure for the Accurate Enumeration of Blood Cells and Bacteria Without the Use of a Counting Chamber. Georges Dreyer.
7. Further Researches upon Antimony in the Treatment of Filariasis. George C. Low and Elizabeth J. O'Driscoll.
8. A Comparison of the Use of Brown and White Sugars for Plain Cooking. Marion C. Sear.
9. The Dispensary, the Sanatorium, and the Tuberculosis Officer. The Weak Links in a Chain. P. C. Varrier-Jones and Sir G. Sims Woodhead.

2. Legg's or Perthes' Disease. The Differential Diagnosis of Affections at the Hip in Children.—H. Buckley Roderick places affections at the hip in two groups: (1) those in which there is pain and muscular rigidity, restricting movement of the joint in every direction, the most common and important member of this group being tuberculous disease of the hip; (2) those in which there is little or no pain and no muscular rigidity, but rather undue mobility or restricted movements in certain directions only. Under this group fall congenital dislocation of the hip, coxa vara, coxa adducta, and Legg's or Perthes' disease. After careful and methodical physical examination has been made and an opinion formed as to the nature of the case the patient should be referred to the radiologist for skiagraphic evidence, not, as is so often done, for diagnosis. X-ray diagnosis unsupported by clinical evidence is sure, sooner or later, to lead to serious error. The surgeon and the radiologist should work together. This is but another example of the value of "team-work." It is essential that both joints should be photographed. In order to minimize errors of reading which may result from differences in exposure, developing, or the position of the plates in relation to the bones, both hips should be taken on the same plate. The sound joint is the only reliable control. In cases of early hip disease the changes may be so slight that without the sound side to compare with it is almost impossible to be certain as to the normal outline of the bone, or as to whether there is narrowing of the shaft due to atrophy, abnormal transparency of the bone (osteoporosis), or whether the gap, representing the articular cartilages on the head of the femur and acetabulum, is of normal thickness, or whether small foci of disease exist. The writer reiterates the necessity of the surgeon and the radiologist working together. The clinical picture and the skiagram are often diametrically opposed. In tubercle, for instance, physical examination, on the one hand, finds a subject with pain and fixed hip joint with consequent grave disability. The X-ray, on the other hand, especially in cases of primary synovial infection, may show nothing at all, whereas in Legg's disease the radiologist may be staggered by the alarming picture presented by the skiagram, while the surgeon finds a patient with little or no disability. Team work is the keynote of future medicine and surgery. It is thus and thus only, that the best results will be obtained.

4. Action of Quinine on the Pregnant Uterus.—Hugh W. Acton summarizes the experiments conducted to determine the ecbolic action of quinine as follows: The action of quinine in certain concentrations causes con-

traction of both the longitudinal and circular fibers of the uterus. The effect produced depends on the concentration of quinine present—weak concentrations, 1–300,000, have no effect; concentration of 1–150,000 produce contractions under certain conditions, while a concentration of 1–44,000 produces a tonic spasm, which, if sustained, would cause asphyxia of the fetus from constriction of the placental sinuses. This concentration could only be attained if the patient was nearly poisoned by a large dose of quinine. The degree of concentration in the blood varies with the dose taken and on individual susceptibility depending on the rate of absorption. Cinchonism is correlated with the concentration of quinine present in the blood and varies with different individuals, and is more frequently seen with weak and anemic persons. Concentrations of 1–150,000, such as occur with large doses, increase the strength of the intermittent uterine contractions, and if some exciting cause was present—e.g., weak membranes or a patulous or dilated os—the pressure produced by the increased contractions might be sufficient to cause rupture of the membranes or dilatation of the os, and so bring on labor. The therapeutic recommendations which the writer makes are: 1. The controlling of the fever by quinine or other cinchona alkaloids must be the first objective in the treatment of these cases. We know that high temperatures soon cause death of the fetus, and this factor is sufficient to induce premature labor. The mother's temperature should be carefully watched and prevented from exceeding 103 degrees F. by sponging, etc. 2. The avoidance of large doses of these alkaloids. As soon as the diagnosis of malaria is made, which is an urgent matter in pregnancy, quinine or quinidine should be given at once as the case requires. It is better to divide the doses into 2½ or 5 gr. doses given every two or four hours; 20 gr. a day is sufficient, and ample to control any attack of malarial fever. 3. The employment of general methods for the prevention of miscarriage, viz., complete rest in bed and the judicious use of opium in allaying any mental excitement. When the child is dead or the miscarriage inevitable, quinine should be given in ordinary doses and the case treated on general obstetrical lines.

British Medical Journal.

January 29, 1921, i, 3135.

1. The Theory of Disturbed Reflexes in the Production of Symptoms of Disease. Sir James Mackenzie.
2. A Preliminary Note on the Histopathology of Epidemic (Lethargic) Encephalitis. C. Da Fano.
3. "Harlequin Fetus" (Hyperkeratosis Congenitalis). James T. McAuslin.
4. Rotation-Dilatation of the Astragalus. Robert Ollershaw.
5. On the Probable Identity of *Rickettsia pediculi* with *Rickettsia quintana*. A. Bacot.

1. The Theory of Disturbed Reflexes in the Production of Symptoms of Disease.—Sir James Mackenzie enunciates and develops the theory that the vast majority of the symptoms of disease are disturbances of normal reflexes. In many diseases all the symptoms on which a diagnosis is based are reflex in origin—in some the reflexes are disturbed by the entrance of the stimulus through the nervous system, and in others the disturbance is through the circulation. To the former belong the symptoms of such diseases as gastric ulcer, renal calculus, gall-stone disease. The symptoms in infections are due to the disturbance of the reflexes through the circulation, as influenza, malaria, typhoid and typhus fevers, measles, and abscess formation, apart from the swelling. In some diseases one gets a mixture of both kinds of reflexes, as in appendicitis, where there is not only the local pain and tenderness of the tissues of the external body wall, with contraction of the muscles of the abdomen, but the feeling of exhaustion, rapid pulse, tendency to vomit. In cholecystitis one gets a similar complex. The need for the more accurate recognition of symptoms is seen when it is considered how difficult it is to diagnose even such seemingly simple affections as gastric ulcer and appendicitis. Though surgeons have been operating for these complaints for many years, the most experienced recognize that in many cases they find they have been mistaken in their diagnosis. This is due in a great measure to the fact that the nature and mechanism of

the symptoms of these diseases have never been understood, and the symptoms were never clearly differentiated from those of other diseases which they resemble. It will thus be seen that symptomatology is like chemistry, where the combination of elements results in the production of a great number of compounds bewildering in their variety. Nevertheless, as in chemistry, when they are subjected to strict analysis they can be resolved into their component elements. When the analysis of symptoms is studied as fully as the analysis of chemical compounds has been studied, then it will be possible to group the disturbed reflexes in an orderly manner. The next step then will be to find out the agents capable of provoking the different reflexes, so that we get nearer to the immediate cause of disease. The employment of this method of investigation is but a return to those methods of clinical research which were so fruitful in their results in the past, especially during the early half of the nineteenth century. To realize how great the progress was during that period one must consider the discoveries associated with the names of Addison, Bright, Graves, Adams, Stokes, Cheyne, Paget, Hodgkin, and Jenner. These observers employed the most useful of all weapons in research—the trained senses. A certain number of symptoms are due to structural changes and functional derangements. These are generally shown by physical signs, and are due to departures from the normal in various ways, as in alteration in the size and shape and consistency of organs, changes in the color, as pallor, modifications of the sounds of the heart and lungs. The writer does not discuss these in the present contribution, but holds that they must be reconsidered in view of the theory which he propounds of disturbed reflexes, because many apparently structural and functional signs are really disturbed reflexes, or are produced by disturbed reflexes.

2. A Preliminary Note on the Histopathology of Epidemic (Lethargic) Encephalitis.—C. Da Fano states that in the nervous tissue from cases of epidemic (lethargic) encephalitis within and without the nerve cells minute forms have been observed, to all appearance consisting of a central generally basophil particle and of a delicate little stainable body, irregularly round or oval in shape. For these forms the term "minute bodies" is *pro tempore* proposed. The bodies are generally discrete, and provided with one granule, but dumbbell-shaped forms occur as well as others with two central particles arranged in pairs. As an yet not quite definable relation seems to exist between these forms and a granular, pigment-like material occurring within the nerve cells in places where brown or black pigment is not generally found. Minute forms, similar in shape, structure, and staining properties to those observed in the nervous tissue, have been traced within and without the cells infiltrating a salivary gland from an acute case of the disease. After discussing the supposition that such findings might be the product of an optical illusion, associated perhaps with degenerative changes caused by the malady, the suggestion is tentatively put forward that they may be due to the presence in the tissues of a living agent, cause of the disease.

Annals of Surgery.

January, 1921, 1.

1. Bone Grafting: Study of a Series of Cases Operated on in U. S. Army Hospitals. John B. Walker.
2. The Bacteriology of Infected Wounds, with Especial Reference to Importance of *Streptococcus Hemolyticus*. Theodore H. Sweetser.
3. Pleric Acid in Operative Surgery. Charles E. Farr.
4. Intracranial Aneurysm, Following Fractured Skull. Gilbert Horrax.
5. Squamous Cell Epithelioma of the Thyroid. Clyde Augustus Rooden.
6. Bronchopulmonary Fistula. Abraham O. Wilensky.
7. Observations on Cholelithiasis. George Woolsey.
8. The Production by Chemical Means of a Septic Cholecystitis. P. C. Mann.
9. Hemorrhagic Cysts of the Spleen. Charles S. Hamilton and Edward H. Boyer.
10. Polycystic Kidney and Liver. Daniel N. Eisendrath.
11. Renal Tuberculosis in Twins. Herman L. Kretschmer.
12. The Technique of the Operative Treatment of Neoplasms of the Urinary Bladder. Edwin Beer.
13. Tibial Tubercle Affections. Richmond Stephens.
14. Hysterectomy in the Lankenau (formerly the German) Hospital. John B. Beaver.

15. Notes on the Non-Operative Treatment of Fractures. Elliott C. Cutler.
16. Exstrophy of the Bladder in the Female. Joseph Burke.
17. Geliatiniform Carcinoma of the Breast. Philip I. Reel.

2. **The Bacteriology of Infected Wounds with Especial Reference to the Importance of Streptococcus Haemolyticus.**—Theodore H. Sweetser based this communication on an analysis of bacteriologic work done at Base Hospital 15, American Expeditionary Forces in France. Interesting results were obtained from the consideration of the following points: 1. The character of the bacterial flora found in wounds after the lapse of various periods of time. 2. The symbiosis of organisms in wounds. 3. The prognosis of cases showing the presence of certain organisms. 4. Secondary suture of wounds. 5. Gas infection. 6. The bacterial infection to be most feared in cases of gunshot wound, i. e., streptococcal bacteriemia. His observations are summarized as follows: 1. Anaerobes are prominent in the early bacteriologic picture of wounds but disappear in a short time. Aerobes become progressively more prominent. The streptococcus has a fairly constant incidence and is very persistent. 2. A combination of streptococcus hemolyticus and staphylococcus aureus was the most common of all associations in wounds. That association was particularly frequent in fatal wounds. Streptococcus hemolyticus, staphylococcus aureus, bacillus Welchii, bacillus coli communis, bacillus proteus, and to a less extent, staphylococcus albus, were the bacteria appearing most often in both the fatal and non-fatal cases. 3a. (1) The prognosis seems to have been good in cases showing staphylococcus aureus or other aerobes aside from streptococcus. Here the most interesting point is that an association with staphylococcus aureus seemed to lower the virulence of infection with anaerobes. (2) Infection with anaerobes showed a high death rate, but a short period of danger to life, unless the anaerobes were associated with streptococcus. (3) Deaths from streptococcus infection were numerous and occurred at least up to the end of the fourth month. The mortality was even higher where streptococcus was associated with staphylococcus aureus or with anaerobes. 3b. Conversely: Cases fatal early usually showed anaerobic infection; those dying late invariably showed streptococcus infection. Most of the early improvements and cures were cases of infection by aerobes other than streptococcus, while the improvements and cures that were tardiest generally showed infection by streptococcus without anaerobes, or by streptococcus and staphylococcus aureus without anaerobes. 4. Secondary suture of wounds failed in some cases apparently because the interval between the injury and primary surgical treatment had been too long, and in other cases because the secondary suture was attempted too soon. 5. Gas infection was most often found in wounds of heavily muscled parts of the body; fracture of bone was not an essential factor; anaerobes frequently contaminated without infecting wounds. 6. A streptococcus bacteriemia was apparently by far the most important cause of death in cases of gunshot wound. 7. The culture of infected wounds is certainly valuable, even if only for the purpose of determining the presence of streptococcus hemolyticus.

8. **The Production by Chemical Means of a Specific Cholecystitis.**—F. C. Mann carried out this investigation, not because of the possibility of its having any direct bearing on the condition as it occurs in man, but because it offered an opportunity to observe the production by a chemical of an inflammation of a particular organ. It was found that the intravenous injection of a solution of chlorinated soda in dogs produces a definite reaction of the gall-bladder in a high percentage of experiments. The reaction consists of a breaking down of the capillaries and infiltration of the wall of the gall-bladder with blood. To produce the reaction in the gall-bladder it is necessary to inject relatively large amounts of the solution, at least more than 5 c.c. for each kilogram. The reaction takes place very shortly after the injection, and is completed within the first twelve to twenty-four hours. The reaction is undoubtedly produced by some chemical in the solution; chlorin is suggested as the possible substance. All solutions, however, even though their chlorin content may be practically the same, do not give the same

percentage of gall-bladder reactions; it would thus appear that a factor other than the chlorin content was involved. The solution reaches the gall-bladder through the blood stream, and a gall-bladder in which the blood supply, particularly that coming from the liver, is generous, develops the most marked reaction. In some instances a definite chronic condition has followed the acute condition.

Bulletin of the Johns Hopkins Hospital.

January, 1921, xxxii, 359.

1. George Miller Sternberg, 1838-1915. Howard A. Kelly.
2. Hydrocephalus in Chondrodystrophy. Walter E. Dandy.
3. The Mechanism of the Carrier State, with Special Reference to Carriers of Friedländer's Bacillus. Arthur L. Bloomfield.
4. Tuberculosis of the Kidney in Women. Leo Brady.
5. Portal Thrombosis. L. T. Webster.
6. The Relation of Histamin to Leukocytosis. John R. Paul.
7. The Influence of the Anterior Lobe of the Hypophysis Upon the Development of the Albino Rat. Warren R. Sisson and Edwin N. Broyles.
8. Syphilitic Rupture of a Papillary Muscle of the Heart. Edward D. Spalding and William C. Von Glahn.

3. **The Mechanism of the Carrier State, with Special Reference to Carriers of Friedländer's Bacillus.**—Arthur L. Bloomfield found it possible to show, in the case of Friedländer bacillus carriers, that the breeding place of the bacteria is in a definite focus—the tonsil. From this point the organisms are discharged into the open pharyngeal cavity, and at times may be introduced into the nose. There is no evidence, however, to indicate that any adaptation takes place between the bacilli and the mucous surfaces, leading to actual growth and multiplication on these surfaces. They react as the normal mucous membranes do, both upon the introduction of the carrier's own strain, or the introduction of a second strain of Friedländer's bacillus. Of the eighty-five unselected individuals studied in this investigation, 5.8 per cent. were found to be carriers of Friedländer's bacillus. The carrier state persisted throughout the observation. There was no tendency for contacts to acquire the carrier state. Differential cultures showed the breeding place of the Friedländer bacilli to be in the tonsil. The carrier's own strain or a foreign strain of Friedländer bacillus implanted upon the free surfaces of the mucous membranes disappeared at the same rate of speed as in a non-carrier. It was impossible, artificially, to produce a carrier state by repeated inoculation with *B. Friedländer*. The general conclusion from these observations is that the carrier state depends on a focus of diseased tissue which affords a breeding place for the bacteria. They do not become adapted to growth on the free surfaces of the mucous membranes.

4. **Tuberculosis of the Kidney in Women.**—Leo Brady formulates the following conclusions from his experience with seventy-seven cases of tuberculosis of the kidney in women: 1. In our cases of renal tuberculosis, in 18 per cent. there has been a family history of tuberculosis. 2. In 60 per cent. of the cases of tuberculosis of the urinary tract the lesion has been in the right kidney, in 35 per cent. in the left kidney, and has been bilateral in four patients. 3. Renal tuberculosis occurs most frequently between the ages of twenty and forty, 71 per cent. 4. The average duration of symptoms in our women before coming to the hospital was thirty-three months. 5. Renal tuberculosis in colored women, although not as frequent as in white, is by no means rare. 6. In 88 per cent. of our cases dysuria and polyuria were the first symptoms. 7. One-third of the women complained of hematuria on admission, and in eight patients "smoky urine" was the first symptom. 8. Thickening and tenderness of the portion of the ureter palpable on vaginal examination was present in 32 per cent. of the patients, and this sign is of great help in the early detection of cases of renal tuberculosis. 9. Of the seven patients not operated on, four are known to be dead and the other three left the hospital in a very bad condition and are probably now dead, although we have no definite information about them. 10. The three women on whom simple nephrotomies were performed all did badly. 11. The ultimate result is known in forty-two out of sixty-seven cases in which the kidney was removed, or in 62 per cent. of the cases. 12. Seven of these forty-two patients may

be classed as greatly improved and are now alive, six years after their operations; twenty-five are entirely well with an average period of eleven years since they were discharged from the hospital. This means that 16.5 per cent. of the women of whom we have records have been greatly improved by their operations and 59.5 per cent. have been entirely cured. 13. Comparison of the results obtained when the ureter is removed with the kidney and when it is left *in situ* shows that, although the ultimate results are the same following the two methods, the post-operative sinus heals more rapidly when a nephro-ureterectomy is done, and this, therefore, seems to be the operation of choice when the patient's condition warrants a prolongation of the anesthetic.

Edinburgh Medical Journal.

December, 1920, n.s. xxv, 6.

1. Carcinoma of the Post-Cricoid Region (*Pars Laryngis Pharyngis*) and Upper End of the Esophagus. A Logan Turner.
2. Pellagra. Edward J. Wood.
3. The Clinical Features, Etiology, and Treatment of Influenza. William D. D. Small.
4. An Inquiry Regarding the Age and Sex Incidence of Pernicious Anemia. John Eason.

4. An Inquiry Regarding the Age and Sex Incidence of Pernicious Anemia.—John Eason, after calling attention to the current opinion of practitioners and the present-day teaching to the effect that cases of pernicious anemia are most numerous about the middle period of life, submits that there are three chief defects in all published statistics on the age incidence of this disease—two of these so flagrant that they are responsible for an entirely erroneous impression (a) regarding the age incidence and (b) probably regarding the essential nature of pernicious anemia. He presents six charts in substantiation of his views, which he summarizes as follows: (1) Authorities have almost without exception stated that individuals about the middle period of life are specially prone to develop pernicious anemia. (2) Hypothesis and investigations based on hypothesis may proceed on futile lines if this view of the incidence is wrongly maintained. (3) The evidence from a large general hospital of a medical school probably in all cases misleads unless cases of local sick from pernicious anemia alone are the basis of conclusions. (4) On this basis Edinburgh hospitals show the largest numbers between the ages of forty-five and fifty-nine. (5) The rate in these hospitals per 100,000 of the population is highest between fifty-five and sixty-nine. (6) The pernicious anemia death rate figures for Scotland correspond very closely with the Edinburgh Hospital case figures. (7) Until the age of fifty the rate of incidence inclines to be higher in the female than in the male. Thereafter the rate is definitely higher in males than in females. (8) It appears that senility is a more important etiological factor than has hitherto been generally recognized. (9) There appears to be an increasing liability to pernicious anemia with advancing years.

Long Island Medical Journal.

December, 1920, xiv, 12.

1. The Health Center Bill. E. Livingston Hunt.
2. Acidosis. Points of Interest in General Practice. William E. McCollom.
3. The Treatment of Chronic Osteomyelitis. Thomas B. Spence.
4. Diphtheria and Toxin Antitoxin. Walter D. Ludlum.

4. Diphtheria and Toxin Antitoxin.—Walter D. Ludlum sums up his discussion of this subject as follows: The Shick reaction gives positive evidence of susceptibility or immunity to diphtheria. The use of toxin antitoxin gives immunity to 95 per cent. of those who need it, on whom it is used. Diphtheria kills about 1200 in New York each year. This mortality could be prevented if the entire child population should be protected by toxin antitoxin inoculation, either after demonstrating the need by the Shick test and the limiting of the injections to the susceptible, or by inoculating the whole of them without such test; the degree of protection is equal. The use of this measure should be encouraged to the extent of one's ability.

Gazette des Hôpitaux.

December 11, 1920, xciii, 104.

Industrial Accidents and Dermatoses.—Thibierge cites cases of eruptions which develop in certain workers, as when constant exposure to oil causes outbreaks of pustules. Apparently a mixture of oil and metal dust clogs the pores with resulting acne-like eruption. This was often seen in the war in shell turners, who were forced to use an inferior grade of lubricant. It was clearly from its extreme frequency a professional dermatosis due to the occupation. But eventually it was found to be due to contributory neglect, for as soon as the workers observed the custom of cleanliness the eruptions did not appear. Even the claim that poor oil was responsible could not offset this fact. Among nickel platers it is the custom to plunge the metal to be nicked into an acid bath, using for the purpose pincers with a wooden bite. These baths give off corrosive fumes which tend to cause eczema and the act of immersion further causes a certain degree of splashing so that minute burns result. To this extent the injuries appear to be true and unavoidable accidents of labor. However, when the workman is careless enough to let a piece of metal drop prematurely into the bath or when his pincers slip into the bath and he reaches in after them there is carelessness and contributory neglect, yet according to the courts the said worker may be indemnified. Very nice distinctions have to be made in individual cases to determine responsibility. The vital points to decide are, first, the evolution of the affection which must be in accord with the operation of the alleged cause; second, the possibility of sequelae of the original injury, and, third, the possibility of simulation.

La Presse Médicale.

December 18, 1921, xxviii, 95.

Epidemic Hicough.—Although a number of clinicians appear to regard this affection as *sui generis* Lhermitte looks upon it as one of the numerous manifestations of epidemic encephalitis. The term febrile hicough is understood, for a purely functional hicough with mass incidence might suggest psychogenic contagion. Many such episodes are found in literature (Briquet, Lasèque, Charcot). Boerhaave saw one in the Haarlem Hospital and one is known to have occurred in a Spanish convent. In the Middle Ages they would have been classed as demonopathies. The first observation of febrile epidemic hicough was made by Economo as part of an epidemic of encephalitis—not the original outbreak, but the myoclonic epidemic of the winter of 1919-20. So far as Austria was concerned the hicough antedated the encephalitis. The latter exhibited extensive polyclonic manifestations, including spasms of the diaphragm which recalled the original outbreak of isolated hicough. Economo was nevertheless very conservative in connecting the two manifestations—the idiopathic and symptomatic hicough. The same association of the two has been seen in Paris and Switzerland and the conclusion is hardly escapable that idiopathic hicough may be a monosymptomatic encephalitis. There are, however, differences hard to reconcile, for symptomatic hicough due to diaphragmatic spasm may be unilateral while true hicough is invariably bilateral. Here we see the germ of two separate manifestations, one a myopathy and the other neuropathic. In simple hicough there is no synergy save in the muscles which close the glottis, but in the symptomatic or myopathic form the abdominal muscles may be involved to some extent. The epidemic hicough as is well known is preceded by evidences of general infection of a mild type which is certainly not at all like epidemic encephalitis even in its mildest aspects. It may be termed epidemic febrile hicough and from analogy we could suspect the existence of a sporadic form. Not much is known of such and the only cases to come under this head are symptomatic of some severe and often lethal condition, while the recent epidemic cases are strikingly mild. The testimony of many observers clouds the subject, as when Ramsay Hunt stated that among many kinds of myoclonus seen in epidemic encephalitis hicough of any sort was notably absent. The author believes that in the interests of simplicity a unicistic hypothesis should obtain until there is some more definite evidence of dualism.

Le Progrès Médical.

November 27, 1920, xlviii, 48.

Anthropological Problems of Heredity.—Manouvrier discusses the "cross pull," so called, when a wolf is crossed with a dog and the hybrid inherits a double nature. The same phenomenon occurs in ordinary breeding of human beings and must be recognized in conjunction with environment in the personality of the subject. The author quotes a case in which a man of known sound stock for generations develops general paralysis. At that epoch it was not yet known that the latter can occur only in a syphilitic and hence the case seemed paradoxical. Today we know that the disease was acquired and hence the result of individual environment. It is true that a poorly bred horse cannot compete with a racehorse, but it is also true that very much can be done with a young colt in the way of training. The Lombrosian theory that both geniuses and criminals represent the innateness of a sort of psychic epilepsy has been entirely demolished. The segregation and sterilization of epileptics and certain criminals in the aim of extirpating criminality and epilepsy could be extended to include other classes of undesirables, but would this really abolish these classes of defectives? The ranks would be recruited from the results of traumatism, alcohol, syphilis, etc. We might learn as a result of this wholesale elimination of hereditary factors that postnatal factors were much more active than we had supposed. Such an experiment would no doubt be very instructive and the author does not antagonize it.

Le Progrès Médical.

December 18, 1921, xlviii, 51.

Puberty in the Abnormal.—Bancour of the Anthropological School says that a gap exists in our knowledge of puberty with reference to the prepuberal period, and again to the postpuberal. There are many individuals aged eighteen or thereabout who from the standpoint of puberal evolution are not over fifteen. He has devised a technique for rating these individuals. Godin has laid down formulae for normal puberty, the evidences of which comprise pilosity, voice change, deepening of scrotal color, and enlargement of the genitals. Hair appears in both the axillary and pubic regions; in other areas pilosity shows more variability and in evaluating puberty we must pay especial attention to the two regions just mentioned. Examinations for evolution of puberty should be made at least semiannually. In normal males, according to Godin, hair is first seen on the pubic region at fourteen and a half years on an average. Six months later the hair here will be found more developed, with the armpits still bare. In another half year the pubic hair will show further evolution, while a few hairs are to be seen in the axillæ or perhaps in only one of these hollows. At this juncture spermatozooids are present in the testes and ovulation has begun. This significance of axillary hair appears not to be generally known. The voice should have changed almost completely at this juncture, which is denoted by the formula P3 A1—meaning that the pubic hair has completed the second semiannual period, while the axillary hair is in its first six months' period. The subject is now fifteen and one half years of age. Physiological variation must be understood; for example, puberty occurs earlier on the average in the south of France than in the north, and normal puberty may appear at the age of ten in rare cases, and as late as seventeen. Among anomalous children there is much more precocious puberty than in the normal, but by the age of fourteen this departure has become more than offset. Delayed puberty is a matter of nutrition and not connected with anomalous individuals, with the exception of hypothyroid subjects. In the anomalous evolution of puberty seems more gradual and atypical, while pilosity is often more conspicuous. High degree idiots often show normal evolution of puberty. But the author's studies seem far from a satisfactory completion.

Le Progrès Médical.

December 25, 1920, xlviii, 52.

Severe Forms of Malta Fever.—Rozières regrets that this affection is still commonly believed to be benign.

Its mortality in Malta alone is said to be only 2 or 3 per cent. at the outside. This, however, is in selected material; even on the island the mortality in certain strata of the public amounts to 10 per cent., and if we study the records in outlying countries the mortality is seen to be high at times. In a series of fifteen cases in Algiers there were four deaths. The severity of the malady may be due to high temperature, extreme nervous depression, hemorrhage, various complications, etc. Among the latter are malaria, tuberculosis, and typhoid fever. Minor complications give the disease a more or less bizarre picture in individual cases; very much as in typhoid and malaria, in which the symptomatology by cases shows infinite variety. We may mention as complicating crises of sweating, obstinate constipation, pseudoappendicitis, pneumonia, empyema, myocarditis, simulation of acute leukemia, uremia (rare), orchitis—fortunately not followed by atrophy—abortion, bone and joint pains, meningismus, obstinate neuralgias, various rashes which simulate exanthems of infectious diseases, etc., etc. Severe cases and symptoms require appropriate treatment and vaccines, colloidal metals, autohemotherapy, salvarsan, etc., have all been used with more or less dubious results, as have also fixation abscess and autoserotherapy with blister fluid. Bad cases, in the author's opinion, are apt to be wrongly diagnosed; this naturally influences the mortality reports favorably. In all obscure deaths or doubtful illnesses the test for the *micrococcus melitensis* should always be practised, provided the disease exists in the locality or one near by.

Gazette hebdomadaire des sciences médicales de Bordeaux.

January 3, 1921, xlii, 1.

Diabetes in the Gravid Woman with Giant Cells in the Fetal Islets of Langerhans.—Anderodias and Dubreuil report this case. They first mention the two familiar types of glycosuria in the gravida, one of which preexists before conception, while the other appears during gestation. Both forms are rare enough. Leaving out of the question mild and transitory glycosuria, the authors have seen but two cases in twenty years in which the subjects were actually diabetic. In one of these the disease was present before conception. The child had been dead about eight days when the woman was delivered—at or near term. The other case was seen recently in a woman who was free from the disease except when gravid. In the first case there was no autopsy on the fetus. The second woman was a iii-para. Her first child had been still born, the second was living and well, and the third labor attended by the authors also ended in a still birth. On account of the immunity of the mother except when gravid a careful autopsy was made on the third fetus. Sugar had disappeared from the maternal urine somewhat slowly. The overlarge infant had a liver three times the normal size. The pancreas was the only organ studied under the microscope and the Langerhans islets were seen to be very large, although probably not more numerous than in the normal newborn. The volume of these islets was from twenty to thirty fold the normal. There must have been some connection between the size of the child—it weighed 5.5 kilos—the size of the liver, the state of the pancreas, and the maternal diabetes, but the author is unable to explain it. It has recently been shown that the fetuses of diabetic mothers are larger than normal. The tendency to still birth in these children may be due chiefly to the large size and resulting dystocia.

Remedy Against Hiccough.—According to Leven, the hiccough of aerophages, even when otherwise incoercible, will yield to lying prone and flat on the floor. Since the debut of the epidemic he has seen a case which had persisted 3 days, the nature of which he ignores. It yielded promptly to the postural treatment.—*La Presse Médicale.*

"El Siglo Médico."—Carlan, the editor of this well-known Spanish medical periodical announces the completion of the sixty-seventh year of its continuous existence. During this period it has striven successfully to maintain the dignity of science and of the medical profession of Spain.

Book Reviews.

THE DIAGNOSIS AND TREATMENT OF HEART DISEASE. Practical Points for Students and Practitioners. By E. M. BROCKBANK, M.D. (Vict.), F.R.C.P. Hon. Physician, Royal Infirmary, Manchester, Lecturer in Clinical Medicine, Dean of Clinical Instruction, University of Manchester. Fourth edition, with illustrations. New York: Paul B. Hoeber.

THE fact that this little volume has reached a fourth edition is evidence that it has proved of use to those for whom it was intended. It is, in the main, an introduction to auscultation of the heart; and medical students who are just beginning to grapple with this subject might find this little book serviceable when the larger works on the subject would only bewilder or repel them. The book concludes with a dozen pages on the treatment of cardiac disease.

BERETNING TIL INDENRIGSMINISTERIET OM RATIONERINGENS INDVIRKNING PAA SUNDHEDSTILSTANDEN VED M. HINDHEDE. Copenhagen: Jacob Lund, 1920.

THE Danish text of this pamphlet on the influence of the rationing of food on the health is made available by a ten page summary in English to the average American reader. Rationing was of course the immediate result of war conditions and as the general health of the community has been steadily improving for 30 years a falling off should be readily noticeable. The people received less protein, less animal protein, much less fat and alcohol, and in general less total food. The result of rationing was an enormous fall in the death rate due less to rationing *per se* than to reduction of consumption of alcohol and perhaps to a limited extent of tobacco and coffee. It has been shown that vegetable protein can fully maintain health. In regard to alcohol it is shown that it is much less harmful as a direct cause of disease than as a cause of lowered resistance to infection.

DIE BEHANDLUNG DER HAUT UND GESCHLECHTSKRANKHEITEN von Dr. ERICH HOFFMANN. Dritte, vermehrte Auflage. Bonn: A. Marcus & E. Weber, 1920.

THIS brochure of 167 pages is a very compressed compend of the subject which has reached its third edition in the space of three years and hence needs no encomiums. Seventy pages are devoted to dermatoses and 58 to affections of the sexual apparatus. To these sections is prefixed another on materia medica and pharmacy including apparatus for physical therapeutics. The arrangement of the material being alphabetical, the work is practically an index of treatment. The third edition gains by sections on a variety of new subjects, such as physical methods of treatment, salvarsan, masturbation, etc., etc.

PHYSIOLOGICAL CHEMISTRY. A Text-book and Manual for Students. By ALBERT P. MATHEWS, Ph.D., Professor of Biochemistry in the University of Cincinnati. Third Edition. Illustrated, New York: William Wood and Company, 1920.

WHEN one is reminded that the first edition of this valuable book appeared in September, 1915, and one reads, in the preface to the present edition, third, just five years later, that the practical part has been largely rewritten and many revisions made in the text because of the development of knowledge since the second edition was published in 1916, one realizes the rapidity with which physiological chemistry has advanced during the period covered by the World War. As might be inferred, the revision has been most extensive in the chapter which deals with vitamins. Part I deals with the chemistry of protoplasm and the cell. The successive chapters include a discussion of the general properties of living matter; the carbohydrates; the lipins, fats, oils, waxes, phosphatides, and sterols; the proteins; the physical chemistry of protoplasm. Part II deals with the mammalian body considered as a machine, its growth, maintenance, energy transformations, and waste substances. The chapters involve animal heat; the raw materials of foods; salivary digestion; digestion in the stomach; digestion in the intestine; absorption; the circulating tissue, the blood; the master tissue of the body, the brain; the contractile tissues,

muscle; the connective or supporting tissues, the bones, cartilage, teeth, connective tissue; the cryptorrhetic tissues, the thyroid, parathyroid, hypophysis, suprarenal, reproductive glands, pineal gland, thymus; the excretions of the body, urine; the metabolism of the body considered as a whole, carbohydrate metabolism; protein metabolism of body; metabolism under various conditions, vitamins, respiration, and conclusion. Part III, which deals with practical work and methods, includes chapters on equipment of the laboratory; quantitative analysis; the carbohydrates; the fats; the proteins; composition of the foods; salivary digestion; gastric digestion; intestinal indigestion; the blood; the urine. In many instances the discussion of the subject is followed by a comprehensive selected bibliography which should be useful to students who wish to do collateral reading. In addition to the general index of twenty-four pages, there is an index of practical works, and methods which serves as a quick reference aid in the laboratory. The volume, exclusive of the indices, embraces 1126 pages.

A HANDBOOK OF GYNECOLOGY, for the Student and General Practitioner. By BETHEL SOLOMONS, B.A., M.D. (Univ. Dub.), F.R.C.P.I. Gynecologist, Mercer's Hospital, Dublin; Consulting Gynecologist, Aut-Even Hospital, Kilkenny; Hon. Physician, St. Andrew's Ante-Natal Clinic; Formerly Assistant Master, Rotunda Hospital; Censor and Examiner, Royal College Physicians of Ireland, etc. New York: William Wood & Company, 1919.

IN accordance with the request of many of his students, the author has put his lecture notes into book form. There has been a certain amount of elaboration, but even at that, brevity and conciseness have been kept well to the fore. The book is designed for use in conjunction with hospital teaching and is well suited to this purpose; but the author seems overenthusiastic when he states that if a volume of this size (presumably meaning this volume) is read in conjunction with comprehensive teaching at a hospital there is no need for further knowledge except for the specialist. The text is written in rather free and easy style and much space is devoted to elementary matters. Most subjects are discussed very briefly, and the book is perhaps rather more suited to the student than to the general practitioner. Still, what the author has to say in regard to the various subjects is generally very much to the point, the main features in diagnosis and treatment are well brought out, and the practitioner will often find just what he needs here without taking time to consult larger works.

CONTRIBUCIÓN AL ESTUDIO DE LA AUTO-INTOXICACIÓN INTESTINAL. Por el Dr. CARLOS JIMÉNEZ DIAS, Profesor Clínico de la Facultad de Medicina de Madrid. Madrid: Ruiz Hermanos, 1920.

THIS little work of 142 pages is industriously compiled from many sources. The author's summary emphasizes the necessity of chemical analysis of stools, the unsatisfactory state of our knowledge of intestinal flora, the possibility of putrefactive changes without the presence of dietetic albumin, the formation of so-called putrefactive products by "dyspepsia, the double rôle of fatty acids as mere acids and as pathogenic substances, the erroneous teaching that certain urinary constituents are indexes of putrefaction, the plausibility of Herter's view that indol is a direct poison, the likelihood of abnormal absorption through which foreign protein can enter the blood and sensitize the organism, the part played in antioctoxication by mechanical distention of the colon, etc., etc.

LEITFADEN DER KINDERKRANKHEITEN FÜR STUDIERENDE UND AERZTE. Von Dr. WALTER BIRK, Vorstand der Universitäts-Kinderklinik in Tübingen. Bonn: A. Marcus & E. Webers Verlag, 1920.

THIS scientific treatise on the Diseases of Children has ten illustrations. While the etiology and pathology of the acute diseases of infancy are described the author elaborates on the symptoms, diagnosis, and treatment chiefly. There are interesting chapters on the heart, lungs, and blood disorders such as lymphatic leucemia. The chapters on the diseases of the brain are extremely interesting and up to date. Although very condensed, the book contains much valuable material.

Society Reports.

WESTERN SURGICAL ASSOCIATION.

Thirtieth Annual Meeting, Held at Los Angeles, California, December 3 and 4, 1920.

THE PRESIDENT, DR. ARTHUR T. MANN, MINNEAPOLIS,
IN THE CHAIR.

Control of Chronic Pain.—Dr. FREDERICK G. DYAS of Chicago said that injections of alcohol of varying strength had proved satisfactory in a large number of cases of facial neuralgia and had produced analgesia for periods of six to eighteen months. Thus, the efforts to short-circuit the painful area in facial neuralgia constituted the first accurate, scientific, and safe method of combating chronic pain. As the experimental and clinical data had not been sufficient to render an exhaustive report, the paper was presented rather as a preliminary study than as a complete work. Every surgeon had seen cases of malignancy in which apparently none of the older methods gave relief. The woman with recurrent carcinoma of the breast, for instance, rocking constantly to and fro with the pain, was not an uncommon patient in any large hospital. The dread picture was familiar to us all, and yet so far no work had been undertaken for its relief, apart from the use of morphine in ever increasing dosage. In many situations chronic pain might be controlled by interrupting the paths of pain conduction by the methods in vogue in local anesthesia. The scientific accurate control of pain would do much to rob the course of hopeless malignancy of its horrors. The mental anguish might remain, but the somatic suffering in most cases could be spared to the patient. The relief of constant pain revived the drooping spirits of the sufferer and enabled him often to put on weight and to gain in strength. The time honored, but inefficient attempts to produce euthanasia by the administration of ever increasing doses of opium or other narcotics must give place to a procedure which would be efficient and preserve the individual as himself to the end. The short-circuiting of the painful area was accomplished by nerve-blocking in the form of neurectomy or of intraneural injection. In relatively small superficial malignant lesions the same end might be accomplished by the healing of the ulcer by radium. This was especially true of lesions about the orifices of the body. Nerve-block relieved the pain during the period of healing. Chronic pain due to some condition other than malignancy was perhaps best treated by salt solution, novocain, apothemin, or quinine and urea, because these produced but temporary loss of pain conduction. In painful states due to malignancy in which loss of motor function was of little moment alcohol injections of the nerves or neurectomy was indicated. In cases of recurrent mammary carcinoma with great swelling and edema of the upper extremity, the patient usually had to carry the involved arm almost as a foreign body. Pain and swelling were so great that movement was practically impossible. Under such circumstances permanent block of the brachial plexus was indicated either by alcohol injection or by nerve resection.

Dr. JAMES F. PERCY of San Diego, Cal., stated that in his experience the extreme of physical suffering was to be found in the destruction of the pelvic bones by carcinoma in women. He had had a few cases in which the bony pelvis had practically fallen to pieces. This same thing occurred occasionally in the advanced types of prostatic carcinoma in men. He had never seen these cases sufficiently relieved by morphine. The only help for them, in his experience, was the epidural injection of some local anesthetic, usually novocain into the cauda equina.

Epidermoid Cysts.—Dr. H. H. SHERK of Pasadena, Cal., stated that epidermoids were evidently of fairly frequent occurrence, but almost invariably unrecognized. They were almost always mistaken for sebaceous cysts. They might be either traumatic or embryonic in origin. The pearly, horny, and laminated contents made their recognition easy.

A Group Plan for the Discussion and Description of Harelip and Cleft Palate Defect.—Dr. HARRY P. RITCHIE of St. Paul, Minn., said that, following con-

sultation with eminent authority on embryology and upon his own clinical experience and observation, he arrived at two leading conclusions: (1) Harelip and cleft palate were not two separate and distinct entities, but simply degrees of defect in the same embryological process of fusion. (2) The paramount anatomical situation affecting the surgical repair from all angles was the condition of the alveolar arch. Two subsidiary conclusions influencing to some degree his opinion on the technical features were: (1) Normally these tissues were closed from before backward. (2) The bones of the face in the newborn baby did not become fixed or rigid under an arbitrary period of three months. Therefore, if there were embryological data to prove that all of the many, many combinations were degrees of defect of the same process, was it not proper to speak of them as a part of the whole subject? Speaking and describing the various defects in groups seemed to him to be substantiated as follows: (1) They correlated the several conditions with embryological facts. (2) They separated the several conditions according to their special surgical requirements. (3) They defined strikingly, definitely and directly the important situation in the surgery of this defect—the condition of the alveolar arch. (4) They offered a very orderly plan for the discussion and communication with each other of our personal opinions in these age old problems of time and sequence of operation and technical details. In conclusion: (1) Each individual case should be immediately placed in one of four groups and degrees of defect in that group should be dispensed with as confusing and complicated. (2) If the surgical principles, as outlined in both lip and palate work were accepted, they permitted of a wide variation in technical details. (3) The constant clinical observation of the mechanical effect of the lip upon the tissue behind, in the third and fourth groups, he accepted as all important in indicating early operation. (4) Plasticity of the bones of the face held for three months, and in some cases longer, and this made early lip repair imperative. (5) The most reasonable basis of closure was to follow nature's path and form.

Dr. W. T. COUGHLIN of St. Louis stated that very few surgeons liked to do this kind of work. One had far better results in this work by closing layer by layer. In doing work on the face, where the wounds came through into the mouth, one got better results if he could approximate the mucous membranes without putting the stitch into the mouth. It was worth while in harelip to look for the muscle ends as they could be grasped and approximated.

Dr. C. D. LOCKWOOD of Pasadena, Cal., said he had followed the simple procedure of taking a pair of compasses and measuring the distance on both sides accurately from the location of the alae nasi to the junction of the skin with the mucous membrane on the lip margin. From this point another measurement was made on the mucous membrane. Exactly the same measurements were made on both margins of the harelip, whether it was single or double. The edges were freshened, connecting the points marked by the compass, and if these were accurately approximated one would get perfect union.

Empyema, Closed Treatment, with Films.—Dr. ARVINE E. MOZINGO of Indianapolis stated that for eighteen months he had charge of the empyema wards at the Walter Reed General Hospital and Base Hospital, Camp Pike, and developed an improved technique for the closed method. It was not definitely known who first treated empyema through a tube held air-tight in the chest wall with a view of maintaining negative pressure and preventing collapse of the lung. For years many attempts had been made to perfect such a method, but in most instances without success. He treated in the Army 138 cases, 45 acute and 93 chronic, with 2 deaths, both bilateral cases. He was able to follow up 80 per cent. of these cases and found no recurrence. Briefly, the method consisted in the introduction of a small rubber tube into the empyemic cavity by means of a straight trocar-cannula and the removal of the fluid with a bulb syringe. The tube was fixed air-tight in the chest wall and through it the secretions were removed from one to six times daily, followed by washing out with saline or Dakin's solution and later the injection of 2 per cent. formalin-glycerin.

This method was first described in detail in the *Journal of the American Medical Association*, December 21, 1918. It was also demonstrated by two reels of motion pictures which might be borrowed gratis by addressing Curator, Army Medical Museum, Washington, D. C. Most of the criticism he believed was offered to the closed methods in general. While the basic principles were much the same, the technique of each was decidedly different. The technique described by Lieutenant Die-drich came the nearest being like the one he described, yet it differed in many essential points. However, under him and later himself, there were 129 acute empyemas which had a trocar thoracotomy at Camp Pike. Of this great number 8 were transferred to another hospital and had a secondary operation. There were but 9 deaths, 7 during the influenza epidemic. Four of these 9 cases were bilateral and had they been uncomplicated and under normal conditions with plenty of help and room, they, too, in all probability, could have been saved. The question was often asked, was the drainage free, in the closed method? It was not free, for it was under absolute control. Neither was the drainage continuous, but intermittent, and the cavity under constant negative pressure. The secretion could be removed at will, and was usually removed once to three times daily, at intervals of from two to twenty-four hours according to the case. To prove conclusively that the cavity was completely emptied at each treatment a known number, say 5, 10 or 20 syringefuls of fluid was injected into the cavity. The process was reversed and invariably the same number of syringefuls would be removed, regardless of the position of the patient. He had never seen an empyema case too serious to be operated on by the closed method and could say that half of his series of 45 consecutive cases were operated on in the presence of an active pneumonia or some other serious complication.

Surgery of the Mediastinum.—Dr. ARNOLD SCHWYZER of St. Paul stated that purulent infections of the anterior mediastinum apart from direct trauma were mostly due to a breaking down of lymph glands or to the advance of an abscess which started in the neighborhood. Of these two conditions he saw one example. One was an abscess along the pericardium on the right side. It originated from a tuberculous chondritis of the fourth, fifth and sixth ribs. It had apparently started on the under surface. The abscess formed a narrow cavity of about 4 or 5 cm. depth along the pericardium. As tuberculous of the rib cartilage never healed when only the affected portion was removed, the whole of the affected cartilage was thoroughly excised. Iodoform was rubbed into the wound; the wound was closed up to a fine silkworm drain and healing occurred promptly. The second case was a lymph gland abscess taking its origin from what seemed to be one of the right pretracheobronchial glands. Poirier and Cuneo mentioned that the glands of this group, the pretracheobronchial glands of the right side were the most frequently affected ones among the pretracheobronchial group. The abscess in his case was located behind the second and third cartilages on the right side. After resecting these he entered the abscess cavity, at the depth of which (perhaps 5 or 6 cm. below the surface) a somewhat melanotic but principally chalcotic necrosed lymph gland of the size of a peeled almond was fished out. The patient was a stone mason, which explained the chalcosis. There was little organic matter left in the gland; it consisted principally of grayish grist. Healing after a few weeks took place. The case became doubly interesting when the patient returned about three years later with a similar condition on the other side. This time the abscess pointed in the sternal notch near the head of the left clavicle; and after incision he could enter an abscess cavity downward and inward behind the manubrium sterni, again about 5 cm. in depth. Again a necrotic mass came out, though only after about a week. It was a necrotic lymph gland of the anterior mediastinum, belonging to the group which lay in the angle of division of the superior vena cava into the two innominate veins, and which Bartels described as lymphoglandula anguli anonymi.

Movable Bodies in the Knee Joint.—Dr. O. F. LAMSON of Seattle, Wash., said that the picture of osteo-cartilaginous loose bodies was quite characteristic, as they presented themselves as well defined, uniform

shadows of individual structures. Dislocated semi-lunar cartilage would not give any x-ray evidence, except when incrustated. D-generated fat pads, due to chronic disease, such as tuberculosis and syphilis, might be palpated but x-ray would not reveal them. A sesamoid bone in the internal head of the gastrocnemius in certain positions might cast a shadow which could be mistaken for a loose body. Joint lipomata might cause locking, might be even felt, but would not have the characteristic picture of joint-mice. Attending physician's first duty was to relieve pain and locking and establish motion. With manipulation, forced flexion and sudden extension, the offending loose body might be usually dislodged. Surgery only would give lasting relief. If the treatment, as in most cases, was to be surgical, during operation the joint should be subjected to as little trauma and injury as possible, and more than the ordinary care should be taken to guard against infection. If the complete exposure of the joint was required, the longitudinal division of the patella might be imperative. But this procedure naturally entailed more injury to the joint than the safer longitudinal incision of the external surface of the joint. The diagonal incision following the internal line of the joint was preferable for the removal of the internal semilunar cartilage and other free bodies within the joint.

Dr. M. S. HENDERSON of Rochester, Minn., said that the chief point of interest in the paper was that the loose bodies in the case reported did not seem to have their origin from the internal condyle of the femur, but from the tibia. This was very unusual, and the only instance that he knew of such an origin of the body being demonstrable. Loose bodies in the knee joint were formed in various ways, and it was the study of their etiology that was particularly interesting. In certain individuals the bodies arose from the internal condyle of the femur, and he recognized this group as a definite clinical entity, giving it the name of osteochondritis dissecans. Marginal osteophytic growths found in hypertrophic arthritis broke off, wandered about the joint and nourished by the joint fluid increased in size, forming often many loose bodies. In still another group the bodies might be very considerable in number and on opening the joint it was perfectly clear that the bodies originated in the synovial membrane. This condition was called osteochondromatosis.

Dr. E. M. SALLA of Rock Island, Ill., reported a case similar to Dr. Lamson's several years ago in which there were 5 loose bodies in the knee joint. They were removed by open operation, and the knee was put at rest for six weeks with perfect restoration of the joint.

Dr. JOHN P. LORD of Omaha, spoke of one experience which he had had which he thought was of interest from different angles. A man, 30 years of age, presented himself fifteen years ago with one of these knees. The history was that of repeated locking, and the symptoms were so acute that the patient was laid up and disabled most of the time. He had seen several stiff knees following operations for the removal of loose bodies by operators who had worked through inadequate incisions, had spent much futile effort, and had infection follow. Therefore, he thought it better to make a free attack upon the joint rather than to undertake to make multiple incisions. A free transverse section was made including the patella, and clipping off some of these bodies which were attached anteriorly. The free access afforded by the ample exposure permitted the removal of the bodies in the condylar pouches. The largest of these bodies was one and three-quarters of an inch in diameter, and was doubtless formed by a section of the joint becoming detached.

Recurrent or Habitual Dislocation of the Shoulder.—Dr. M. S. HENDERSON of Rochester, Minn., stated that the essential factors involved in the mechanism whereby recurring dislocations might occur were considered. The primary dislocation caused a tear in the capsule in the weakest, most lax region; that is, at the anterior inferior portion. This area was not supported by the tendinous insertions of muscles, for the subcapularis was above it and the few fibers of the triceps that had their origin from the glenoid margin were below it. The supraspinatus and infraspinatus tendons might be torn at the first luxation and true tendon was always replaced by scar tissue which might stretch. The insertion of these might actually be torn off and relax-

tion and loss of tone of the muscles ensued, so that the head of the bone was just a trifle lower than it should be. When the arm was in the position in which most of the dislocations occurred, namely, abduction above the level of the glenoid fossa and slightly forward, the muscles and the direction of their pull were as follows: The supraspinatus and infraspinatus had not their normal tension, thus allowing the head of the bone to be a little lower than normal; the teres major, the latissimus dorsi and the pectoralis major all tended to pull the head into the glenoid fossa, but they also tended to pull the head downward and forward. The supporting action of the subscapularis was gone as the slightly abnormal low position of the head of the bone put the muscle on the upper half of the head of the bone in the position it now occupied. The head was thus thrust against the weak place in the capsule below the subscapularis and as the powerful latissimus dorsi, teres major, and pectoralis major contracted the head slipped on the edge of the glenoid margin and bulged out the capsule and glided up usually to be a subcoracoid dislocation. In the group under discussion, 23 in all, the average age was 28 years. There were 20 males and 3 females. They were equally divided as to sides. Trauma was mentioned as the initial cause in every case but one. There were but 2 epileptics; 19 patients were operated on, and 3 of these were so recent that they could not be classified as to results. This left 16 cases on which the statistics were based. The type of operation that had been used was capsulorrhaphy. Seven patients (43 per cent.) were cured; 4 patients (25 per cent.) were decidedly improved; that is, they had had very few dislocations since and were satisfied with the operation; 1 patient (6 per cent.) was improved; 3 operations (18 per cent.) were failures; and 1 patient (6 per cent.) was not traced. The first two groups of successful operations included 11 patients (68 per cent.).

Removal of Ventral Tumors of the Sacrum by the Posterior Route.—Dr. HERMAN E. PEARSE of Kansas City, Mo., said that these tumors interested the operating surgeon through the oddity of their origin and placement, the difficulty of their removal, and their dangerous habits of rapid growth and greedy encroachment upon bladder, bowel and ureter. They interested and puzzled the pathologist by the varied character of their cell formation and by the structural anomalies they presented. While a posterior incision with a sacral resection was an ideal way to reach these growths, it was practically impossible to do it supplementary to an abdominal incision. Rules of technique were outraged. The essentials of sacral resection for removal of tumors from the pelvis were: (1) The patient was placed on his face with pelvis well raised and thighs flexed. (2) An incision was made from just posterior to the anus upward in the middle line and carried above the coccyx; then curving to the left it followed the left edge of the sacrum. It was carried down to the bone and dissected outward right and left exposing the edges of the sacrum and the sacrosacral ligament, and carrying the edges of the gluteal muscle. (3) The third sacral nerves must be identified and the sacrum divided below them. They should, if possible, remain intact. The central canal of the sacrum should not be opened. The attachment of the sacrosacral ligament to the coccyx should then be severed; also the lower sacrum should be freed with a blunt dissector from all connections. The amputation was best done with a wire saw. The use of chisel and mallet here caused shock. (4) The field now lay before us. All bleeding was arrested and the growth attacked according to its location, attachment and adhesions. From this point the operation might be of any severity, usually it would be exceedingly simple. All Middlemord tumors should be attacked from this direction for the following reasons: (1) They lay directly in front of the sacrum. When it was lifted off they could be studied in plain view. (2) They could then be removed systematically without disturbing the remainder of the pelvic viscera. (3) The peritoneum was not opened in reaching the tumor. If it was opened later in the removal it was not traversed and infected, and its contents might be protected. (4) The cautery might be used freely without damage to other structures. (5) Extensive tissue removal in handling the tumor's connections in muscle, fat and fascia, even

bone, could be made quickly, safely and extensively because in plain sight. (6) Scar recurrence was in plain view and accessible to secondary operation. (7) Blood supply and nerve supply could be seen and easily attended to.

The Technique and Aftertreatment in Operations Upon the Prostate.—Dr. ARTHUR E. BENJAMIN of Minneapolis said that prostatic surgery had not reached the stage of perfection that was associated with other surgical work. The outcome was occasionally unsatisfactory on account of the indeterminate resistance of the patient and complicating conditions present. The functional results following certain types of operations upon the prostate were poor; there might be a stricture or a fistula. The mortality rate was relatively high for the suprapubic operation but the functional result and comfort of the patient had influenced most surgeons to adopt this method of operating. The function of the kidneys, the condition of the general health of the patient as well as the local infection should be treated before and subsequent to the operation. Every patient had a right to be in as good a condition as was possible before the operation was performed. Vaccine treatment sometimes assisted in overcoming infection. A special apparatus for doing the suprapubic operation made the second assistant of greater value to the operator, facilitated the work, and made it easier and more rapid in its execution. The technique resembled, in general, that of most operators who did the suprapubic work. A two-stage operation was seldom adopted. A double tube for drainage of the suprapubic wound was employed and a catheter was retained in the bladder by a suture passed through the internal end of the catheter and extending between the two suprapubic drainage tubes and there anchored. A normal convalescence by this method was more assured, infection less likely, and the comfort of the patient was greater.

Dr. N. J. MACLEAN of Winnipeg, Manitoba, said that some time ago he had 2 cases where there was stone formation in the bladder following prostatectomy. One case was passing small stones continuously with a great deal of discomfort and pain and the other case three years after the operation had the bladder filled with large stones, as large as small hen's eggs. The after-treatment was important. He might say that as far as the after-treatment was concerned, in his own practice he simply put in a large tube and after twenty-four hours aspirated the urine that was in the bladder and put in argyrol solution. This was left in the bladder and treatment was repeated once a day until the wound was closed. Since he had adopted this procedure he had not had postoperative stone formation.

Are We Getting Satisfactory Results in Stomach Surgery?—Dr. B. B. DAVIS of Omaha said that as the results now stood from 15 to 40 per cent. of the operations done for gastric ulcers were failures. At least, they did not restore the patient to sound health. There had been a tendency to explain the imperfect results on the ground that the operation was ill advised and the technique faulty. Moynihan asserted that many of the poor results following gastroenterostomy had been due to (1) operation done in the absence of any organic lesions justifying it; (2) in cases of chronic extragastric lesions that had been overlooked; (3) incomplete operation, the ulcer not having been dealt with, and (4) various defects in technique. The poor results following gastroenterostomies had too often, it seemed to him, been set down as due to faulty technique, to having been done in the absence of organic lesions justifying the operation, to incorrect diagnosis, etc., and apparently without considering that there might be some inherent fault in gastroenterostomy bound to be followed by many poor results, no matter how carefully the case was chosen or how technically perfect the operation. It was his opinion that active ulcers were better dealt with by excision or better still by cauterization, as so admirably worked out by Balfour. It was also important, when operating on ulcers, to find and remove the focus of infection from which the ulcers had their origin. The gall-bladder and appendix were always under suspicion and no operation was complete until these organs had been inspected carefully and removed if not normal.

Dr. F. M. SALA of Rock Island, Ill., said that it seemed the pictures shown by Dr. Davis were not taken

in a standing position. If the anastomosis was down at the ootom the stomach would empty immediately. The stomach dropped clear down into the pelvis normally in the standing position. If one was going to have a dumping stomach, he thought all pictures should be taken in a standing position to see where the anastomosis was. If the anastomosis was made as near to the pylorus as possible, its contents would have to go up nil, so to speak, and thus be a more natural process.

Dr. EDWARD C. MOORE of Los Angeles said that if we were all satisfied with gastroenterostomy, there would not be so many operations to correct this difficulty. Smithies reported a large number of cases of normal acidity in the stomach with ulcer. He hesitated very much to do a gastroenterostomy in duodenal ulcer in which there was no obstruction.

Dr. ARNOLD SCHWYZER of St. Paul stated that gastroenterostomy and the Finney method had advantages, but to decide which was preferable, one had to consider his own experience of years ago and go through it carefully. In the last fifteen years he had done about 140 stomach operations. There were many gastroenterostomies, and about 10 pyloroplasties. The results after pyloroplasty were not quite as good as the results of gastroenterostomy.

Dr. HERMAN E. PEARSE of Kansas City, Mo., said there were some facts to be considered in the study of gastroenterostomy and its end results. First, we must discount loyalty to the surgeon on the part of the patient. It was not enough that they reported themselves cured. We must get specific information as to vomiting, nausea, mixed eating, and body weight. Second, gastroenterostomy was not a drainage operation. The operation was most successful that placed the stomach at the point of greatest acidity where alkaline bile could relieve the acidity, whether it be near the pylorus or fundus.

Dr. ARVINE E. MOZINGO of Indianapolis, Ind., reported a stomach case which he saw five years ago in New York City. The patient was a man, aged 50, muscular, weight, 180 pounds, and general condition very good. He gave a history of having had a severe case of typhoid fever 21 years previously, complicated by ulceration of the esophagus resulting in complete obstruction. A gastrotomy was performed on him in Philadelphia and since that time all nourishment had been taken through a 1 cm. rubber tube 10 cm. long. The tube fitted snugly and was held in place by a large safety pin under which was a small gauze pad. A cork was held in the end of the tube by means of an abdominal binder. When a drink or food was desired, the cork was removed and a funnel inserted into which fluids were poured or in case of thick pasty foods they were forced into the stomach by means of a ramrod. Meats and other heavy foods were usually chewed, not only for mastication, but for the pleasure of taste and smell before being dropped into the funnel. The man would remove the tube about once each month to clean it. There was no irritation about the opening and no pain. The only discomfort experienced was due to the formation of gas at times and being unable to belch up this gas it became necessary to null the cork.

Who's Who in the Hospital?—Dr. H. G. WETHERILL of Denver said that all attempts to standardize hospitals and to establish in them scientific procedures, orderly methods and coordinated endeavor for the attainment of better results, must depend primarily upon the measure of success each hospital had in organizing and amalgamating the whole working force of the institution. In a closed hospital with a relatively small and carefully chosen staff of well trained and efficient medical men, such organization and standardization were easy of attainment and were to be expected as a natural consequence of the favorable factors presented. Careful case recording, laboratory facilities, autopsy study and coordinated diagnostic, therapeutic, and research methods should prevail. Unfortunately, there were comparatively few such hospitals in America, and of the open hospitals, only a relatively small number were so conducted as to be controlled or dominated by a group of highly trained and scientific men, even when such were available on the staff of the hospital. It was absolutely essential as a fundamental basis for progress along the lines of better hospital organization, which might some day lead to standardization, to first

control and govern this disassociated, irresponsible and unorganized element in the existing hospital system. It had been said many times that the standardization of hospitals and the standardization of physicians and surgeons must go hand in hand and that the advancement of one of these necessarily implied the progress of the other, but this could be true only if their interdependence was closely tied together and if consistent effort was made to bring within the fold all surgeons and all hospitals that presented evidence of qualifications that should entitle them to recognition. Once established, such a system would soon create for those hospitals and those surgeons who conformed to its requirements a prestige that would compel the compliance of all the others. The history of the reorganization of medical education in America would be repeated and the standardization of American hospitals would then be a readily solvable problem.

Laminectomy for Meningitis.—Dr. ROLAND HILL of St. Louis said that acute meningitis, especially when of streptococcus or of staphylococcus origin, was a very fatal disease. Netter, in a study of 65 cases, found that 54 died within four days. Death was the result of two factors, increased intracranial tension and toxemia. The first factor could be influenced by lessening the cerebrospinal fluid by means of lumbar puncture or by the establishment of open drainage. The factor of toxemia might possibly be influenced by the dilution of the toxins through the rapid secretion of cerebrospinal fluid. It had been his privilege to operate on 2 cases of meningitis with one recovery and one death. He believed in cases of meningitis from streptococcus or staphylococcus operation should be done. Whether or not it would be found advisable in those cases of meningitis following influenza seemed an open question. He had known a few of these cases to be operated upon, but had never known one to be operated upon early nor had he known a recovery to follow laminectomy in any of them. Recovery had followed repeated spinal puncture and it did seem only rational that laminectomy should yield infinitely better results than spinal puncture if operation was done before the cerebrospinal channels were blocked by inflammatory products or adhesions.

Section of the Anterolateral Tract of the Cord for the Relief of Intractable Pain Due to Spinal-Cord Lesions.—

Dr. W. E. LEIGHTON of St. Louis said that in this operation, as in all surgical procedures, a knowledge of the anatomy and physiology of the spinal cord was essential. The cord was exposed in the region of the fourth, fifth or sixth thoracic segment by the usual laminectomy; removal of two laminae were, as a rule, sufficient for proper exposure of the cord. The dura having been opened the dentate ligament was identified, grasped with a mosquito forceps and severed from the dura. Traction on this ligament would rotate the cord so that the anterolateral tract might be readily exposed. A small cataract knife with its back towards the dentate ligament was inserted just in front of the ligament and passed to a depth of two and one-half millimeters and brought out behind the origin of the anterior roots, making an incision approximately two and one-half millimeters deep by three millimeters wide. The section might be unilateral or bilateral, depending on the nature of the lesion. Bleeding was usually slight following the section. A stoveaine block might be employed previous to the section by placing a pledget of cotton saturated with 0.4 stoveaine solution on the cord above the level of the section. Following the section the dura was closed and the laminectomy wound sutured in layers. Following the operation careful nursing must be carried out as the patient had lost both pain and temperature sense if the operation had been correctly done, and the patient must also be warned of this particular. In all of his cases a hyperesthetic zone at the level of the divided segment had been noticed. Pain at this level might be so severe as to require an opiate to relieve it. From his experience in 4 cases, he believed it had been shown that the operation would produce a permanent relief in any lesion below the lower thoracic level. In the cases of gastric crises he believed that the section would have to be made much higher than the sixth thoracic segment, and saw no reason why it should not be made as high as the second or third thoracic. He would also suggest

to add section of all posterior nerve roots which were present in the field, as this would destroy sensory impulses which reached to a higher level and which were not touched in the section of the anterolateral columns, the site of section including only pain impulses which had crossed over to the spinothalamic tract below this level.

Splenectomy in Third Stage, Banti's Disease, with Report of Cases of Fifteen Months' Standing.—Dr. H. B. SWANERSON of Minneapolis said that splenectomy offered the best chance of recovery from the otherwise fatal terminal stage of splenomegaly. A plea was made for detailed histories of all cases of this type, subjected to splenectomy, and also for subsequent reports of progress at sufficiently late date after operation to determine the ultimate result as regards permanency of cure. Only in this way could judgment be formed as to the value of this procedure. In the study of the blood findings, it was not sufficient, from the standpoint of prognosis, to record the differential white count; a more intensive study of the cell structure itself was essential.

Fifth-Root Resection Under Local Anesthesia.—Dr. W. T. COUGHLIN of St. Louis said that the patient was operated on while sitting in a dental chair. A linear incision three and one-half to four inches long extended upward and backward from the zygoma a little more than the breadth of a thumb in front of the tragus. No transverse cut was made. The skin and underlying tissues along this line were infiltrated layer by layer. A similar infiltration was made along two lines parallel to this and about three-fourths to one inch from its beginning at the zygoma and ascending one and a half inches. The anesthesia used was one-half per cent. novocain with adrenalin six drops per ounce. If there was very much tenderness of the skin shaving was done the day before, the patient being morphinized for this purpose. It might be done the same morning, but not more than one-fourth grain of morphine should be given. The aponeurotic layer was incised along the upper margin of the zygoma from the incision each way for a distance of three-fourths to one inch; the fibers of the temporal muscle were split, as done by Abbe, and good retraction was made. The periosteum was scraped away from the surface of the squama and wing of the pterygoid. An opening was made low down with a burr as in Doyen's method which was enlarged to about the size of half a dollar. The dura was slowly separated from the bone by Tiffany's method. The middle meningeal was always tied before being cut. It was necessary to inject novocain around the region of the vessel before tying the artery. It was necessary to inject novocain into the third division before commencing to clean it; also to inject into the ganglion before opening its sheath. When the root was reached there was an escape of cerebrospinal fluid. The inner aspect of the dura at its opening around the root was very sensitive. Here a pledget of cotton soaked in 2 to 4 per cent. cocaine was laid for a minute or until one could proceed without causing pain. A hook was passed around the root without making any attempt to separate the sensory from the motor root and the operator might cut or avulse as best suited his fancy, since both seemed to give equally as good results.

Diseases of the Pancreas.—Dr. W. D. HAINES of Cincinnati said that growths in the pancreas had been successfully removed together with a large part of the gland. Coffey had devised a very ingenious method of providing drainage for the stump after resection by implanting it in an improvised pocket connected with the lumen of the intestine. Five pretty good sized arteries entered the gland. This and the intimate relation of an important anatomical structure rendered free exposure of the field of prime importance when one was operating. In a limited personal experience a long midline incision with division of the gastrocolic omentum had given a satisfactory exposure of the pancreas. If the stomach was prolapsed, one must either raise the organ to its usual position or expose the pancreas by dividing the gastrohepatic omentum. The former route was preferable when expedient, as it gave a far better exposure of the field. The greater peritoneal cavity should be protected during the operation, but if soiling had already taken place, ample provision for pelvic drainage must be made. Multiple

incisions of the gland employed for the relief of acute pancreatitis would be followed by considerable hemorrhage which might be controlled by gauze packing. Hietzler, in his excellent work on tumors, says: "Removal of tumor of the pancreas is technically possible but that it has met with little success."

The Report of a Case of Atresia of the Ileum with Microcoelia.—Dr. MARICE KAHN of Los Angeles stated that as to the genesis of this type of anomaly there was an unanimity of opinion. But not so of the stenosis and atresia, in which many theories had been advanced to explain their origin, viz., (1) Intrauterine volvulus. (2) Embolism or thrombosis of the superior mesenteric vessels. (3) Pressure from tumors or from amniotic bands. (4) Tracture of omphalomesenteric duct or its hyperinvolution. (5) Intrauterine peritonitis. (6) Persistence of the epithelium occlusion and ingrowth of the mesenchyma. In the case reported there was no evidence, such as twists, bands, agglutinated coils of intestine, etc., supporting any of the foregoing theories. It seemed to him that with the exception of the epithelium occlusion theory all the foregoing postulations might be discarded as more or less fanciful hypotheses unless post-mortem findings supplied the evidence. Moreover, there was assumed in the foregoing theories, excepting the last one, prenatal pathology, which was always a repellent explanation to the scientific investigator, whereas an evolutionary theory was attractive and respectfully entertained. Having recognized that the duodenal lumen in young embryos was normally completely obliterated by epithelium forming a solid cord of cells, Tandler concluded that sometimes this atresia might persist and be found as a congenital occlusion or stenosis. Forssner found that in early embryos the lumen of the duodenum was completely obliterated in places. This normal epithelium occlusion of the duodenum disappeared by a process of disintegration leading to vacuolation. Forssner thought that this epithelium occlusion might take place throughout the small intestine. Tandler considered that the cause of the occlusion was the resistance exerted upon the expanding epithelium by the surrounding mesenchyma. Moreover, when the epithelium occlusion was followed by sufficient ingrowth of mesenchyma, complete mesenchymal occlusion occurred and this condition might be permanent. Or by subsequent changes a stenosis might develop or valve formation occur.

A New and Advanced Surgical Treatment for Breast Cancer.—Dr. JAMES F. PERCY of San Diego advocated the use of the hot knife only in the surgery of breast cancer including the dissection of the axilla. In the advanced case he made no attempt to preserve or secure skin flaps and the edges of the denuded area left without flaps (when the breast and axillary glands are removed) should be undermined from two to four inches with the hot knife. In the after-treatment, besides the use of Dakin's solution the arm on the operated side was maintained in an elevated position with the forearm resting on the top of the head, until practically the surface denuded by the hot knife was entirely covered with new skin. As soon as granulations commenced to appear, vigorous daily massage and forcible movement of the skin and arm adjacent to the denuded area was instituted. The only carcinoma of the breast considered inoperable by the heat technique was the one where inaccessible metastasis had developed. The writer insisted further that the unheated knife did not devitalize any of the malignancy it did not remove. The hot knife did. The cold knife did not spoil the soil for the further development of cancer. The hot knife did. The knife unfortified with heat, if it touched cancer, vaccinated it into new areas. The hot knife did not. The cold knife stimulated the growth of the unremoved cancer cells. With the hot knife such stimulus was impossible.

Coexistence of Dermotropic and Neurotropic Syphilis in the Same Subject.—Brühl and two others presented a patient—a woman of 53—who showed typical tertiary syphilis of the skin involving the 4 limbs with intact and ulcerated gummata. At the same time there were speech disturbances, tremor, loss of memory and the general picture of pseudoparesis.—*Gazette des Hôpitaux*.

THE PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, Held January 12, 1921.

THE PRESIDENT, DR. HERMAN B. ALLYN, IN THE CHAIR.

Occultism with Reference to Some Phases of Spiritualism and Freudianism.—Dr. CHARLES K. MILLS of Philadelphia presented this paper in which he discussed some of the alleged reasons for the revival of so-called occultism, holding that, while the sacrifice of life and the distress brought on families during the recent war might be regarded as important exciting causes, the whole matter could not be explained in that manner. Back of it was the tendency of the world to be largely controlled by instinct and emotion which had an immeasurable past. Dr. Mills gave his explanation, which he said might be only partial, of the reasons that not a few men of high accomplishment in science and scholarship had given their adhesion to modern spiritism, referring to Robert Hare, Sir William Crookes, Sir Oliver Lodge, Alfred Russell Wallace, Flammarion, and others. He said that these men in spite of their success in materialistic lines of research and writing were, after all, governed largely by their inherited temperaments in which instinct and emotion played an important part. He placed in the same list with Sir Oliver Lodge and others referred to, various men distinguished in medicine, law, and biology, who at the same time clung tenaciously to the tenets of some of the more primitive of the religious sects. Here the emotional temperaments held sway equally with or above the dominion of reasoning. The subjects of ghosts or apparitions, of mediumism and mediumistic communications were next considered by Dr. Mills. He expounded the view that stories of ghostly visitations, when these were not accounts of crude frauds or literary efforts, were best explained on the theory of hallucination. He held that most mediumistic exhortations were fraudulent, and gave accounts of some personal experiences with attempts at table tipping. Sir Oliver Lodge's "Raymond" received brief attention, the speaker pointing out the credulity of the author of the book, and the evident mistakes made by him in ranking many mediumistic communications as evidential. In concluding his paper Dr. Mills discussed some phases of Freudianism which he classed as a species of phallic mysticism. After defining Freudianism, he dwelt briefly upon what he regarded as unsuccessful attempts to apply some of its principles to both organic and functional nervous diseases. He did not attempt to traverse the whole subject of psychoanalysis, his paper simply being intended as an introduction to the symposium of the evening, leaving amplification and elaboration of the topic to those who were to follow him. He dwelt especially upon so-called transference neurosis and indicated some of the dangers which he believed threatened the community from the active pursuit and propaganda of Freudianism.

The Unconscious in Spirit Communications and Symbolism.—Dr. KNIGHT DUNLAP of Baltimore read this paper in which he said that the conviction, apparently shared by many spiritualistic mediums, that their communications came from outside themselves was based upon the common fact that in any fluent composition the verbal expressions tended to arrange themselves; that the formulated thought first appeared in the form of spoken or written discourse. This phenomenon might be observed by anyone who could compose fluently. The explanation that the formulating was done by the "unconscious mind" was misleading, since it was merely a reformulation of the problem: What was the mechanism by which this formulation was made? The true explanation was to be found in the analysis of thought as essentially a reaction process which, in these cases, was specifically a process of vocal reaction. The operation of the mechanism was then understandable in terms of the ordinary principles of habit formation, by which reaction tendencies were formed and modified by preceding reactions, based on hereditary predispositions existing within the nervous system. Experimental work on symbol recognition now in progress tended to indicate that this also might be explained completely by ordinary principles of habit formation, not requiring any assumption of an "unconscious mind"

other than the central nervous system. Training in symbolization was received by most persons through religious or literary channels, as well as by practical experience. Associations which had been formed in the past persisted as associations, without necessitating the persistence of any form of memory of the detailed experiences which formed the association, just as the ability to sign one's name persisted as a definite set of reaction tendencies without involving a retention of the detailed processes through which the child had gone in learning to write. The "unconscious mind" was a mystical concept quite comparable to the concept of divine agency in the production of thunder storms and tended to obstruct a scientific analysis of the question: How were the phenomena produced?

Dr. CHARLES W. BURR of Philadelphia said that Freud claimed that there was both a conscious and an unconscious mind. That one of the great functions of the unconscious mind was to keep out of our consciousness the things we wished, our real desires and wishes which were principally, usually, and most strongly sexual. This was done by a thing called a censor during waking life which kept out of consciousness the things that we consciously wished to keep out of consciousness, namely, our real desires. During sleep the censor ceased to act and the unconscious mind revealed itself in our dreams. A man then was what he really was, not in his waking hours, but during sleep. The dream with the unfulfilled wish, but when one dreamed he did not frankly and openly dream of what he wished; he did it symbolically. Every dream had a manifest content which was the dream as we knew it and the latent content, which was the real dream, and which could be found out only by the methods of symbolism à la Freud. Freud's book on "Dream Psychology" was sold in every department book shop in this country; it was bought by a tremendous number of adolescents seeking either for truth or unhealthy emotional excitement. This was doing them no good and it was not science. He wished to speak of something of much greater importance, namely, so-called communication with the dead. It was no new thing at all but was as old as the time when everybody was an atavistic worshipper and thought trees had souls. But now as time went on it seemed to him that mankind was pretty well split off into two great branches, the mystic and the rational. The mystic who hungered for a god and hungered for immortality. He had feelings and he believed what he craved. On the other side was the rationalist who was content with things as they were. The best subject for hypnotism was not the man of science whose mind was trained to believe what his experiments seemed to show. Because a man was great in one way did not indicate that his opinion in other matters was better than any of the rest of us. No one was so easily deceived as the man of science. In regard to communication with the dead we believed what we desired to believe.

Dr. J. HENDRIE LLOYD of Philadelphia said that the subject lent itself to the ridiculous, but lent itself still more completely to misunderstanding. It was the half educated poor in this country who believed in spiritualism, mysticism, occultism, and every other ism going on nowadays. It was the fault of our defective public educational system, so much lauded to the skies, which did not teach our children how to think, which left them the prey of any crank, half-baked religion, mysticism, or whatever you chose to call it. Now he had a theory that all of us were more or less superstitious. He, personally, did not believe in the superstition that if 13 sat down to a table one would die within a year, but the idea brought up unpleasant associations and, therefore, he did not like to sit down with 13 at a table.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON PEDIATRICS.

Stated Meeting, Held December 9, 1920.

DR. CHARLES HENDEE SMITH IN THE CHAIR.

The Tonsils and Scarlet Fever.—Dr. JESSE G. BULLOWA read this paper, which was based on a study of 153 cases of scarlet fever in respect to the size, covering, and compression of the tonsils, severity of the rash, and occurrence of lymph node involvement. He demon-

strated that the intensity of the rash did not affect the severity of the disease, but that it was very much aggravated by enlarged lymph nodes, which were due to infected tonsils and especially if they were covered and so swollen as to be compressed on swallowing. He also showed that of twenty-two asymmetrically diseased tonsils, six showed homolateral lymphadenitis involvement of the lymph nodes and that in sixteen tonsillectomized cases there was no adenitis, the disease was not severe, and there were no deaths, although some of them showed very severe rashes. He regarded the severe cervical adenitis as an epiphenomenon of scarlet fever which should be treated, though a phlegmon on the pharynx, as any other phlegmon. Tonsillectomy, when the tonsils were buried or covered with membrane, was a prophylactic against the severer septic forms of scarlet fever. Incision of the false membrane to relieve pressure, or in exceptional cases tonsillectomy was recommended.

Dr. HENRY KOPLIK said that scarlet fever, according to an eminent authority, Henoch, was a very insidious disease. It was a general infection, not an infection from any local point, but a general infection of the entire body, and not only were the glands and lymph nodes of the neck affected, but the glands and lymph nodes all over the body. In every case of scarlet fever the tonsils were involved more or less, so that this involvement became a diagnostic point of value, especially in mild cases or in those in which the rash was not well defined. A statement to make one think a great deal was that those cases of scarlet fever which were tonsillectomized did better than those which were not tonsillectomized. This might be true to a degree, but he could not forget those cases in which tonsillectomy had been done and in which scarlet fever assumed a most severe type, involving the throat and glands at the angle of the jaw, and not only that, but the tonsillar ring as well. If one looked at Sapp's anatomy he would see how interminable were the lymphatics of the throat and nose and would realize that by removing the tonsils only a very small part of the lymphatic structure of this region had been removed. In scarlet fever the whole lymphatic system was involved and therefore the removal of the tonsils did not absolve the throat from involvement if a child contracted scarlet fever. The same facts were true of grippé, angina, and diphtheria. The fact that a child had had his tonsils removed did not prevent him from contracting angina, diphtheria, or scarlet fever. Dr. Koplik cited the case of a boy subject to periodical attacks of angina, who had his tonsils most skilfully removed, and he still continued to have the attacks after the tonsils were taken out. He had seen many of these cases. Those who dilated on the advantages of tonsillectomy as a prophylactic measure should not forget these cases. It was nothing new to take out the tonsils during scarlet fever. He was glad the subject had been brought up, because it was desirable to work it out further. Personally he was rather backward in adopting such heroic measures, though he knew they had been employed and employed successfully in certain cases. There were a great many cases of scarlet fever in patients with necrotic tonsils, suppurating adenitis, otitis media, and even necrotic bone in the mastoid, and the latter often did well with simple incision and drainage. In other words, scarlet fever was not a disease which enabled one to draw conclusions, and the reader of this paper, very wisely, had drawn no conclusions; but we should not forget the severe cases that did well without tonsillectomy. There were cases in which the tonsils were not involved to any extent in which at the end of ten days or two weeks a tonsillitis with adenitis developed and the patient went through a very severe illness, accompanied by suppuration of the glands and disease of the tonsils and other complications, all after the tonsils had been judged to be well. The principal objection to tonsillectomy during scarlet fever was that it opened up a large field for the absorption of bacterial toxins, and it was a question whether one was justified in doing that. We should not forget that there were many cases in which tonsillectomy was done and death ensued.

Dr. CHARLES HENDEE SMITH described a case which was under his care last winter which illustrated one or two of the points Dr. Bullowa had made. This

child had had a bad throat, large tonsils, and a rather acute scarlet fever. On the sixth day an adenitis developed with a great deal of swelling of the glands. The temperature subsided and then went up. The case was somewhat puzzling for a time until it was discovered that the child had mumps as well as scarlet fever. It was learned that the child had been exposed to mumps just seventeen days before the trouble began. The case was interesting from the fact that there were three sets of glands involved, some of the glands being as large as a walnut. He had seen the child six months later and all the glands had disappeared.

Dr. ROBERT J. WILSON said that when Dr. Bullowa first proposed this investigation he told him he might carry it out if the parents gave their consent to the tonsillectomies and if, in his judgment, he was going to do more good than harm. Dr. Wilson said he had watched these cases with interest and of one thing he was sure, namely, that they could not apply this procedure as a routine proposition. He would simply say that if in the surgeon's good judgment it looked like a case that could be operated upon and the local condition in the particular patient indicated it, then it was all right for the surgeon to go ahead. There was no doubt that some remarkably favorable conditions followed operation, and he had seen exactly the same thing when no operation had been done. He did not mean that Dr. Bullowa's and Dr. Crawford's judgment was not good, for it was, but in all these innovations it was understood that they were not used as routine measures. Dr. Koplik had put it well when he said that this was a contribution and that one should go slowly with things of this kind. So far as the health department side of this work was concerned, when the Willard Parker, the Kingston Avenue, Riverside or other department hospitals turned out a piece of work of this kind it was for the purpose of making physicians think, but it was not intended that such things were to be adopted indiscriminately in every case.

Dr. BULLOWA, in closing the discussion, said that scarlet fever, if there was such a disease, and some even questioned it, had been described as a disease with a general lymphadenitis, and Dr. Koplik had emphasized that point. However, the point of view might be presented that the large palpable lymph nodes were a response to the inflammatory involvement of the skin. He had observed that where the rash was slight or took a peculiar distribution, the enlargement of the lymph nodes was not symmetrical, and that where there was the most rash there one found the largest lymph nodes. The point that the involvement of Waldeyer's ring and the adenoids was an important factor needed no emphasis. He had emphasized in the paper that it was the rhythmic pressure which was responsible for the forcing of the toxins into the lymphatic system, and the same thing might occur with the adenoids if they were so large that they pressed against the structures on the posterior surface of the maxilla. Of course the proposal of tonsillectomy in scarlatina was not original or new. Similar work had been done in Boston by Dr. Place, who reported twelve cases operated upon in the acute stage. It was work that could not be done by the family doctor or a general surgeon, but must be done by a dexterous operator, for the operation had to be done quickly and had to be clean cut behind the capsule, so that there would be no wide opening up of the lymphatics. As to the question of operating in the acute stage of scarlet fever, in the army there was a large number of cases of streptococcus infection of the tonsils which were operated upon successfully in the acute stage. Of course cases got better in spite of a long drawn out illness, but in the group of five cases there was one case, which was operated upon and got better, the others did not get better. Dr. Bullowa said he was not proud of the statistics for scarlet fever in the Willard Parker Hospital, a mortality of 7.2 per cent. in his series and more than 8 per cent. in all cases for five years seemed too large and any procedure that promised to reduce that mortality was worth trying out.

Precocious Puberty.—Dr. MARK S. REUBEN presented this contribution, based upon a study of seven personal cases and 390 cases reported in the literature. He stated that precocious puberty was not a distinct entity; it might be due to various causes; the symptoms

varied with the causes. An attempt was made to differentiate the various types clinically from a study of all cases that came to autopsy or operation. Of the 397 cases studied, 326 were females and 71 males; of these there were 188 females and 57 males in whom definite etiological factors were lacking. In 23 cases there were tumors of the ovary; in nine cases (eight females and one male) there was hyperplasia of the adrenals, or adrenal rests; in 21 cases there were tumors of the adrenals (17 females and four males); in seven cases there were tumors of the pineal (all males); in one case there was a tumor of the testicle and in one case a tumor of the prostate with metastases in the testicle. In 83 cases precocious puberty was associated with precocious pregnancy. In females menstruation was the first symptom of precocious puberty; it might be present at birth; at first it might be irregular, and might have molimina. The breasts were usually enlarged in all cases; the external and internal genitals showed marked development. Hair was usually present on the genitals and in the axilla. The voice deepened and there was a lengthened physical growth, but owing to premature ossification there was no tendency to gigantism; on the contrary, at the time of real puberty these individuals were somewhat undersized for their age. In most cases this was accompanied by an increase in muscular power and in adipose tissue. There was broadening of the pelvis. Dentition in a number of cases was early. Onanism was present in only a few cases; early sexual desire was usually not present. Mentality usually corresponded to the real age, though a few were precocious. In the males erections and ejaculations took place; physical development was marked; they became very muscular, athletic, and strong. The secondary sexual characteristics made their appearance. In 15 males the mentality was normal, in 15 deficient, and in four precocious. Libido was increased in a few. In case of precocious puberty due to tumor of the ovary, menstruation was always present; the external and internal genitals were always enlarged; pubic and axillary hair were always present; the breasts were enlarged in 75 per cent. of the cases, and in 90 per cent. of the cases the mentality was normal. In cases due to tumors of the adrenals there was a tendency to produce maleness in the females and to exaggerate maleness in the males. The internal genitals were usually not enlarged; the external genitals usually showed enlargement of the male type in females (enlargement of the clitoris); the breasts did not enlarge, and menstruation was usually not present; there was a tendency to growth of a beard in females, and to overgrowth of genital, axillary, and general bodily hair growth. There was marked tendency to adiposity; in 70 per cent. of the cases there was mental backwardness. This condition was far more common in females. Tumors of the pineal gland were more common in males; both external and internal (testicles) genitals were enlarged; there was pubic and axillary hair growth; these individuals all showed marked adiposity and all had manifested cerebral symptoms. In 80 per cent. of the cases mentality was normal and in 10 per cent. it was precocious. In one case of precocious puberty due to tumor of the testicle the genitals were enlarged; there was general hair growth and marked physical development. After removal of the testicle there was complete reversion to childishness. Of the 84 cases of early pregnancy associated with precocious puberty the ages at the time of delivery were as follows: in one case six years; in one case seven years; in three cases eight to nine years; in five between nine and 10 years; in six between 10 and 11 years; in 14 between 11 and 12 years; in 54 cases between 12 and 15 years. Labor was easy in 22 cases; normal in five cases; difficult in nine; instrumental in five; complications were present in eight cases; 14 infants and three mothers died during delivery. Of 27 infants whose sex was mentioned 13 were males and 14 females. Of 37 infants, 20 weighed over seven pounds at birth.

Dr. SMITH ELY JELLIFFE said that it might not be inappropos to say something of Pellizzi's syndrome of precocious genital development, particularly in relation to defective pineal activity, since the speaker had raised the question of its possible relationship to hypopituitarism from hydrops of the infundibulum. In a series of cases reported with Dr. Bailey of pineal tumors

they had referred the adiposis so frequently seen in the pineal syndrome—Fröehlich cases—to the hydrops of the infundibulum and the cutting off of the nerve pathways to and from the hypophysis as they traversed the hypophyseal stalk. This interference with vegetative stimuli to or from the hypophysis was probably the cause of the faulty metabolic disturbance. The precocious sexual development, however, was a different affair and probably, as Marburg had suggested, a pure pineal syndrome. Pellizzi had erected his syndrome, however, solely on clinical grounds. He had no autopsy material. He later, through the work of Poà and Sarteschi in his laboratory, sought to give it an experimental foundation. Dr. Jelliffe referred to the recent work of Boehme (*Frankfurter Zeitschrift für Pathologie*, Vol. 22, 1919), who had recapitulated the evidence concerning pineal deficiency and early sexual maturity, and had furthermore described some entirely new findings which if further corroborated would be of considerable interest. In a teratoma of the pineal gland with precocious sexual development he had observed cells closely resembling the interstitial testicular cells of Leydig. These, if functioning early, might either directly or through gonadal interaction, be held to be the responsible factor in the precocious sexual development.

Books Received.

The MEDICAL RECORD is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.

ESSENTIALS OF TROPICAL MEDICINE. By WALTER E. MASTERS, M.D. 702 pages with illustrations. Published by William Wood & Company, New York.

EIGHTEENTH ANNUAL REPORT OF THE DIRECTOR OF THE BUREAU OF SCIENCE. By ELMER D. MERRILL. For the year ending December 31, 1919. 79 pages.

MORTALITY STATISTICS, 1919. Bulletin 144. 94 pages. Government Printing Office, Washington.

AIDS TO OSTEOLOGY. By PHILIP TURNER, M.D. 187 pages. Published by William Wood & Co., New York.

THE SOCIAL DISEASES. By Dr. J. HERICOURT. 246 pages. Published by E. P. Dutton & Co., New York.

CLEVELAND HOSPITAL AND HEALTH SURVEY. In Eleven Parts. Published by the Cleveland Hospital Council, Cleveland.

A NATURALIST ON LAKE VICTORIA. By G. D. HALE CARPENTER. 332 pages with illustrations. Published by E. P. Dutton & Co., New York.

HEART AFFECTIONS, THEIR RECOGNITION AND TREATMENT. By S. CALVIN SMITH, M.D. 440 pages with illustrations. Published by F. A. Davis Company, Philadelphia.

DAS EHRECHT DER GEISTESKRANKEN UND NERVOSEN. By Prof. Dr. A. H. HUBER. 87 pages. Published by A. Marcus and E. Webers Verlag, Bonn.

ÜBER DIE THERMOSTRESISTENZ DER SYPHILISIERER. By J. A. MURTO. 146 pages. Published by the Societas Medicorum Fennica "Duodecim," Helsingfors.

Ein BEITRAG ZUR FRAGE VON DER BEHANDLUNG DER GEBURT BEI DEN SOG. DEFLEXIONSLAGEN. By S. E. WICHMANN. 124 pages. Published by the Societas Medicorum Fennica "Duodecim," Helsingfors.

PULMONARY TUBERCULOSIS. By EDWARD O. OTIS, M.D. 202 pages with illustrations. Published by W. M. Leonard, Boston.

WIENER ARCHIV FÜR INNERE MEDIZIN. Edited by W. FALTA and K. F. WENCKEBACH. 188 pages. Published by Urban & Schwarzenberg, Berlin and Vienna.

ANNALS OF ROENTGENOLOGY. Volume I. Edited by JAMES T. CASE, M.D. 42 Roentgen Ray Studies on 21 photographic plates and 11 text illustrations. By FREDERICK M. LAW, M.D. Published by Paul B. Hoeber, New York.

THE ORIGIN AND DEVELOPMENT OF THE NERVOUS SYSTEM. By CHARLES MANNING CHILD. 296 pages with illustrations. The University of Chicago Press, Chicago.

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Original Articles.

ON THE RESPONSIBILITY OF THE GENERAL PRACTITIONER IN REGARD TO CANCER.*

By L. DUNCAN BULKLEY, A.M., M.D.,

NEW YORK.

SENIOR PHYSICIAN TO THE NEW YORK SKIN AND CANCER HOSPITAL, ETC.

CANCER if left entirely to itself may be said to be always fatal; the rare exceptions prove the rule. According to surgical authorities the mortality of those once affected with cancer (excluding cutaneous epithelioma) is 90 per cent., under present modes of treatment. It is well recognized that the death rate has been steadily and alarmingly rising of late years in the United States, and almost everywhere, during the last 20 years certainly; and in New York City during the week ending December 4, 1920, there were 121 deaths recorded from cancer, or more than 17 per day, even more than from tuberculosis. In New York City the recorded deaths from cancer, from July 1 to December 31, 1920, were 2,691, and those from tuberculosis 2,669, or 22 less than from cancer.

It may seem a strange thing to assert, but really the general practitioner is largely responsible for this sad mortality from this dread disease.

By great medical effort on the part of the profession at large, with great personal attention and skill of certain medical men, the mortality from tuberculosis has been reduced almost 30 per cent. since the year 1900, whereas by turning the disease over largely to the surgeons, the death rate from cancer has increased almost 30 per cent., as much as that of tuberculosis has diminished, during this same period. Is it not, therefore, time to stop and consider if this *ignoring* of cancer by physicians has not resulted from *ignorance* of its true nature, and if the *neglect* of the study of the medical aspects of the disease has not resulted in a *negligence* which is not wholly excusable?

All recognize that the early detection of tuberculosis is a most important element in connection with its treatment and cure, and surgeons have long and strenuously urged that the early diagnosis of cancer is most important, if there is to be any hope at all in regard to its successful surgical treatment; for they all acknowledge that fully one-half of all cases (some say 75 to 80 per cent.) come to them too late to expect any real and permanent benefit from the knife. If the surgical aspect of this is true, as is doubtful in the light of the ex-

perience of those who have seen the multitudes of recurrent cases, even after very early operations, it is particularly true in regard to the medical treatment of cancer: for when the disease has lasted a long time, and when there are already many metastases, each contributing to the further poisoning of the system, and especially in recurrences after surgical operations, the medical cure of the disease is most difficult. But happily even in these distressing, inoperable, and recurrent cases very much can be accomplished by the use of careful, patient, and prolonged medical measures, as experience abundantly shows.

Now the general practitioner sees patients both with tuberculous disease and with cancer in their earliest stages, indeed the family physician sees and knows his patient long before any possible physical manifestation of either disease reveals itself to the sight or touch; and if he is on the look-out for cancer as well as tuberculosis, and knows the condition of system or the habits of the patient leading up to either, he certainly can ward off a very considerable proportion of both diseases. For it is to be remembered that the definite lesions, afterwards recognized as cancer or tuberculosis, are but the *result of product* of a preceding, long continued error in life, a culmination of faulty living which it is his duty to discover and overcome. The mass which we call cancer is but the departure of previously normal body cells, slowly augmenting in number until it is recognizable by sight, touch, or otherwise. The mass has not developed in a day or a week, but begins with a single cell or cells, which have renounced their allegiance to normal body control, and instead of performing their normal functions or producing homologous tissue, have broken away and gone on an erratic and destructive course, forming heterologous tissue, possibly for months; this latter tissue is not only of no use to the system but tends to break down, and the process thus once started tends to continue, and, with the unchecked errors of system which first started the diseased process, it commonly proves ultimately fatal. Some one has likened the whole thing to a mutiny in an army or on shipboard, beginning with one or two persons, who, resenting a faulty quality or quantity of food were able to make the discontent spread, until large numbers were similarly infected and great harm resulted, until the errors in nutrition were rectified.

There need be no mystery in regard to cancer. Everything has a definite cause and cancer is no exception. It is no extraordinary or sudden invasion by some occult outside agency. All ob-

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servers are agreed that it is *not* parasitic and that it is *not* contagious; no surgeon, nurse, or pathologist, coming in contact with cancerous tissue has ever been infected. But the accumulating evidence all points to an endogenous cause, resulting from systemic errors, even as are gout, arteriosclerosis, rickets, obesity, and many other maladies, which are more or less successfully met and overcome, without our being able to point to any one single cause for any of them.

The real cancer problem, therefore, is to discover and rectify in each individual the wrong elements of life which lead up to the faulty condition of the blood current, which should supply such perfect nutrition to all the cells composing the body that none of them will want to go astray and pursue an abnormal, wild, and destructive course, like soldiers who have mutinied against improper or insufficient rations; for the "blood is the life," and if exactly the proper blood is furnished, with exactly the proper elements of nutrition, correctly elaborated by the various organs of the body, including the endocrinous glands, all the cells of the body, being properly nourished by it, will perform their functions and not have cause to rebel. If any have already rebelled they can be brought to allegiance by careful attention to their wants, by diet, hygiene, and proper medication, and even masses which have been formed can be dissipated and disintegrated and absorbed; just as pleuritic effusions, arthritic deposits, and rickety changes can be dissipated by proper remedial measures, equally well with the callus formed around fractured bones.

The responsibility of the general practitioner in regard to cancer, therefore, lies along several lines. Great emphasis has been laid by the surgeons upon the very early recognition of the disease when there have already developed lesions which can be recognized by the sight or touch. This is undoubtedly most important, but I would stress the point that he should do more than this. As a family physician he should know his patients so thoroughly that he can foresee when they are drifting toward the cancer maelstrom, by their habits of life, overeating or eating wrongly, self indulgence, indolence, etc. For it has been clearly shown that cancer is more than *twice* as prevalent among the well-to-do, self-indulgent, and indolent class in the richer districts of London than among the general average in the whole land. While cancer has been shown *not* to be hereditary, there is no question but that if cancer has been prevalent in a family, the same customs or habits of life, which have been more or less handed down, can and will sometimes cause the disease to occur in descendants.

Time does not permit of detailing as fully as might be desired the exact elements leading toward cancer which are to be looked for and remedied or modified by the family physician; these have been developed more or less fully in other writings, but some mention may be made of them with advantage.

Cancer and tuberculosis stand at the opposite ends of nutrition. Tuberculosis subjects are as a rule underfed or poorly nourished and overworked, while cancer subjects are as a rule overfed and underworked. Even Ewing, in his nas-

terly work on neoplastic diseases, repeatedly speaks of cancer cells as being overnourished, while many clinicians have called attention to overfeeding and improper food as, at least, a contributory cause of cancer. Very many during the past hundred years have alluded to this, and especially to overindulgence in protein foods. And in regard to both of these, long experience has taught me that this is abundantly true. For years I have treated innumerable cases of cancer, often with marvelous results, with an absolutely vegetarian diet and other measures, some patients for years continuously.

Constipation, or imperfect intestinal excretion, is an almost universal condition in cancer patients, and unquestionably has a most important bearing on the disease, so much so that some observers reckon that colonic infection plays a great part in the depreciation of the blood leading up to cancer, which I most strongly endorse.

Urinary derangements, or deficiency in regard to the excretion of proper solid constituents in proportion to the body weight of the individual, also play a most important part in the causation of cancer. Repeatedly I have found them not one-half the amount called for by the patient's weight, and age and as the cancer has improved under the treatment given the urinary secretion has returned to its normal proportion of solid elements. Time does not permit of an elaboration of this point, or a description of the technical details in carrying out the study, which have been repeatedly dwelt upon in writing. The matter is not difficult to carry out, but it is a little tedious and troublesome to watch the daily output of urine, as I have often had done for weeks or months, and in some cases for several years.

The saliva, which has so much to do with digestion, is constantly found at fault, being acid instead of alkaline, both in early and late cancer, and in the hospital, especially, I have had it tested and recorded 15 minutes before and 15 minutes after eating, over long periods. As the disease improves under proper medical treatment the reaction changes and becomes normal, if one can succeed in getting the patient to carry out proper and prolonged mastication. This latter is a most important feature in carrying out the medical cure of cancer, as indicated on the diet card, which every patient has to follow exactly.

Overeating and erroneous eating have been mentioned as elements in the causation and continuance of cancer, and this matter must be sedulously looked into and controlled by the family physician, both before the full development of a cancerous lesion, and long afterwards, even after a surgical operation. x-rays, radium, etc.

The protein intake has a very important relation to the development and continuance of cancer, and some reviewers of my books, as also medical writers, have connected my name solely with a non-meat diet as a cure for cancer; the error of this is readily seen from what has preceded. But that animal protein has a great deal to do with the genesis and continuation of cancer there is no doubt, as I have repeatedly shown statistically and clinically. But protein is necessary for the formation of the cell and its nucleus, and animals secure

sufficient protein from the vegetable kingdom, and so can man, as do many tribes and nations, and hosts of vegetarians in civilized life. On the other hand excess of animal protein causes many ills, as all are aware, and statistics show that cancer has increased in many regions proportionally to the increase in the consumption of meat, while it is almost unknown where meat is not used. The family physician can, therefore, aid greatly in the diminution of the morbidity as also the mortality of cancer.

When for any reason cancer has become developed, so as to show a neoplastic tumor anywhere, the general practitioner has still a very great responsibility.

Heretofore the single thought of the physician has been to consult with or turn the patient entirely over to a surgeon, according to the still prevalent idea that an operation affords the only possible hope for such a case. But the general physician, being the family adviser has to decide whether to counsel the patient or friends to take the chances of operative removal, which thus far has failed to check the rising mortality, which surgeons agree attends 90 per cent. of all cases once affected, or to advise careful and complete medical treatment, which shows a very much lower mortality, and with far greater comfort to the patient. A Swiss physician, Dr. Aebli, made a study of a large number of operative cases with an equal number of those not operated on, and found that the average length of life in the former did not exceed that in the latter, although these latter did not have any special medical treatment, only general care by family physicians. Dr. Ewing, in his purely scientific book on neoplastic diseases states that from his large observation, as a pathologist, secondary operations on recurrent cases shorten life, while we all know that the pain attending cancer recurring after operative procedures is commonly most distressing.

It is a little curious that the surgeon, because he is a surgeon, whatever his experience may be, is supposed to know all about cancer, and that these cases belong exclusively to him. No one honors the surgeon, and the wonderful advances he has made in certain lines of surgery, more than the present writer, but as a rule the surgeon does not generally think along constitutional and metabolic lines, but confines his attention largely to the knife and more recently also to x-rays and radium, all of which attack only the *local products* of the disease cancer; while the constitutional condition, which first produced the local lesion is left unchanged, and pretty certainly will reproduce the neoplastic growth in or near the original site or elsewhere, partly by metastasis. Over one hundred years ago the celebrated English surgeon, Dr. Abernethy, remarked, in his classical book on tumors, as follows: "There can be no subject which I think more likely to interest the mind of the surgeon than that of an endeavor to amend and alter the state of the cancerous constitution. The best timed and best conducted operation brings with it nothing but disgrace, if the diseased propensities of the constitution are active and powerful. It is after an operation that, in my opinion we are most particularly incited to regulate the constitution, lest the disease should be revived or renewed by

its disturbance." And from then down to the present time many physicians and surgeons of prominence, whom I have elsewhere quoted, have, often in very strong language, declared emphatically a similar belief. But all these brave and forcible expressions seem to have been overlooked, forgotten, or ignored by the medical profession in recent years.

As I have already said it is the general practitioner who has to decide, which course it is best for the patient to pursue, and although his advice may not be followed, owing to the glamour of surgery and its often spectacular results, and the almost universal belief of the laity, guided by common medical and surgical opinion, he at least can feel that he has done his duty.

If happily he has advised an anti-operative course, and the advice has been followed, he has now a still greater responsibility. For unless a proper medical course is accurately followed out with great assiduity, patience, and perseverance, and over a very long time, months or even years, the disease will not yield entirely and the patient remain free from the threatening calamity. Even as in tuberculosis, the course of treatment must be exact and rigidly carried out for a length of time, or there will be a recrudescence, should the patient return to the same physical conditions of life as before; for instance if he should live in damp, unhealthy quarters, avoid fresh air, eat wrongly, etc.

Time does not allow our dwelling long on the various elements which enter into the medical cure of cancer, which have been elaborated more or less fully in my books and other writings, but I may say that there is nothing in them which an intelligent, educated, earnest, and patient general practitioner cannot carry out successfully, if those qualities are really put into the conduct of the case. I do not, of course, mean to imply that any one can check or cure all cases of cancer, for cancer has baffled the profession for years and certainly in many it will be already too far advanced, or they seem to have too strong a tendency to the disease to have it yield readily to even the most careful treatment. But from long experience I am firmly convinced that if the general practitioner were to take up in earnest the study of cancer, and could and would apply sufficient acumen, diligence, and patience in regard to the necessary details of treatment, such as have been indicated here and elsewhere, he would in the average show a far lower rate of mortality than at present obtains throughout this and other countries.

The first requisite for a successful carrying out of the medical treatment of cancer is to have a firm and fixed belief in the propositions which have been presented here and elsewhere. There must be so great a confidence in it that he will not be discouraged either at complete failures in certain cases, or at unfavorable turns in others, but must always be ready and able to meet emergencies and to seek out where the error in treatment lies, and try to rectify it. For, as before remarked, everything has a cause, and cancer is no exception.

The next requisite is that he must be so persuaded in his own mind of the correctness of the theory and plan of treatment that he can convince

and satisfy the patient that he or she is pursuing absolutely the best course, and although the disease is reckoned as a desperate one, that a faithful pursuance of a proper course offers the best hope of ultimate recovery, or at least the best chance of prolonging life and escaping pain; this I have shown by many undoubted cases of cancer in various locations. For the patient will undoubtedly be beset by many friends, as well as physicians and surgeons who will stoutly claim the contrary; some of my patients after recovery have told me that they suffered more from this cause than from the disease or its treatment.

It will unquestionably be difficult in many cases to hold the patient faithful to this line of treatment over a sufficient length of time to effect the best results. They must understand the difference between the single, seemingly brilliant result of a surgical excision, with its too commonly unfavorable ultimate results, and the slow, patient effort to remove the basic cause of the disease and induce absorption or internal disintegration of the offending mass. Some will weary of the dietary and hygienic restrictions, and of the long-continued taking of the necessary remedies, and certain of my patients have yielded to the solicitation of friends and medical men, and have undergone operation, which I have often heard them regret afterwards.

The physician must see to it that every necessary detail of treatment is faithfully and accurately carried out. To accomplish this great care and patience must be exercised at each interview, which should be rather frequent, to inquire particularly into every detail, often by cross questioning; for the average person is unaccustomed to consider small details of absolute importance, and many get weary and careless in following out routine treatment in such a chronic disease as tuberculosis or cancer.

I think it is best for the patient to know that he or she has cancer (although there may be exceptions) and understand so fully from the beginning, and to be reminded frequently that the success of medical treatment depends very largely upon himself. Ordinarily in this disease the patient expects the surgeon to do everything, and the surgeon is so accustomed to leaving nature to heal the wounds he has made, or to unite the broken bones he has set and protected, that he does not have thought sufficient in regard to the correction of the elements of life which have to do with such a disease as cancer. For it must ever be borne in mind, as already mentioned, that the diseased mass, which we call cancer, is only the *product* of a previous long-continued error of the system, which if allowed to continue will pretty certainly continue to produce similar lesions elsewhere, however frequently they may be removed surgically. It is quite as unreasonable to expect otherwise as to expect that the excision of a gouty toe, or a late syphilitic tumor, or a tuberculous joint would result in a perfect and permanent cure, if nothing more were done for the patient than the operation.

From all that has been said it can be readily understood that the too common custom of only watching a patient with a developing cancer, before instituting a medical or surgical cure, or do-

ing the same after a surgical operation, or the use of x-rays or radium, is a most serious and fatal mistake. Every day passed is lost time and endangers the ultimate success in the case, for when carcinosis is once fully established the true, basic cause of the disease increases with almost geometric rapidity.

It is true that in thus attacking the earliest suspected manifestations of cancer we may sometimes be dealing only with a relatively innocent condition, such as adenoma or mastitis in the breast, or an ulcer of the stomach or a chronic dyspeptic condition which might end in true cancer, or stone in the urinary or gall bladder, or fecal impaction somewhere in the intestine, all of which if not rectified may lead up to cancer.

Mention has been made of x-ray and radium, toward which the attention of every one is now directed in the vain hope that in them may be found the cure for cancer, and as the general practitioner always seems to suggest these, since the results of surgery have been shown to be so unsatisfactory as to the end results, a few words in regard to them may not be out of place.

The x-ray is certainly of great value in the cure of epithelioma of the skin, if properly used, and I have employed it very satisfactorily in scores or even hundreds of cases. Radium is also very effective in these cases, but is out of reach of most patients. Radium also has been reported on most favorably, by certain skilled experts with large supplies of the same, in certain cases of cancer of mucous surfaces, on the lip, tongue, inner cheek, and cervix uteri. But for cancer of deep organs little if anything can be done with this agent. Personally I have had little experience with it, but have seen many cases where it has been tried in vain, and also some patients who are loud in their attestations that the disease has been much worse since it was tried, and many cases of very serious and rebellious burns from x-ray and radium have come under my observation and treatment. The x-ray is lauded by many physicians and surgeons as an adjunct to surgery, both before and after operative procedure, and as of value in checking and removing metastatic deposits in lymph glands. But it is a delusion to trust to either x-ray or radium in real internal cancer; their action is but local, like surgery, possibly causing a local lesion to diminish or disappear, but they cannot affect favorably the basic, constitutional causes of the disease, and so cannot effect a cure.

In regard to the various suggestions and trials of different forms of serotherapy, which have been presented and vaunted, often by able and conscientious physicians, as well as by quacks, a few words may be said. To my mind there is an error in supposing that one or many injections of a foreign substance can ever reach the real cause of cancer, or so affect the system that a continuance of the evils which have produced the disease will not cause a recurrence of the same local manifestations, and will not in the end prove fatal. The great variety and different characters of these injections which have been suggested, tried, and failed, is indeed disheartening, and shows that a real cure cannot be expected along these lines.

Glandular extracts rest on an entirely different

basis, for the endocrinous or ductless glands undoubtedly play an important part in the mechanism and physiology of the system, and it may be possible that at some time we may learn just how they affect the condition of the blood, and may be able to utilize an extract of them in the control of cancer. We know already that there are some diseases in which disorder of ductless glands is implicated: such are myxedema and cretinism with the thyroid, Addison's disease and high blood pressure with the adrenals, and gigantism or acromegaly, due to disorder of the pituitary gland. Thyroid extract, when properly used, has already been shown to be of value in cancer. But, as before remarked, even a short course of any of these agencies cannot possibly be permanently effective if the dietetic and other causes of cancer are allowed to continue unchecked.

We have thus seen that the general practitioner has very much responsibility in regard to cancer, in all its stages, and even before it really begins. It has been seen how thoroughly wrong it is to ignore the disease, and to regard it as hopeless, and to shift at once the responsibility upon the surgeon, who does the best he knows how, and attacks the product of the disease with the knife, x-ray, or radium, but who, as a rule, does nothing to check the real basic cause of the same.

It is also seen how wrong it is to tamper with cancer, and only to wait and watch until it can be decided to let the surgeon have his sway, for surgeons all tell us that at least one-half of the cases come to them too late to expect any lasting benefit from an operation.

The family physician, therefore, should have charge of the patient from the moment that there is any suspicion or suggestion from any source that cancer threatens. Patient, careful investigation of the patient's life in every respect will commonly reveal errors of life, or even beginnings of disease of various kinds, including tuberculosis and cancer. This watchful care should be continued until it is assured that the danger of cancer has passed, and if perchance a tumor has developed the watchful family physician should hold on to the constitutional treatment, by dietary, hygienic, and medical measures until either all is dissipated or the patient succumbs to the poison. For even in the latest stages a very thorough medical course of treatment is of value, so that life may end gently and peaceably without a particle of morphine or other anodyne, as I have repeatedly witnessed. Indeed, as I look back upon my experience in private and hospital practice I am sure that those patients who have taken morphine have suffered altogether far more than those who have not had it, for they did not require it if every detail of treatment was properly carried out. Morphine certainly checks the secretions and interferes with the action of the endocrinous glands, and thus increases the very errors which cause the neoplasm, keep it in existence, and cause pain; for cancer, if undisturbed, is not as a rule the terribly painful affection which it is commonly thought to be.

Time does not permit us to dwell longer on this most interesting subject, or to detail all the elements which go to make up the correct internal and local management of these cases, which have

been fully considered in other writings. But in closing I wish to emphasize as strongly as possible the responsibility of the general practitioner in regard to taking up seriously the study of this disease and its medical treatment, for cancer has long been really a disgrace to the medical profession. It is hardly conceivable that the profession would for so long a time tolerate the practice and treatment of any other disease which showed such a steady and lamentable rise in mortality as has cancer, namely, nearly 30 per cent. since 1900, while that of tuberculosis, under careful medical guidance has fallen nearly 30 per cent. in the same length of time.

10 EAST SIXTY-FIRST STREET.

EARLY AND IMPORTANT SYMPTOMS OF MENTAL DISEASES.*

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THE question is constantly occurring to the mind of the thinking physician: "Is insanity on the increase?" Just as we ask ourselves: "Is syphilis on the increase?" The press, and indeed, journals of all kinds have discussed the question, and, in most instances, in an intelligent and fairminded manner. Statistics have been brought into play, in most instances the articles have been fair, just and stimulating to the reader—to both professional and lay minds. The writers usually adopt the theory that the apparent increase is due to the ability of our profession to recognize either of the above diseases in their incipency and with more accuracy than formerly.

The stigma which formerly rested upon the unfortunate one who had lost her or his reason has become modified to some degree, and the cases, under these circumstances, are more apt to come under the notice of the public. This appears to be the more conspicuous reason given by the authors for the seeming increase of insanity. However, the poor and sick we have always with us. I do not intend to discuss the war psychoses, the subject of shell shock, the gassed, etc. In discussing the subject of the increase of insanity, the war, its effect upon the ones who remained, waited, and watched, and the new conditions of life, the economies which had to be practised by many, and the extravagances indulged in by others, not forgetting the radical change in women's attire and its effect upon the susceptibilities of some of the male sex—all this bears upon the question of the increase of insanity.

Even when the diagnosis of insanity is made early by the general practitioner or the family physician (I use the terms synonymously), or in consultation with the neurologist, there is no easy road to recovery. The persistency with which the general practitioner still relegates his cases of hysteria and neurasthenia to the scrap heap for undiagnosed functional nervous diseases, is appalling. It is to avoid this humiliating and grievous error that I am addressing you this evening.

*Read before the St. Joseph's Hospital Clinical Society.

With the exception of the insanities which accompany or follow infectious diseases, alcoholism, and those following operations and epilepsy, it may be stated as a principle that insanities come on slowly.

Let us take up first that most important disease, dementia precox, recently also termed "schizophrenia"—meaning a splitting up. I know of no disease in general medicine more important, more interesting, or more fascinating. Presenting innumerable phases to the physician, but only to him who wishes to do serious thinking, it is equally, if not more important than tuberculosis or cancer. Dementia precox lasts for years. None are cured; about 10 per cent. in private practice reach an apparently normal level. These unfortunates constitute 20 per cent. of all cases admitted to institutions for disease of the mind. The economic questions involved, therefore, may be readily understood.

The disease develops in young, educated, attractive persons. In the female illegitimate pregnancy or sex perversions are common. It is no respecter of the rich or poor. It occurs most frequently in young adults who are advanced educationally. The early symptoms of this disease, leading up to the most pronounced symptom, are confusion, listlessness, more or less apathy, difficulty in concentrating on studies or work, inability to concentrate on the matter in hand; a certain amount of antagonism is developed towards those formerly loved and respected; there is a tendency to secretiveness—the patients do not wish to seek their former friends and companions. The female who was formerly the personification of modesty will become erotic. She will lie abed far beyond the accustomed hour, and it is difficult to get her up. If observed closely, her movements suggest eroticism. She may be practising masturbation. Both male and female subjects soon show inability to keep up with their studies; application to study and concentration become increasingly difficult; they fall behind and soon give up the pursuit of education. In the male a change of occupation without adequate reason should be looked upon with suspicion.

How can one confuse this picture with hysteria or neurasthenia? There are no attacks excepting in rare cases of crying or laughing. There are no palsies and no anesthetics. Neurasthenia is a fatigue neurosis. Neither time nor occasion permits me to discuss Babinski's theory in relation to these latter diseases.

During the prodromal period of dementia precox the patients may be very much depressed at times, indeed suicide is not uncommon. How often do we read in the lay press of suicides of young persons where the reason is not even suspected. These patients also complain of somatic symptoms; of indigestion, abdominal pains, palpitation of the heart, etc., etc., and I regret to be compelled to state that many an unwarranted operation has been performed by my gynecologic friends on these pitiful subjects. The disease progresses steadily. The symptoms enumerated in the foregoing now become so pronounced that the patient's attitude and conduct become so peculiar that medical aid is sought.

Let us review the earliest symptoms of this disease. An indifference to the ordinary routine of life, whether it be school or occupation, curious antagonism to a parent, brother, sister, or devoted friends. Important events or incidents are treated in a light-hearted manner. A death, a serious accident, any calamity, will be related by the patient accompanied by silly behavior or laughter (paramimia).

To the trained observer—and nothing tends to train the mind more accurately than watching the bizarre symptoms of a case of dementia precox—it will be noticed soon that the patient is somewhat confused. Indeed, confusion is one of the earliest and most important symptoms. Hallucinations of hearing are considered by some distinguished authorities as pathognomonic of dementia precox. It would be better to say that we should look with suspicion upon a diagnosis of dementia precox without hallucinations of hearing. Nevertheless, I have seen cases of dementia precox without hallucinations of hearing. Visual hallucinations are not so common. In the beginning of this disease the patient hears noises not voices in his ears. Singing, roaring, whistling, buzzing, "simple noises." But as the case advances the patient hears voices; she hears voices calling her by name. The voices may command her to do things, to commit suicide. They may pertain to simple subjects but they more often pertain to disgusting and obscene matters.

You will remember that I mentioned among these curious and bizarre symptoms of this complex disease, antagonism. If this particular symptom is carefully analyzed you will find that it often partakes of the nature of "negativism," as it is technically termed. In other words, the patient, instead of following a request or a command, will do just the opposite. If you ask him to open the mouth, he will close it. If you ask him to stand up, he will sit down, etc. It is true that this is not always one of the earliest symptoms, and it is supposed to respond to the hallucination of hearing, which instructs the patient to do otherwise than as commanded. Katatonia, or waxy flexibility, is another symptom, like so many others which appear later, and which in this paper I cannot dwell upon.

A test of the greatest significance in deciding upon an early diagnosis of dementia precox is the Aberdalen, or a modification of it, called the sex-gland reaction. Dr. E. Corson White has carried on this test for me, for years, and in a great number of cases. All the ductless glands of the body are examined; a specific and typical reaction of the sex glands is obtained. That is, in the male, the testicles react in a certain manner, and in the female, the ovaries. Not once has Dr. White failed me in the correct interpretation of the diagnosis. Where the sex-gland reaction could not be obtained, the cases invariably proved not to be dementia precox. I want to take this opportunity to express my gratitude to Dr. White for her splendid work and in the examination of many patients without pecuniary reward.

Following the lead of Kraepelin, and to make a general survey of the psychic, clinical picture of dementia precox, attention is called to two prin-

cial groups of disorders which characterize the malady. On the one hand we observe a weakening of those emotional activities which permanently form the mainsprings of volition. In connection with this, mental activity and instinct for occupation become mute. The result of this part of the morbid process is emotional dulness, failure of mental activities, loss of mastery over volition, of endeavor and of ability for independent action. The essence of personality is thereby destroyed, the best and most precious part of its being, as Greisinger once expressed it, is "torn from her." It is worthy of note in any case that memory and acquired mental proficiency may occasionally be preserved in a surprising way when there is complete and final destruction of the personality itself.

The second group of disorders, which gives dementia precox its peculiar stamp has been examined in detail especially by Stransky. It consists in the loss of the inner unity of the activities of intellect, emotion, and volition in themselves and among one another. Bleuler describes them as incoherence of the train of thought, in the sharp change of moods as well as in the desultoriness and derailment in practical work. But further, the near connection between thinking and feeling, between deliberation and emotional activity on the one hand, and practical work on the other, is more or less lost. Emotions do not correspond to ideas. The patients laugh and weep without recognizable cause, without any relation to their circumstance and their experience. They smile while they narrate the tale of their attempts at suicide. They are very much pleased that they chatter so foolishly and must remain in the institution permanently; on the most insignificant occasion they fall into violent terror or outbursts of rage, and then immediately into a neighing laugh. It is just this disagreement between the idea and emotion that gives their behavior the stamp of silliness.

The next psychosis to which I would call attention is manic-depressive insanity, closely related to dementia precox. Indeed, in dementia precox we sometimes meet with a manic-depressive phase, and in the early stages the diagnosis is often extremely difficult. It would be much easier to describe this disorder and to give you case histories after it has reached its full development, than to limit myself to the early symptoms. Manic-depressive insanity may range from the mild form of hypomania to the more pronounced forms of acute mania and delirious mania. We have in these cases emotional exaltation, flight of ideas and psychomotor excitement. In the depressive phase it may range from simple retardation to the more pronounced forms of acute melancholia and depressive stupor, emotional depression, difficulty in thinking and psychomotor retardation. We also have a mixed phase, in which we have a combination of manic and depressive symptoms, as agitated depression.

By circular insanity we mean when one phase is followed immediately by another phase.

How many of us are not subject to episodes of exaltation and depression. Of course, in normals these conditions are occasioned by environment,

endogenous states, very frequently the colon bacillus. A brisk purge, a good walk, a pleasant piece of news, and, after all is said and done, a healthy constitution, and we are ourselves again. But those with a constitutional taint are not so fortunate. The depression, accompanied by psychomotor inactivity, persists. The depression may last for days, weeks, or even months. Or it will be succeeded by exaltation, just the reverse of a depression. These cycles are irregular, they follow no rule. Exaltation may precede the depression. Which may last the longer, the depression or the exaltation?—that again follows no law. If the depression reaches the depth of a melancholia, or the excitement of a mania, you would not need a description of the disease. We are constantly surrounded by persons who are suffering with prolonged depression. Then we have that interesting individual, the hypomaniac, who builds cities, railroads, and churches. It is true that it is only when this individual commits some overt act that he comes under the observation of the physician or under the ban of the law. Psychomotor activity, mentally exaggerated, cock-sure of themselves—many successful business and professional men are hypomaniacs. If you have the privilege of examining these persons over a long period of time, you will find that they have their periods of depression, and that during this particular period their life work frequently proves a failure.

I have related to you concisely the early symptoms of two of the affective psychoses, dementia precox and manic-depressive insanity. I shall not pursue the psychoses further, but take up that most interesting and much written about disease—parietic dementia, general paralysis of the insane, or dementia paralytica, a disease which destroys the mental functions and deteriorates the entire physical organism. If recognized in its earliest stages, the disease can be arrested, perhaps cured. At least, the patient's life may be prolonged, and he may continue a useful existence. When the disease has progressed beyond the initial stage, arrest is difficult, if not impossible. In the fully developed stage, treatment is absolutely futile. The patient often becomes a burden to his family, or a ward of the county or State. At the present time we do not hear so much about the prodromal or pre-parietic stage, the fully developed disease and the terminal stage. This is due to the advent of the Wassermann test, which is of such tremendous importance in the diagnosis of all syphilitic diseases.

Why some syphilitic individuals develop paresis and others do not is still an interesting and mooted question. It is supposed that the highly neurotic individual is prone to paresis. The Hebbrews were at one time supposed to be comparatively free from paresis, but this is no longer true. They are afflicted in relative proportion. Is it possible that a laxity of their traditional family life, and what this implies, with their highly organized nervous system, has been the cause of the appearance of paresis in due proportion among them? Ireland was at one time thought to be almost free from paresis, but this, also, is no longer true, owing, I believe, to closer

observation and more accurate diagnosis. Kraft-Ebing maintained years ago that the predisposition to paresis is acquired and not hereditary. The African race is exceedingly liable to paresis. The disease is more common among males than females. Paresis is much more common among the lower than the higher class of females. It is most common between the ages of thirty and fifty years; it is infrequent after sixty years. An important factor relating to the time at which paresis manifests itself is the wear and tear to which the patient has been subjected. At or about middle life, when the stress of life in most people is about the greatest, and the resistance is on the wane, the toxin of syphilis, or the spirochete itself, which up to this time may have been dormant, awakens to activity and to destruction. Whether there is a special strain of the spirochete, which causes paresis, and another tabes, is another intensely interesting question, which is now under investigation. Paretics live at most from three to five years. They generally grow fat. Tabetics live for years and die of some intercurrent disease. In other words, great and persistent business and professional worries, disappointments and overexertion, trauma to the head—all may be considered exciting causes. Alcohol, it is needless for me to say, does not cause paresis, but early paretics become tipplers on account of an unaccountable depression. A man who formerly did not know the meaning of the word fatigue soon becomes tired. He notices that he is unable to perform the same amount of mental and physical work that he formerly did with ease. His staying powers become greatly lessened. Concentration becomes a positive burden. Sleepfulness is an early and most valuable symptom. Business men will fall asleep during most important conferences, board meetings, etc. Gradually it is noted that the patient not only lacks his former alertness in grasping and dealing with the difficult problems of the day, but he fails to grasp and forgets about the ordinary matters of daily life. The man with a system becomes careless, even reckless; the fastidious man becomes untidy; he forgets to arrange his clothing properly when it is imperative that he should. Table manners, formerly correct, become woefully lacking. It seems a trifling matter to speak of, but suspect the former particular man who appears before you with the evidence of his dinner on his waistcoat. A looseness and carelessness of speech becomes apparent; a distinct laxity of morals in a person who previously lived an exemplary life; excessive venery in a certain type of paretic is quite common. A complete change of character is sometimes perceptible. A degree of abandon sometimes occurs in the moral and business life of these patients that is appalling. Homes and fortunes have been wrecked. If time and space permitted, I could recite cases that would astonish you and that you would think almost unbelievable. We have in these cases everything from blunting of the emotions to moral degradation.

Please bear in mind that I am dwelling upon the earliest symptoms, before a division into the expansive or the depressed form can be made.

Now leaving what might be called the mental picture of this disease in its very earliest stages, what are some of the physical stigmata? By far the most important single symptom is the appearance of the pupil. Even in its earliest stages, the pupil undergoes changes. It may be fixed, responding only sluggishly to light or to accommodation. It may be unequal in size and not respond to light or accommodation; or again it may be irregular in outline, ovoid or egg shaped. In some cases, we have an Argyll-Robertson pupil. Do not infer from what I have said that this form of pupil means dementia paralytica, but it means a syphilitic pupil, and a syphilitic pupil, with the mental symptoms which I have described, would lead one at once to think of paresis. An irregular, or unequal pupil should be considered a syphilitic pupil until otherwise proved. Attacks, epileptic in character, frequently occur. They may occur with or without convulsive seizures. In other words, they may resemble fainting spells. The knee-jerks in the early stages are generally exaggerated. Careful examination of the tongue reveals a fine tremor, involving the muscles of that organ. A fine tremor of the muscles of the face, near and around the labio-facial fold, when the mouth is stretched wide open, can frequently be detected. Early and inexplicable fatigue, in contrast with former vigor, comes at the end of the day. Neurasthenics become active in the evening. Change of disposition or character—indifference to the niceties of life; impaired judgment; ideas of self-importance; exaltation, and, last of all, ideas of grandeur, combined with pupillary changes and a positive Wassermann reaction—these symptoms, I repeat, should make one give an exceedingly guarded prognosis.

My paper is perhaps already too long. I am aware that it contains nothing original. All that I have said can be found in many textbooks. If, however, I have brought some facts to your attention, each one of considerable importance, and with some deeper hidden significance than a mere mention may expose, if, I repeat, these facts have attracted your attention to these "subjects" whom we have always with us, then my work has been a pleasure.

1539 PINE STREET.

THE CRIMINAL.

BY PERRY M. LICHTENSTEIN, M.D., LL.B.

NEW YORK.

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AN ounce of prevention is better than a pound of cure. This is an old adage and a true one. Effort has been made to apply this principle to various conditions and subjects, including also the field of criminology, but owing to faulty theories and false methods, we have not been very successful in preventing crime. We can never hope to do away with crime entirely. That would obviously be an impossibility, but we can reduce crime to a minimum by seeking the cause and eliminating it. It is easy enough to keep a person in jail and see that he serves his term, but we have so far

found it rather difficult to create the moral and legal atmosphere which will bring the commission of crime down to a minimum.

Let us see what enters into the etiology of crime at the present time. What type of individual is the criminal? Shall we idolize him, as has been done recently or shall we treat him more sanely, taking into consideration his mental and physical condition and its probable relation to the criminal act of which the prisoner stands accused? Is there any definite classification of prisoners? I shall attempt to answer these questions.

At present I have found criminals composed of the following classes: Drug addicts, 20 per cent.; mental defectives, 20 per cent.; insane, 1 to 2 per cent. The remaining 58 or 59 per cent. are composed of prisoners whose criminal record and tendency may be directly traced to environment, opportunity, and temptation, and finally heredity.

It will be noted that drug addiction heads the list. This is so because at present addiction is greatly on the increase and is helping to fill our jails. Recently it was the practice of certain physicians to prescribe morphine, heorine, or cocaine, for a certain consideration. No honest effort was made to reduce the patient. The rapidity of reduction depended solely upon the resources of the patient. If the patient had sufficient means he could obtain as much of the drug as he desired. If he was poor, well, he was "out of luck" and had to suffer. In order to satisfy his craving he committed crimes so as to obtain sufficient money with which to purchase the drug. The fact that it is a crime to steal did not enter into consideration. The single desire uppermost in the addict's mind was to obtain the drug. In addition to prescribing morphine or heroine, the physician also prescribed cocaine, thereby fastening another habit on the individual.

At present there are few physicians indulging in this practice. This is due partly to the fact that several have been sent to prison by the Federal authorities, but mainly to the fact that enormous quantities of the drugs are being smuggled into this State and country, and that the same is being peddled by certain individuals who reap enormous profits. Commissioner Enright of the Police Department has recently appointed Dr. Carlton Simon as a Special Deputy, the sole idea being to solve the drug problem. There is no doubt that this is a wonderful step in the right direction, but with the laws as they exist at present, I fear that arrests will have but little effect in reaching a satisfactory ultimate result. We must have a new Federal law. At present the State and Federal laws governing narcotics conflict. The Board of Health rulings conflict with both these laws. There is, therefore, chaos. Commissioner James A. Hamilton and the author have for some time advocated the following law. Dr. Frank A. McGuire of the City Prison also advocates this law. It will be seen from the following that we advocate hospital treatment for the addict, followed by proper methods for rehabilitation and finally probation. There must be a total prohibition of the drug excepting for medicinal purposes. The following is the law advocated:

1. All narcotic drugs and their derivatives coming into the United States to be placed under the supervision of the United States Public Health Service.
2. The United States Public Health Service is to sell or dispense these drugs to the State Health Service of each State, record to be kept of same.
3. The State Health Service is to sell or dispense the drugs to the Board of Health of each city, record being kept of same.
4. The Board of Health to have stations in each district, open day and night, at which places physicians and druggists may obtain the drugs, a record being kept of same.
5. The establishment of dispensaries or receiving stations, where addicts may apply for treatment without fear of arrest and from which place they may be sent to certain designated hospitals to take the treatment.
6. The establishment of farms to which these addicts may be sent after being taken off the drug, and where they can remain for at least six months. Then to be placed on probation for at least two years and made to report once a month for examination; then to be returned to treatment if found that readmission has occurred.

If such a law is enacted it will do away with addiction as a cause of crime. The punishment can not be made too severe for those who sell or distribute the drug. The author wishes to state that in his opinion more has been accomplished recently in handling the drug situation than has been the case in any previous city administration. We must eliminate addiction as a cause of crime for in doing so we will be reducing crime approximately 20 per cent.

Mental defectiveness is another contributing factor in the production of crime. A mental defective is a potential criminal. He is easily led. He is susceptible to suggestion and seems to assimilate all that is bad and to reject all that is good. He differs in the main from the normal individual in that he thinks after he acts whereas the normal individual thinks before he acts. The defective, in other words, lacks judgment, and this is quite apparent to his associates of the criminal type, for they seize upon this weakness as displayed by word and actions of the defective, and make him their tool in the commission of crime. Investigation has shown that at least 20 per cent. of individuals coming to the City Prison (Tombs) are mental defectives. This is exclusive of drug addicts, many of whom are also mental defectives. How shall we remedy this condition? To answer this question is quite difficult. We cannot compel every individual to submit to intelligence tests; and even if an individual is found defective, it is beyond one's powers to force such an individual to enter an institution, if such measure is deemed advisable. I refer to individuals who have not committed a crime, but who, by virtue of being mental defectives, are potential criminals. The only solution of the problem, at present, is possible only after such an individual has been arrested. Then we have legal custody of him and can take measures to prevent him from ever again committing crimes.

What are we to do with such individuals? Let us consider the classification of defectives. As is well known, there are three classes; the idiot, the imbecile, and the moron. Concerning the idiot, it is quite evident that he should receive institutional treatment. I am in favor of keeping such an individual in an institution during his natural life. This is particularly the case where the individual has exhibited a criminal tendency. Such

an individual requires constant watching. He is not responsible for any act he commits and speaking in a medicolegal sense, he is less responsible than the criminal insane, for there are certain instances where a man may be suffering from paranoia or some other form of insanity and yet be fully responsible legally for the crime which he has committed. I will elaborate on this factor in my discussion of the criminal insane.

The imbecile also requires constant observation but not necessarily institutional treatment. If it is possible to improve his condition by either surgical treatment or educational methods, this should be done. If, however, it is impossible to improve his condition in any way, then it is my belief that he should receive institutional treatment indefinitely. Where the condition is the result of glandular defects or disorders of nutrition, steps should be taken to eliminate the cause. Where the defective condition is due to fracture or pressure produced by blood clot, it is our duty to advise surgical treatment and give the individual an opportunity again to approach the normal. It must be admitted, however, that up to the present, the results have not been very encouraging. Adenoid and tonsil cases should be operated upon, and where the teeth show decay, this condition should be corrected. I do not propose to go into great detail, but this much I do wish to impress upon the reader, and that is that certain individuals may be so benefited that they will not require continued institutional treatment, and that it is our duty to aid these people if there is even the slightest possibility of success as a result of treatment. I wish to add that, when an imbecile who has shown a criminal tendency is released from an institution, he should be put on parole for a period of not less than five years. He requires watching.

The moron is the third type of mental defective. There is, in my opinion, more hope for this individual than for the other two, just mentioned. When such an individual is arrested and convicted, he should not be sent to an insane asylum. The place for him is in the intermediary institution. The nearest approach to such institutions are those at Letchworth Village and Rome, N. Y. Such an individual is not benefited by prison. He is too susceptible to suggestion, and for him a prison is a school for crime. He should be taught a trade which will not require mental effort. Teach him to farm, wait on table, to do carpenter work. Let him do the work of a laborer. Don't make a clerk or bookkeeper of him. Teach him to correct his habits. By such correctional treatment you will aid him to correct his criminal tendencies. Study his faults and teach him reading, writing, and simple arithmetic. It is possible to make these individuals useful citizens. The defective is not aggressive enough mentally. It is necessary to stimulate him to greater effort and to encourage him in every way possible.

Taking into consideration the foregoing statements, it may readily be seen that there is great hope of eliminating the defective as a criminal. You can never entirely eliminate him, but you can bring commission of crimes by defectives down to a minimum.

Let us not overlook the fact that many prisoners in our institutions are very shrewd and clever. I refer to those who are not defectives. They very often simulate defectiveness. This is done with a purpose. They know that, if it is certified to that they are defectives and this matter is brought to the court's attention, or to the attention of the Parole Board, they can expect that some consideration will be shown them, either in passing sentence or in their early release on parole. For this reason both Dr. Frank A. McGuire and the author have discarded the Binet-Simon test entirely at the City Prison, Manhattan. Many of these prisoners have been through the test several times and can tell you what your next question will be. There is too much room for simulation when dealing with criminals. I do not propose to discuss the different intelligence tests in this article. Suffice it to state that one must be on his guard against simulation.

From 1 to 2 per cent. of crime is committed by the insane. Much may be accomplished to prevent crime by these individuals. They should, however, be given proper treatment and never be given an opportunity to commit crime. In a great number of such individuals we obtain a history of previous incarceration in insane asylums. The individual has probably been diagnosed as a manic-depressive, precox, or paranoiac. He has "cleared up" somewhat and been allowed to go at large. The next event in his life is usually the commission of a crime. Our insane asylums are so crowded at present that many patients are freed who really should remain in the asylums for a much longer period. It would obviously be unjust permanently to incarcerate the manic-depressive or precox, unless such individuals were in the terminal stage of the disease; but it is an injustice to the public to allow a paranoiac his freedom. This is particularly so in individuals suffering from delusions of persecution. We need look no further than the recent case of the late Dr. Mar-koe. His assassin had been in several insane asylums. His condition was diagnosed as paranoia, and yet he was allowed at large. Then, again, there are the organic insanities. People so afflicted should be permanently incarcerated. They are potential criminals. As concerns manic-depressive, precox, alcoholic psychotics, and other insane persons who apparently "clear up," it is my opinion that such people should be placed on parole for many years after leaving the insane asylum. This is particularly true of the first two, where the patient is subject to remissions. There must be some system of supervision and return to the insane asylum upon the slightest evidence of a remission. In a previous part of this article I stated that a man may be insane and yet not be considered legally insane. This is of importance, for in the insane judgment is usually impaired and the individual may commit an act which is not dominated by a delusion. In such cases I believe that the prisoner should be sent to an insane asylum despite the legal definition of insanity. His brain is diseased and in my opinion he is not as responsible for his act as is a normal individual. We find that an insane person who once commits a criminal act will again com-

mit a criminal act upon remission of his disease. The procedure in our insane asylums is to keep the person until he appears normal again and then return him for disposition by the court. That individual is set at large. When he has a remission, he again commits a crime and is again arrested. The practice of placing such people on parole and having them report at stated periods to a psychiatric clinic is therefore of evident importance in the consideration of the subject now under discussion. Has our policy been correct? Is it to the public interest to release such individuals? There is no doubt that a total release of such individuals or even a release with one year's parole is fraught with danger. Has the individual "cleared up" for good? In 90 per cent. of the cases our answer must be in the negative. Manic-depressive and precox cases are subject to remissions. The periods of intermission vary. In some individuals the period is longer than in others. The general rule, however, is that remissions do occur. If such individuals during these periods are subject to delusions of persecution, they are apt to commit crimes. Furthermore, if they once commit a crime while subject to such delusions, they are most apt to commit a crime upon the return of such delusions. The reason for proper precautions is, therefore, obvious. A person who is suffering from paranoia or from a paranoid trend should never be released. He is a dangerous individual. Suffice it to refer again to the case of the assassination of the late Dr. Markoe.

In the interest of the public, it must be said that our present definition of legal insanity is somewhat to blame for the release of insane persons. If a person knows the nature and quality of the act and knows the difference between right and wrong, he is legally sane. Consider carefully this definition. Then, again, consider also the fact that if a man is suffering from a delusion, and the delusion does not dominate the criminal act, he is legally sane. How does this work out? There is not a paranoiac who commits a crime subject to a delusion of persecution who does not show deliberation and intent and who does not therefore know the nature and quality of his act. In the case of *The People vs. Michael P. Mahoney*, the defendant was accused of shooting the Hon. Wm. H. Polk. He had attempted to kill the late Mayor John P. Mitchell. For weeks this defendant waited for his opportunity. He bought a revolver and bullets. He knew that when he placed the bullets in the revolver and pointed it at the Mayor and pulled the trigger he would injure or kill the Mayor. His intention was to kill. Therefore he knew the nature and quality of his act. He was declared insane solely because his act was dominated by a delusion and because he therefore believed that he was doing right. Our definition of insanity is obviously faulty. We have no adequate method of checking the moral monstrosity. He is checked when it is too late. Our definition does not bring him within the class of legal insane. The definition above quoted precludes such individuals. And yet they are undoubtedly a great menace. Take, for instance, the case of *People vs. Arthur Warren Waite*, the dentist who killed both his father-in-law and

mother-in-law. He was absolutely unmoral. We might term him a moral defective. If we expect to take measures concerning mental defectiveness we should include moral defectiveness. In the class of defectives we must include all sexual perverts. While not strictly insane, such people obviously are potential criminals. It is therefore imperative that measures be taken against such individuals when detected, for the benefit of society and at the same time for the purpose of reducing crime to a minimum.

I have previously made mention of the man suffering from a delusion which does not enter into the commission of the act. I have in mind one case in particular. In this instance the defendant believed that he was a great inventor and benefactor of humanity. He was arrested, accused of stealing a valise in the Grand Central Station. His delusion in no way dominated the act and he was therefore declared sane and sent to prison. If such an individual be undetected by the prison physician he will surely be allowed at large when he has served his sentence, and will be a public menace until he is again arrested. It is, therefore, evident that it should be the duty of commissions in lunacy to interpret broadly the definition of medicolegal insanity.

People suffering from organic insanity should be incarcerated for life. There is no hope that such individuals will recover.

From the foregoing it may therefore be said that disturbances in the function of the cerebrospinal system, as well as maldevelopment of that system, are important factors to be considered in discussing the causation of crime. It is the writer's opinion that much remains to be done in the practical application of this knowledge. Institutions should be established where both the mental and moral defective may be cared for. Remove this cause and you will have taken a great stride in the direction of public protection. In this respect much remains to be done by the medical fraternity. The physician and specialist owes as much a duty toward the public as does any ordinary citizen. As physicians we should aid in the maintenance of order. Let us therefore work together toward a common purpose and that is, to dispose adequately of the insane and mental and moral defectives in the proper institutions so as to eliminate them as a cause of crime.

Let us now consider the offender whose criminal tendencies may be attributed to environment, opportunity, and temptation, or heredity. We know that environment is a potent cause of crime. Due to improper home training the youth begins by "hanging out" on the corner with others. A social club is organized. "Crap shooting" and card playing as well as horse-race betting are the pastimes of the "social club." The next "hangout" of the gangster is the pool room. Here he meets criminals of all descriptions. Here he may learn to take drugs. Decent English in such places holds one up to ridicule and brands the youth as a "sissy." The next step is the cabaret. Here the youth hears suggestive songs; learns to dance passion-producing dances; sees the girls dressed in a way which might more appropriately be termed undressed; meets these girls and indulges

in sexual excesses, and finally winds up with some venereal disease. Very few of these individuals are adept at their every day business. The victim needs money in order to meet his "social" obligations. He needs money with which to pay his debts. Thus we see produced an excellent foundation for crime. The description just given is by no means a day dream. It is an exact description of the life history of the majority of offenders, particularly the habitual offenders. Who is to blame? First, the parents, and secondly, society. Parents are to blame for their laxity. Without doubt a girl requires closer watching than does a boy. Parents know this and oft are led astray by a misinterpretation of this fact. They believe that a boy requires no watching and that he can take care of himself. If he contracts a venereal disease and the father discovers it, he often overlooks the fact, or makes light of it, because in his youth he probably had contracted a similar disease and he believes in the saying so often heard, "You're not a citizen until you have had it." The young man requires strict watching these days. The rule should be laid down to him, requiring him to live up to certain moral standards. I do not wish to convey the thought to the reader that every boy who "hangs out" on street corners becomes a "crook." This is not so. The mere fact that a young man makes a practice of standing on the corner with others does not make him a thief. It is the laxity of home discipline and the following up of gang life that leads to crime.

How is society responsible? By permitting the lax moral atmosphere which now exists. More attention should be paid to the development of a moral sense in the child at school. The school should be the place not alone for mental development, but also for moral development. High school instructors and principals should place a ban upon silk stockings, low neck, transparent blouses, short dresses, and powder and paint among their students. This would be a good beginning. To verify my statement the reader need but visit any one of our high schools for girls.

Society should discourage daughters and sons from visiting cabarets. Society should boycott these places. Society should boycott all suggestive songs and dances. I know from reliable sources that it is practically impossible to have a song published through certain well known publishers which is not in some way suggestive. Compare some of our present day song "hits" with those of twenty years ago. It is impossible for the police to do anything toward remedying such conditions unless there is active cooperation from the public. I do not advocate puritanism. I do advocate a marked correction of present day social conditions.

This little discourse is probably not in strict line with medicine. It, however, deals with the moral sense and is therefore appropriate.

Concerning opportunity and temptation there is not much to be said. I have seen many young men in prison arrested for forgery or grand larceny whose downfall was due to these causes. The usual history is that the individual has been "playing the races" and lost heavily or else was "tipped off" on an opportunity to "clean up" in

the stock market and the "tip" proved false, or else has gotten into debt some other way. He is a bank clerk or he is employed where he has access to large sums of money. He usually comes from a good family. He had the opportunity to take money and he could not resist the temptation. This is a cause of crime which will never be eliminated. It dates back to the days of Adam and Eve, and serves to illustrate the weakness of human nature.

Let us also consider under this heading certain conditions which at present exist and are directly responsible for criminal acts. First and foremost is the deplorable condition of our subways, elevated railways, and street cars due to overcrowding. Think of our daughters placed at the mercy of degenerates. One need but enter the subway stations at Fourteenth or Forty-second streets any evening between the hours of 5 and 6. The burly subway guard keeps shoving men and women into the train caring little for the comfort of the people. Old and young, male and female, are shoved into the suffocating, already overcrowded trains and stand huddled together. What better field can be imagined for the degenerate and pick-pocket? Directly before you you may find an individual who breathes into your face. Now and then somebody coughs and another sneezes. What a fertile field for the communication of disease! Women who may be fortunate enough to occupy a seat are placed at the mercy of men standing. The latter in many instances delight in pressing their knees against those of the women and gain sexual excitation or satisfaction from the contact. Certainly something should be done to remedy this deplorable condition.

Next let us consider the moving pictures. In my opinion the great majority of pictures now exhibited are entirely moral and indeed of benefit to the people. There are, however, some pictures which should be suppressed. All suggestive scenes should be censored. Pictures dealing with sex education, while instructive, should, nevertheless, be limited in exhibition to those ranging in age from seventeen upward. Wild west pictures should be prohibited. They influence the youth and stimulate criminal tendencies.

Under the heading of opportunity and temptation we may properly consider unemployment and the soldier problem as a cause for the commission of crime. These two factors are closely associated. Unemployment is a direct reaction to prosperity which existed during the war. Such conditions exist following all wars. It is unnecessary to go into detail. We have not done our duty toward the soldier. While the war lasted he was a hero and nothing was too good for him. At present he is an outcast. He has been discharged from the army as physically fit, after having spent months on the firing line. He has been gassed and shell-shocked and as a result is left with a nervous system which is anything but evenly balanced. He has done his duty. Have we done ours? Emphatically no. Let the reader visit the prisons where these men are awaiting trial. In one cell you come upon a soldier who has his cell light shaded and who sits huddled in one corner. He is afraid. Afraid of what? He cannot tell you.

Pale and emaciated, eyes sunken, he is what remains of one whom the people worshipped as a hero. While one is speaking to him he suddenly falters, drops on his cot, the perspiration rolls from his skin, and his pulse becomes feeble and very rapid. What is the end? Ward's Island. You pass along, shake your head. Another case of shell shock. This boy was arrested for receiving stolen goods. His friends recognized in him a weak-minded individual and used him as their tool.

The next case is a prisoner who complains constantly of headaches and dizzy spells. He was gassed and shell-shocked. While walking along the street he would suddenly become lost and wander and when he came to would find himself in another place than his original destination. This man is accused of committing a crime which he does not remember. He tried to obtain a position but found it impossible to work indoors. He tried outside work. Everything went smoothly until the weather changed, when he would become "choked up," would feel as if he were smothering, cough incessantly, and on several occasions had hemorrhages. He became desperate. He committed a crime, the details of which he cannot remember.

These are not fantastic creations of the mind. They occur every day. In time of war we as a unit are willing to sacrifice everything for our country. To prevent the commission of crime by soldiers let the government do something for these unfortunates. I do not wish to convey the idea that every soldier who commits crime is in a way irresponsible. There is no doubt, however, that the great majority of those who have been gassed or shell-shocked are unstable.

Finally there is heredity as a cause of crime. There is a celebrated case of grandparents who had a pawnshop and were arrested for receiving stolen goods. Their children inherited a criminal tendency and several of them served terms in jail, and their children, too, in turn inherited the tendency, one son and one daughter being at various times arrested for larceny. Usually there is obtained a history of parents who were addicted to liquor. The father had served time in jail so often that it was looked upon as commonplace in the family and the children growing up in such environment took to crime as a natural sequence. Very little can be accomplished toward eliminating such individuals as causative factors. The suggestion at once arises that such people should not have children. There is, however, no means of controlling the situation.

In conclusion I wish to state that it is my belief that crime can be reduced to a minimum if we seek the cause and eliminate that. We shall never see the time when jails will be unnecessary.

Eliminate the cause and you have done everything possible to bring about the ideal situation.

958 EAST 156TH STREET.

Cosmetic Nasal Surgery.—Esthetic plastic surgery of the nose is apparently extending over the world as a specialty. Dr. J. Bourguet publishes an illustrated article on the subject in the *Revista de Medicina y Cirugía* of Havana. The late Dr. John O. Roe is given credit as the originator of esthetic nasal surgery.

CONGENITAL HYPERTROPHIC PYLORIC STENOSIS IN INFANTS.

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CONGENITAL hypertrophic pyloric stenosis is a condition occurring in infancy, characterized by an enormous hypertrophy of the pyloric sphincter which, in turn, leads to pyloric obstruction with its attendant symptoms. The names of four men are preeminently associated with this disease: Downes,¹ Strauss,² Bevan,³ and Dean Lewis.⁴

Etiology.—The etiology is quite speculative. The evidence seems to point to some disturbance of the sympathetic nervous system, causing overaction of the muscle and consequent hypertrophy. It is not known whether the hypertrophy begins before birth in every case, although one case of pyloric tumor in a seven months fetus has been reported. Strauss,² at operation, has noticed rhythmic contractions of the pylorus, and he believes that these give rise to the hypertrophy. He calls attention to the fact that the tumor is always proportionate in size to the age of the patient; that is to say, the younger the patient, the smaller the tumor, and vice versa.

Thomson of Edinburgh, writing in one of the Osler Memorial Volumes,⁵ advances the belief that the hypertrophy is due to an incoordinated overaction of the sphincter. His explanation is as follows:

It is known that the normal foetus swallows a considerable quantity of amniotic fluid during intra-uterine life; and, as this implies a certain amount of co-ordinated muscular action of the stomach and pylorus, it is believed that the supposed in-co-ordination between these parts begins when the fluid first passes through them. There is reason to believe, however, that the muscular action may not at this period be vigorous or continuous, and that therefore, by the time the child is born, only a small degree of hypertrophy will have occurred. After birth, when regular feeding has begun, the force of the muscular action and the in-co-ordination will tend to increase so that the hypertrophy will progress much more rapidly than during intra-uterine life. It is in accordance with medical, surgical and pathological experience that the pyloric tumor does grow larger and harder while the active symptoms continue. This is just what might be expected, for, as John Hunter pointed out long ago, a tendency to hypertrophy as the result of repeated forcible contractions is a property of all muscles and is greater in involuntary than in voluntary muscles. It is also extremely probable that tissue-growth of this sort is specially active in early infancy.

As to the frequency of the condition, Hill⁶ states that it occurs once in every 200 babies.

Symptoms.—In most cases symptoms do not appear earlier than ten days or two weeks, the child gaining in weight quite normally, nothing out of the usual being noticed up to this time. The majority of cases begin between the second and fourth weeks, although the onset may be as late as the sixth or eighth week. The onset, as a rule, is quite sudden. Without any apparent cause, the child begins to vomit and no relief is to be had. The vomiting is projectile in type, persistent, and not amenable to the usual therapeutic measures. The child is likely to be very hungry and satisfying its hunger tends to accentuate the distressing vomiting. Vomiting may follow each nursing or the stomach may be emptied at alternate periods. Vomiting of small quantities of ingested food is

the exception; the rule is to expect large quantities, forcefully projected from the mouth. The vomitus consists of food taken, plus the secretions from the stomach; bile is not to be expected. Persistent, projectile, unyielding vomiting, then, is the most important symptom, which, in itself, should suggest a possible diagnosis of hypertrophic pyloric stenosis.

In addition to vomiting there should be mentioned tumor, peristaltic waves, gastric retention, constipation, loss of weight and emaciation. Downes considers the presence of a pyloric tumor pathognomonic of the disease. He states that it is present and palpable in practically every case. Strauss, on the contrary, believes that palpation of the tumor is a matter of the personal equation, adding that it is a symptom of negligible value in comparison with his method of radiographic examination. The tumor, when present, is felt to the right and above the umbilicus as a freely movable nodule about the size of a small olive. It is best palpated when the stomach is empty.

Visible peristaltic waves are in evidence as the result of an attempt on the part of the stomach to overcome the pyloric obstruction. Their presence is a constant phenomenon. They are best elicited after the child has taken food, when they appear as rhythmic waves passing across the abdomen from right to left and slightly downward. The amount of gastric retention varies with the degree of obstruction and the frequency of vomiting. Retention of food for three or more hours is not unusual.

Constipation follows as a result of the absence of food and fluids in the intestines. In a typical case the stools show no evidence of the presence of milk. They are scant in amount, green in color from the excess of bile and not dissimilar in appearance to meconium. Loss of weight develops rapidly from food and fluid starvation. In cases of long standing extreme emaciation may be present, the child having wasted away to a mere skeleton.

Diagnosis.—In a majority of cases a diagnosis can be made from the symptoms just mentioned. There is one diagnostic means about the value of which Strauss⁶ is very enthusiastic, and that is the fluoroscope. He describes the method as follows:

A small amount of bismuth is added to mother's milk and the child is placed under a horizontal fluoroscope. It is allowed to nurse from the bottle while we watch the passage of the bismuth milk through the esophagus into the stomach. If the child is permitted to lie flat on its back, the bismuth milk gathers on the left side of the vertebrae as a large, round mass and will lie there indefinitely. If the baby is rotated toward the right side, almost on its abdomen, we will see the bismuth gradually gravitate toward the pyloric end of the stomach, and one notices immediate peristaltic waves in the pyloric antrum and pylorus. A small amount of bismuth is now squirted through, and then the pylorus clamps down tightly. Immediately peculiar and characteristic, snake-like, rhythmic, peristaltic contractions can be seen in the pylorus which are independent of the rest of the stomach. This is absolutely pathognomonic of this condition. The fluoroscopic examination consumes only about two or three minutes at this time. At the end of two hours the examination is repeated to see if anything has passed through, but as a rule the same picture is observed. At the end of four hours the child is again examined for the last time. At the two latter examinations roentgenograms are taken.

Strauss is of the opinion that this method is useful also in differentiating the medical cases from

those that should be treated surgically; he believes that in a given case surgical interference is indicated if one half or more of the bismuth-milk remains in the stomach as long as four hours.

Aside from the very occasional case in which there is obstruction at or near the pylorus from some extra-gastric cause, only one condition simulates that under discussion, namely, pylorospasm. In pylorospasm, the symptoms are not likely to be so severe or so persistent. In making the distinction Haas⁷ advocates the use of atropin in 1/1000 grain doses by mouth every three or four hours till symptoms of physiological saturation appear. Since atropin paralyzes the vagus endings, it tends to relieve pylorospasm.

Treatment.—An impression gained from a limited clinical experience and from a survey of the literature of this subject, leads me to believe that this is practically always a surgical condition; at any rate this is true in cases that are at all severe. However, the usual teaching is to institute medical measures (gastric lavage, careful feeding, etc.) first in the hope of obviating the necessity of surgical intervention. It has been estimated that less than one-third of the patients recover under medical treatment; unless the fluoroscope can make the distinction, there is no way of even predicting which medical case will eventually become surgical and which will not. Should operation become necessary, valuable time will have been lost and the patient will have depreciated as a surgical risk.

Two operations are to be considered: the Fredet-Rammstedt pyloroplasty, and Strauss' modification thereof. The mortality from gastroenterostomy is so high that it has been superseded by the simpler pyloroplasty. Most surgeons advocate the Fredet-Rammstedt operation, its simplicity being its greater recommendation. On the other hand, no one can produce statistics at all comparable to those of Strauss, who had a mortality of less than 3 per cent. in 103 cases. Downes⁸ had a mortality of 17.1 per cent. in 145 cases.

The Fredet-Rammstedt operation is performed as follows: The abdomen is opened in the usual manner through a two-inch incision above and to the right of the umbilicus. The greater curvature of the stomach is grasped and the pylorus is exposed. The pylorus is drawn outside the abdomen and the thickened muscle grasped between the thumb and the index finger of the left hand. Choosing the most avascular area, an incision is made through the peritoneum and partially through the sphincter, beginning on the stomach side. As the duodenum is approached great care should be exercised, as the muscle is less hypertrophied at this point and the mucosa more delicate. This can not be made too emphatic, because the duodenum has been opened many times at this step of the operation; and while this accident need not be serious, it adds an element of uncertainty that is immeasurable. Should the mucosa be wounded, it is immediately sutured. A pair of closed artery forceps is then introduced between the cut edges of the muscle and gently opened. This procedure is repeated all along the incision until the entire muscle is separated and the white submucosa is visible beneath. The raw surface may or may not be covered by omentum. This ordinarily completes the operation.

However, it would seem well to embody a further step toward increasing the lumen of the pylorus after the method of Strauss; this can be done by shelling the mucosa from the muscle, using a blunt dissector. The wound is then closed in layers, great care being used in obtaining an accurate and secure closure. Bevan is particularly emphatic on this point. Wound repair in these patients is slow and opening up of the wound is not an uncommon accident. An extra safeguard is to be found in applying a firm adhesive dressing entirely around the child's abdomen.

Just a word about Strauss' operation. After the muscle has been divided, the division being made for the most part by a scalpel handle, Strauss shells out the mucosa widely. He then splits the inner part of the muscle on each side, turns the flaps forward and sutures them in front of the tube of exposed mucosa. The free end of omentum is then sutured over the raw surface.

Most authorities are of the opinion that the Fredet-Rammstedt operation has the appeal of "complete efficiency and absolute simplicity," and that modifications are unnecessary.

Ether is the anesthetic of choice, although Bevan is a strong advocate of local anesthesia.

Post-operative Management.—Particular attention should be given to keeping the child warm during the operation and after its return from the operating room. If conditions necessitate it, hypodermoclysis of about 100 c.c. of normal saline solution may be used, or a transfusion of blood may be given, using the median basilic vein or the longitudinal sinus. An ounce of soda and glucose solution is given by rectum and repeated every 3 hours; this accomplishes two things: it supplies much needed fluid and combats acidosis, which is so prone to develop in these half-starved babies. As soon as consciousness has been regained, water and breast milk are given alternately in teaspoonful doses every two hours. The amount is gradually increased till at the end of 24 hours, half an ounce is taken at each feeding. At the end of a week the baby should be taking two ounces of milk every 3 hours. No harm can come of putting the baby to the breast after four or five days. A teaspoonful of castor oil is given on the second day. Gastric lavage may be resorted to if there is excessive accumulation of gas or too frequent vomiting.

Anatomic confirmation of the value of the Fredet-Rammstedt operation is found in a case reported by Ransahoff and Woolley.¹⁰ This patient died, seven months after operation, from the effects of an enlarged thymus. At autopsy it was found that the defect between the cut ends of the muscle had been filled in with fibrous tissue in such a way as to preserve the sphincter action. There was no evidence of diverticulum formation or hernia at the site of the scar. It is interesting to note that the hypertrophy of the muscle had disappeared.

My experience with this condition is limited to two cases. Both presented typically the symptoms enumerated above, so that their review would be of no special interest. Both were operated on by the Fredet-Rammstedt method. The first patient developed symptoms on the twenty-fifth day and was operated on the twenty-seventh. He is now three years old and has never had any trouble referable

to the gastrointestinal tract. The second patient was operated on in the third week and made a satisfactory recovery, but died, after leaving the hospital, from an intercurrent intestinal infection.

Summary.—1. Hypertrophic pyloric stenosis should be suspected in any infant who develops persistent vomiting, gastric peristaltic waves, pyloric tumor, non-fecal stools, loss of weight and other minor symptoms.

2. This condition is probably always surgical.

3. The Fredet-Rammstedt operation makes the appeal of complete efficiency and absolute simplicity.

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THE RELATION OF ECTOPIC PREGNANCY TO CHRONIC ENDOCERVICITIS.*

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WHILE much has been written on the subject of ectopic pregnancy, the literature records only the end results of this pathological process, without giving a logical explanation as to its antecedent stages. All observers are agreed that a diseased tube is an essential factor in the production of this affection.

It is the object of my paper to call attention to a condition which is nearly always present in those patients suffering from ectopic pregnancy, and is fundamentally the cause in nearly every case. I refer to chronic endocervicitis, the timely and proper treatment of which disease will greatly reduce the possibility of ectopic pregnancy, and may thus be considered to stand in the relation of a prophylactic measure.

Extrauterine pregnancy was described in the eleventh century by Albucasis, an Arabian, after which time the subject was referred to at various periods, as the different types of this anomaly in pregnancy were discovered. It was about the middle of the last century when the true interpretation of what was then diagnosed as pelvic hematocoele or pelvic hematomata, was gradually evolved.

In the great amount of literature elucidating this condition, the subject of underlying factors, and the course of pathological events, is conspicuous by its insufficient and contradictory deductions. Thus Lawson Tait, Tilt, and others recognized that these patients suffer from chronic salpingitis, claiming that the destruction of the tubal epithelium, with loss of ciliary action, impedes the passages of the fertilized ovum into the uterine cavity. J. W.

*Read before the Bronx County Medical Society, November 17, 1920.

Williams, on the other hand, demonstrated active cilia in all his cases of ectopic pregnancy. J. Zedel corroborated the findings of Williams, showing the cilia in motion in several recent specimens. Vautrin suggested that the implantation of the ovum in the tube was dependent upon an overdevelopment of the lutein cells, with resulting excess of the internal secretion, and not upon any disease of the tubes or uterus. O. V. Huffman advanced the hypothesis that ectopic pregnancy is determined by an anomalous imbedding area, which has been misplaced during the development of the tubes and uterus. Howard Kelly states that the simplest idea in the etiology is that the absence of cilia retards the progress of the ovum toward the uterus. He attaches far greater importance, however, to the fact that he finds in his experience many cases where tubes are bound down in the pelvis or crossed by fibrous bands, with the fimbriated extremities glued down to the ovary so as to be incapable of receiving the ovum except from a very limited area. He maintains that such adhesions may readily cause an obstruction or an ileus of the tube and thus prevent the downward progress of the ovum. Besides the inflammatory condition that may bring about unnatural fertilization, J. M. Keyes speaks of mechanical factors, as uterine myomata, diverticula and kinks which offer obstruction to the ovum and prevent its entrance to the uterine cavity.

It thus appears that whatever difference of interpretation and observations are noted, all observers agree upon the invariable existence of one pathological manifestation, namely, tubal distortion as the result of adventitious bands or adhesions.

Omitting in the present consideration the very rare instances of ectopic pregnancy in congenital diverticula of the tube, it is a significant fact that while every case presents the evidence of peritubal inflammation productive of adhesions, the tubal lining is invariably found normal. The presence of normal cilia would substantiate this latter statement, and the question naturally arises, what is the cause, course, and nature of the peritubal adhesions, productive of the distortions, which favor the nidation of the fertilized ovum in the tubal wall?

It is a well established fact that under normal conditions, every fertilization of the human ovum occurs regularly within the lumen of the tube, from which locality it is impelled by tubal peristalsis and ciliary action, into the uterine cavity. From this established fact it would follow as a natural corollary that any inhibition of the normal peristalsis of ciliary mobility, would arrest the ovula migration and result in the tubal nidation of the fertilized ovum. And the question which presents itself is—whence and by what route does this insidious infection, resulting in such tubal distortion, travel? The question becomes clinically significant when it is recalled that a very large proportion of women, afflicted with ectopic gestation, give no history of a previous infection.

In his studies on chronic endocervicitis, Sturmdorf states the following: "The course of chronic endocervicitis is insidious and its symptoms vary with a wide range, depending on the intensity and progress of the infection. Mild cases, limited

to the superficial layers of the cervical mucosa, will present a leucorrhea as the only symptom, not necessarily copious or purulent, but intractable. In the progressive cases, the ascending lymphangitis envelops the perimysial sheaths throughout the uterine musculature and splints and immobilizes the elementary muscle bundles by plastic infiltration of their sheaths. Ramifying the entire myometrium along these sheaths, this chronic lymphangitis then converges to the lines of the main lymphatic channels. Its course is evidenced by paracervical exudates and velamentous bands or meshes which kink and agglutinate the adnexa, inhibit tubal peristalsis, create diverticula, that establish ectopic *possibilities*, or occluding the tubal ostia, insure sterility."

Here we find the pathological course of endocervical infection leading to the operative findings so uniformly described by all observers. Furthermore, the clinical course of chronic endocervicitis, as thus depicted in its insidious progress, explains the symptomless interval presented by both nulliparous and multiparous patients, who in the course of time may develop extrauterine pregnancy; for, as Sturmdorf says, "a chronic endocervicitis may date its origin from an infantile vulvitis, which invariably means an endocervicitis; or from mildly infected puerperal traumata in multipara."

Chronic endocervicitis thus stands exposed as the fundamental causative factor in the majority of ectopic pregnancies. While such a relation of cause and effect may appear extravagant to those who are still adhering to older doctrines, the most superficial investigation of their cases along these newer lines of pathological reasoning, will supply ample proofs of the correctness of this theory.

A few cases from among many will substantiate this contention:

CASE I.—S. W., age 32 years, September 19, 1914. Complaint—Bleeding for twenty-four hours, fainting spells, severe pain in right lower quadrant of abdomen; vomiting. Patient pale and looking extremely ill. Physical examination shows bleeding from vagina, no clots; abdomen very tender; cervix lacerated, soft; uterus enlargement to slight degree and soft; limited mobility. Right adnexa, palpable, enlarged, and very tender; left adnexa, some tenderness in fornix.

With a history of irregular bleeding, after having been two weeks overdue, together with physical examination, I concluded that I was dealing with a ruptured ectopic. I sent the patient to the Polyclinic Hospital, where, on laparotomy, we found a ruptured right ectopic pregnancy. After recovery, she gave a history of having suffered from a leucorrheal discharge since her first pregnancy, six years ago; that three and a half years after, she again became pregnant and had been aborted, with resulting sepsis; she then went to Mt. Sinai Hospital, where she was treated for four weeks.

After the patient left the Polyclinic Hospital her leucorrheal discharge continued; she had irregular menstruation with constant backache. I treated her palliatively until November 13, 1917, when she consented to a tracheloplastic operation, which was performed at the Community Hospital. She was discharged after five days, November 18, 1917. Since that time the patient has had no discharge, no backache; her menstruation has become regular and of moderate flow. The last time I saw this patient was in October, 1920.

Summing up this case, we have every evidence of the existence of chronic endocervicitis prior to the ectopic.

CASE II.—B. K., age 30 years, December 16, 1916. Complaint: Pain in lower abdomen, excessive menstruation, leucorrhea, constipation, nausea. Menstruation

began at 12½ years. Regular, every 28 days for 5 to 6 days, moderate flow, no pain. Married at 23 years; two children, six years and three years; confinements normal; no miscarriages; menstruation in last two years regular as before; last menstruation November 14, 1916.

Physical examination: Abdomen, tenderness in right lower quadrant. Vaginal, cervix lacerated and infected. Uterus, normal size and position, limited mobility. Right adnexa, thickening in fornix and tender on pressure. Left adnexa, not palpable.

Recommended a tracheloplastic operation, which was refused. Applied local treatment for several weeks, with some improvement of complaint.

November 1, 1917, was called to her home in emergency. A brief history and examination convinced me that she was suffering from ruptured ectopic. I sent her at once to nearest hospital (Lincoln). On laparotomy, a ruptured right ectopic was found. She made an uneventful recovery.

January 6, 1918, patient called at my office because of weakness, backache, leucorrhea; menstruation was regular, but profuse. I applied local treatment and again advised a tracheloplastic operation in order to save the other tube. This was refused. On May 17, 1918, however, I performed the operation at the Community Hospital. Patient left the hospital on the fifth day in good condition.

April 24, 1920, patient complained of pain on right side for two days prior to menstruation, for the last two months; no leucorrheal discharge; menstruation normal in amount, regular in time. Physical examination showed uterus freely movable, no thickening in fornices; slight tenderness on right side; left side normal.

The slight premenstrual pain is no doubt due to congestion. This case complained of symptoms and showed evidences of chronic endocervicitis nearly one year prior to her ectopic pregnancy.

CASE III.—E. M., 32 years, January 31, 1917. Complaint: Irregular bleeding, backache, nervous. Menstruation began at 13 years; comes every 28 days; 4-5 day type; little pain; moderate amount. Married at 23 years; two children, 8 and 4 years old; no miscarriages; menstruation continued to be regular until last confinement; last menstruation, December 15, 1916. Physical examination showed patient had exophthalmic goiter. Gynecological examination: Lacerated perineum; cystocele; rectocele. Cervix lacerated and infected (chronic endocervicitis). Adnexa thickened and tender.

Owing to the exophthalmic goiter, gynecological intervention was deferred. I gave local palliative treatment with some relief.

May 3, 1918, patient called, complaining of bleeding and severe pain on right side of abdomen. Menstrual function had been irregular for several months. Last menstruation came on time, lasting four days; patient was clean for a week, when bleeding recurred, with severe pain on right side.

Gynecological examination showed noncoagulable blood at vulva; cervix lacerated and soft; uterus, slight enlargement, limited mobility; adnexa, right side, small mass, very tender; left side, some thickening, but not palpable.

Diagnosis: Ectopic pregnancy. Patient ordered to bed; gave her codiene for the pain. She stayed in bed until May 22, 1918, bleeding continuing during all this period. Advised operation. A laparotomy on May 23 revealed right ectopic, small cyst of the ovary and chronic appendicitis. Patient left the hospital June 6, 1918, in good condition. Since operation, patient reports disappearance of goiter and general improvement.

CASE IV.—J. S., age 24 years, August 4, 1920. Complaint: Sterility, continued bleeding for past five weeks, pain on right side for three weeks; general weakness. Menstrual history: Menstruation began at 15 years; irregular, covering 5-6-7 weeks, lasting 4-5 days; moderate amount; not painful. Married four years ago; never pregnant; always had leucorrheal discharge since marriage. Present trouble dates back five weeks. Her menses had been delayed two weeks. Bled for a few days and became clean. Began to bleed again and kept up either bleeding or staining for past five weeks; three weeks ago developed pain on right side.

Physical examination showed bleeding at vulva, noncoagulable blood. Perineum normal; cervix, soft; os, patulous; uterus, anterior, not appreciably enlarged; on attempted manipulation experienced pain and soreness on right side. Adnexa, left side, not palpable; right side, distinct enlargement and thickening of tube, tender to touch. When blood was wiped away from cervix a distinct reddened zone around the os could be noticed.

Diagnosis: Ectopic pregnancy, accompanying chronic endocervicitis. Ordered to bed for a few days.

September 7, 1920, saw the patient again, when all her symptoms were aggravated. Owing to the patient's refusal, the operation was not performed until September 17, 1920, when a right ectopic was removed. Patient left the hospital October 2, 1920, in good condition.

In closing, I would emphasize the essential phases in the etiology of tubal gestation in the following summary:

1. Fertilization of the ovum occurs normally in the tubal lumen.
2. Tubal nidation of the fertilized ovum results from an arrest of the fertilized ovum in its normal progress toward the uterine cavity.
3. The only essential factor productive of such an arrest or impediment to the normal transit of the fertilized ovum is the presence of tubal diverticuli or sacculations.
4. Tubal diverticuli and sacculations may be congenital or acquired.
5. The congenital variety is extremely rare, while the acquired form is extremely common.
6. The most prolific and constant cause of the acquired form, hitherto obscure in its etiology and course, stands revealed by Sturmdorf's investigations, as an insidious perisalpingitis, invariably resulting from chronic endocervicitis.
7. Chronic endocervicitis, with its resultant perisalpingitis, thus stands in the direct relation of cause and effect in the production of tubal gestation, and it follows as a logical deduction, that the eradication of chronic endocervicitis presents a prophylactic measure in tubal pregnancy.

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Pneumonia.—William Henry Porter emphasizes the importance of elimination in cases of pneumonia. When it is impracticable to keep the bowels active by the use of laxative agents, high rectal irrigation, using large quantities of plain water, will often be the means of saving a pneumonia patient. Active elimination must be maintained at all hazards. Without it the patient will almost inevitably die.—*Western Medical Times*.

THE RELATION OF THE PERSISTENT THYMUS GLAND TO CRIMINOLOGY.

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DISTURBANCES of the mind may be divided into three types: (1) The type which in the development of the brain there is a deficient number of cells in the whole or part of the brain; (2) the type which includes those individuals who during life have received an injury which involved the brain substance; (3) the type which includes those individuals in which there is in the brain a normal number of cells but the change is in the tissues from which these cells receive their potential energy and nutrition.

When a cell responds to an outside stimulus and performs an act the process is called the functional activity of the cell. The point at which this outside stimulus causes the potential energy stored up in the cell to be changed into kinetic energy and to give off an outgoing impulse is spoken of as the threshold of functional activity. If the chemical composition of the surrounding tissues is normal the threshold is normal. If it is altered then the threshold may be either raised or lowered. The normal threshold is more or less at a constant level. If this level is raised then it requires a greater stimulus to cause the cells to react. If it is lowered then the cells respond to impulses which ordinarily would produce no impression.

The emotions, especially love, hate, and fear, are kept within the realm of sanity by inhibitory impulses coming from the intellectual side of the brain. If the threshold is normal there results an emotion which conforms to what we consider rationality. But if through a chemical change in the brain tissue the threshold of cell groups in the emotional part of the brain has been altered it will be impossible for the inhibitory impulses from the intellectual side of the brain to influence the emotions, and therefore there will result an action which is purely impulsive, which lacks the mental attributes of judgment of right or wrong or thought of consequences.

One of the chief causes of disturbances of the threshold can be attributed to the ductless glands. It is a well known fact that in persons in whom the thyroid substance is increased, explosive reactions occur from incoming impulses which ordinarily would hardly produce an action. The converse is also true, that when the thyroid substance is deficient the person will not respond to an incoming impulse which normally would have caused a response. What is true of the thyroid is also thought to be true of the other ductless glands.

Anatomy of the Thymus.—The thymus is a ductless gland situated in the anterior mediastinum and in the neck, reaching from a level of the fourth costal cartilage upward on the trachea as high as the lower border of the thyroid. If found when its growth is most active, it will be seen to

consist of two lateral lobes placed closely together along the middle line. Below it rests on the pericardium and is separated from the aorta and the great vessels by a layer of fascia. It is about two inches in length, an inch and a half in breadth and an inch and a quarter in thickness. It is of a reddish gray color which changes to a white or yellow as the gland undergoes involution. This involution takes place by a fatty infiltration that leaves an exact model of the gland in fat. The gland is covered by a fibrous capsule which sends numerous septa into the gland substance dividing it into lobules which in turn divide into follicles. Each follicle consists of a cortex composed mainly of lymphoid cells, reticular tissue, a network of finely branched cells, and a centrally located medulla composed of a few lymphoid cells scattered among which, especially toward the center, are granular cells and concentric corpuscles. The concentric corpuscles are composed of a central mass of one or more granular cells and a capsule of epithelioid cells which are continuous with the branched cells of the cortex. The arteries are derived from the internal mammary and the superior and inferior thyroid arteries. The nerves are derived from the vagus and the sympathetics.

At birth, the thymus weighs from fifteen to twenty-eight grams. After the second year it does not grow in proportion to the other organs of the body, and gradually loses its thymic structure and becomes adipose in character, until at puberty it is very small. In some cases it may persist even until old age. It is with this type that I have come in contact.

Laboratory Findings.—In the anatomical laboratory of the West Virginia University Medical School work has been done on about 192 bodies sent in by the different public institutions of the State. Of these 52 came from the insane hospitals, 10 came from the tuberculosis sanatorium, 74 came from the poorhouses, 20 came from the State penitentiary, and 36 came from undertakers over the State. The age of these bodies ran from seven-teen up to eighty-six years. They were all males but ten. In this number I found twenty-two persistent thymus glands. Twenty of these glands were taken from the bodies of criminals sent in by the State penitentiary. All of these were first or second degree murderers with the exception of one, who was a rapist. Seventeen were first degree murderers and hanged in the State penitentiary and three died following a prolonged illness. Of the other two, one came from the insane hospital and the other from a poorhouse. The one from the poorhouse was 22 years old and had a thymus gland that weighed five grams. Histologically, it showed very little thymus tissue left in the gland. These glands ran in weight from five grams to twenty-nine grams. The ages of the persons were from 22 to 56 years, and all were males. The largest gland measured 5½ in. long, 1 in. wide, and 1 in. thick, while the smallest was 2 in. long, 1 in. wide, and ½ in. thick. Histologically, they showed just the normal thymic structure.

Conclusion.—The conduct of a person seems to

be the result of all his impulses and inhibitions, the impulses causing him to act and the inhibitions causing him to stop and consider his actions. We, therefore, have two kinds of action; one in which the impulses predominate, which is an impulsive action, and another in which the inhibitions predominate, which results in a premeditated action.

If through a change in the chemical composition of the surrounding tissues there is a trophic disturbance of the brain cells there results an abnormal response to a stimulus, hence there is not the proper relationship between the impulses and the inhibitions.

It has been shown that an abnormal secretion of the thyroid gland, causing a trophic disturbance, interferes with the relationship between the impulses and the inhibition so that a person responds to emotions that he would not respond to normally.

It has also been shown that out of 20 criminals dissected all had persistent thymus glands.

From this I feel that I am justified in drawing the conclusion that the persistent thymus is in some way accountable for the mental state that caused these men to be criminals.

CONGENITAL ELEVATION OF THE SCAPULA:

WITH REPORT OF A CASE.

By JACOB GROSSMAN, M.D.

NEW YORK.

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THIS deformity was first described by McBurney and Sands and was communicated to the German literature by Sprengel in 1891. The condition may be unilateral or bilateral. It is more commonly the former. It is a somewhat unusual congenital deformity, in which one scapula is raised in its relation to the thorax and the clavicle and also to the opposite scapula. The scapula is not only raised, but generally is so rotated that its upper angle approaches the spine. Scoliosis exists in connection with it in the majority of instances, and in some cases torticollis and asymmetry of the face and skull have been noted. One or more of the scapular muscles may be absent and bony anolamies are frequent. In a number of instances some congenital defect may be present elsewhere in the body. Chief among these are cervical ribs, spina bifida, deficiencies of ribs and vertebrae, displacement of spinous processes with fusion, fused and irregular ribs, and absence of ribs. In some cases a bridge of bone may connect the scapula and the vertebral column, in others there may be a long piece of bone projecting upward from the superior border of the scapula but not articulating with or attached to the vertebrae. In other instances there may be no bony outgrowths or deficiency of muscles. In some instances the projecting upper border of the scapula is so prominent in its elevated position that it is mistaken for an exostosis. Defective development of the muscles is common. The trapezius is the muscle usually affected. It is weak in all cases and occasionally it may be absent. The

serratus, pectoralis major and sternomastoid muscles are less commonly involved.

The symptoms are found in the asymmetry of the shoulders, the secondary changes in the spine, and often an inability to abduct the affected arm to its full extent. The scapula is elevated and rotated about its anteroposterior axis, so that its vertebral border, instead of being parallel to the spinous processes, is rotated so that the upper angle is nearer the middle line than the lower angle. The clavicle is frequently shortened, bringing the scapula and shoulder nearer the middle line. The upper angle of the scapula forms a prominent projection at the back of the neck. The chest is poorly developed, being narrow from side to side. In bilateral cases the dorsal and lower cervical vertebrae are prominent. In unilateral cases, the spines are frequently deviated, usually away from the affected side.

Treatment may be either conservative or operative. In cases seen during childhood extensive division of the shortened muscles holding the scapula in its abnormal position is to be advised. Removal of any bony bridge or projection and in



resistant cases resection of as much of the upper border as may be necessary should also be advised. In older cases no operative treatment is advisable. The conservative treatment consists chiefly of persistent gymnastics.

CASE REPORT.—The patient is a boy eleven years of age. He presented himself with a history of having fallen a short time previously. He fell from a fence, striking the right side of his chest against a stone. A week after the accident had been sustained his mother noticed that the right scapula was very prominent. The mother was positive that the deformity was not present previous to the accident. There is no doubt that the deformity was present throughout the life of the patient, and that the mother, being of the less observant type, did not notice it until the accident drew her attention to the condition.

Examination.—The right scapula was on a higher level than the left. The upper inner angle of this bone lies above the level of the clavicle and is three centimeters higher than the same angle of the left scapula. The upper inner angle of the right scapula is also slightly farther away from the midline than the same angle of the left, and slightly farther away from the midline than the lower angle of the same scapula. The vertebral border of the right scapula, therefore, instead of being parallel to the midline, as it should be,

is at an angle to it. The entire right scapula is rotated on an anteroposterior axis. The deformed scapula is rotated in the opposite direction, making the lower angle more prominent than it should be. The right shoulder is slightly limited in abduction. The right trapezius muscle is deficient, making the right side of the neck, posteriorly, shorter than the left. The right chest measures twelve inches, while the left chest measures thirteen and a half. The measurements were taken from the midline behind to the middle of the sternum at a level with the nipples. The lower angle of the right scapula was four inches away from the midline and the lower angle of the left scapula was two inches. The former was at the level of the fifth dorsal vertebra while the latter was at a level with the eighth. There was slight flattening of the right chest. The muscles on the right side were slightly atrophied. The right shoulder was slightly higher than the left. The radiograph showed a scoliosis in the middorsal region, which was also very evident clinically.

This case is undoubtedly one of congenital elevation of the scapula, in spite of the history given by the mother, namely, that it occurred after an accident sustained a short time previous to the visit to the clinic. As in many conditions where an accident attracts attention to a long standing pathological manifestation, so here the fall from the fence and the subsequent injury to the chest, drew the mother's attention to a deformity which had been present throughout the lifetime of the patient.

1182 JACKSON AVENUE.

Medicolegal Notes.

Memoranda Used by Medical Witness to Refresh Memory.—In a personal injury case a physician was called as a witness for the defendant. He treated the plaintiff on the night of the accident, a train wreck, and for the ten days she was in hospital. During that time he made two written memoranda as to the plaintiff's condition and treatment. He noted down the injuries found on her in the first one, and in the other the condition of the wounds when she left the hospital, as well as the troubles of which she then complained. The witness was permitted to use these memoranda when testifying, and after being so used the defendant offered them in evidence. They were excluded. On appeal this was held proper, as their only purpose in the trial, so far as the defendant was concerned, was to refresh the recollection of the witness, to the end that he might fully testify. There was nothing to show that they were kept, as books are kept, in the regular course of business.—*Willets v. Chicago, B. & Q. R. Co.*, Missouri Supreme Court, 221 S. W. 65.

Testimony of Habitual User Admissible That Substance Purchased Was Opium.—In a criminal prosecution for the illegal sale of opium, where the defense was that there was no evidence of a sale of opium, it was contended that the witness to whom the sale was made could not testify that the contents of the tins sold to him were, in fact, opium, as it required expert testimony to establish this fact, and the witness was not a chemist, or possessed of training in chemical analysis. The Circuit Court of Appeals held that, while it is true that, in order to establish the fact of the presence of alkaloid in opium, an analytical process must be followed, requiring the knowledge of the chemist to state positively that a substance is opium within the formula as defined by the United States Pharmacopoeia, the Government rightly contended that, it being established that the witness was a habitual user of opium, his testimony as to the nature of the substance with which he was familiar was sufficient to require the submission of the question of whether or not the substance was opium to the jury as a question of fact. One who drinks fermented liquor and knows the taste of it, although not a chemist, may testify that a particular liquor was fermented. *Merkle v. State*, 37 Ala. 139. A witness in a homicide case, familiar with the odor of carbolic acid, although not a chemist, may be permitted to testify that such

an odor came from the corpse. *Green v. State*, 125 Ga. 742. He may also testify to the odor of chloroform. *Miller v. State* (Tex. App.), 50 S. W. 704.—*Pennachio v. United States*, 263 Fed. 66.

Medical Witness May Disclaim Qualification as Expert on Special Point, Barring His Opinion as Evidence.—In an action for injuries caused by contact with an electrical wire stretched across a road in process of construction, the plaintiff claimed that his hearing and sight were affected. Over an objection by defendant, the court permitted a hypothetical question to be propounded to the physician who had examined and treated the plaintiff, for elicitation of an opinion as to whether the electric shock caused injury or impairment of his sight and hearing, with a view to augmentation of the damages, in case of recovery. There was evidence that, at some time before the injury, the wire had knocked a horse down. The question assumed that this accident happened the day before the occurrence involved in the case. It also assumed, without direct evidence, that the wire had struck the plaintiff on the forehead. He did not say what part of his body came in contact with it, but it might be inferred, from what he said, that it was some part of his head. Though the witness denied his qualification to give an expert opinion on the subject, he was urged to answer the question and said he thought such a shock might cause such an injury. It was held, on appeal, that the trial court should have sustained the objection to the question on the witness' disclaimer. Physicians are not, as matter of law, qualified to give opinions, as experts, upon all medical questions. There are many instances in which their testimony has been rejected. A general practitioner has been held not to be qualified as an expert upon questions pertaining to a branch of medical science to which he had given no study and concerning which he had had neither observation nor experience. *Russell v. State*, 53 Miss. 367; *Emerson v. Gaslight Co.*, 6 Allen (Mass.) 146. Disclaimer of qualification to testify on the subject of the interrogation, by the witness himself, rendered his testimony incompetent. It was therefore unnecessary to inquire whether the question was properly framed.—*Fisher v. Flanagan a Coal Co.*, W. Va. Supreme Court of Appeals, 103 S. E. 359.

Ordinance Providing for Milk Pasteurization Upheld.—The Wisconsin Supreme Court holds that an ordinance of Milwaukee requiring milk sold in that city, except certified milk and tested milk, to be pasteurized by the holding or the flash system, is a regulation for protection of the public health, within the discretionary power of the council.—*Pfeffer v. City of Milwaukee* (Wis.) 177 N. W. 850.

Ohio State Medical Act Held Within Police Power of State.—The Ohio General Assembly is held to have the right to reasonably regulate business and occupations and those desiring to follow them, especially physicians and surgeons; and legislation of this character is within the police power of the State upon the further and higher ground of the regulation of public health. All persons engaged in the practice of the healing art need special qualifications touching the knowledge of the human body in all its parts, their normal and abnormal relations—not only knowledge that would enable all such persons carefully and correctly to diagnose physical and mental ailments, but also an ability to prescribe the proper treatment therefore. The State Medical Act, requiring a license to practice medicine, is therefore held clearly within the police power.—*Nesmith v. State*, Ohio Supreme Court, 128 N. E. 57.

Practising Without Certificate Under California Medical Practice Act.—The title of the California Medical Practice Act, reading "An act to regulate the examination of applicants for license, and the practice of those licensed to treat diseases, * * * to establish a board of medical examiners * * * and to repeal an act entitled 'An act for the regulation of practice of medicine' etc., is held sufficiently comprehensive to include provisions as to punishment of a person holding himself out as entitled to practice medicine, without having a certificate under section 17, and is therefore not unconstitutional. An information, otherwise in proper form, in a prosecution for violation of this section, is sufficient as against the contention that it does not give the name of any patient or disease treated.—*People v. T. Wah Hing* (Cal.), 190 Pac. 662.

MEDICAL RECORD.

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TREATMENT OF THE HUMAN BREAST.

OPERATING upon the breast without absolutely sufficient reason is bad surgery. Therefore accurate diagnosis is the essential part of the physician's or surgeon's equipment, for without this gift or skill acquired by practice, there is no doubt that a certain number of unnecessary operations will be performed. It is a fact that the good diagnostician is, to a large extent, born, not made, although it is equally true that this inborn characteristic can be greatly improved by practice. The necessity for accurate diagnosis is in no class of operation more evident than in the surgery of the breast, as from every point of view it is a very grave matter to remove or mutilate the breast or breasts of a woman and especially of a young woman.

In a paper published in the *Medical Press and Circular*, Feb. 2 and 9, 1920, Commander W. Seaman Bainbridge, M. C., U. S. N., discusses this question in its various bearings. He allows that, if a lump appears in the breast, a medical man, or a specialist rather, shall be consulted with as little loss of time as possible, but the verdict upon which hinges the decision as to the steps to be taken should be given only after mature consideration of all the evidence available. It must be borne in mind that some disagreement exists among authorities on essential as well as non-essential points in this respect, and the remark quoted by Bainbridge of a well-known author that "the platitude that it is better to sacrifice a dozen suspected breasts than to overlook a single case of carcinoma has long served as a cloak for ignorance of the finer pathological changes in the gland," is in the main correct. The statement pleading for a measure of conservation contains more than a grain of truth. There are several conditions which simulate malignant disease of the breast and these should be noted and considered carefully before making a diagnosis and coming to a decision. Bainbridge refers to the breast lumps caused by intestinal stasis, to which Sir Arbuthnot Lane was the first to call attention, and gives several instances drawn from his own experience of breast changes thus originating which were cured by conservative operation or rational treatment. A strong warning is given against

biopsy for the purpose of pathological diagnosis. Of course, it is obvious that if this is done and the disease is really malignant such a dissemination of the cancer may follow this ill-advised procedure that a subsequent operation will be useless.

The various points made in this excellent paper are mainly as follows: As a result doubtless of the efforts of the Society for the Control of Cancer and other organizations the laity is seen to be coming early in increasing numbers for examination. Accurate diagnosis of abnormal breast conditions means and demands a careful systematic survey as well as an efficient local examination. The relationship between chronic intestinal stasis and certain breast conditions seems to be proved. Toxemia from teeth, tonsils, and other parts of the body, may also have its effect upon the mammary gland. Abnormal conditions, congenital or acquired, may be present in neighboring structures and lead to wrong diagnosis of cancer, or if malignant disease is present, lead to the diagnosis of the inoperable and incurable stage, although the neoplasm is early and surgically curable. In spite of present knowledge it is impossible at times to arrive at an immediate accurate diagnosis. In justice to the patient it may be necessary to keep her under careful observation, treating general conditions before proceeding to radical surgery. If mistakes even then occur, it should be the earnest endeavor of the profession to make them fewer and fewer. Bainbridge, like most surgeons, believes that when cancer is present beyond a reasonable doubt, radical surgery is indicated, but he urges, nevertheless, that *festina lente* should be the motto when dealing with breast tumors. Although accurate diagnosis may be frequently extremely difficult, sometimes almost impossible, a hasty operation for fear that the condition may be cancer should not be undertaken lightly.

It is refreshing in this age of the knife, when some would cut away every skin blemish lest in the indefinite future it may become a malignant tumor, to learn that even among the surgeons there is at least one who would withhold the knife until its use is, in his judgment, plainly indicated. It suggests the belief that some day the recognized indication for a cancer operation will be mechanical or cosmetic and not the expectation of a cure.

PHOCOMELIC MONSTERS.

A PHOCOMELUS monster is an ectromelic being whose hands and feet appear alone to exist and as if directly inserted on the trunk. This definition requires amplification and more precision. Let it be recalled in the first place that ectromelia is characterized by the more or less complete absence of one or more limbs. Now, it is known that the free portion of every limb in vertebrate animals is composed of three segments: a terminal one—hand or foot—the other two being intermediary, one being proximal—arm or thigh—the other distal—forearm or leg. The ectromelics in whom abortion occurs in the intermediary segments, are phocomelics; those in whom the abortion takes place in terminal

segment are hemimelics, and finally when the entire member has completely aborted, the case is one of entromelia. The first two types may be combined, giving rise to another category, hemiphocomelus. Consequently, the following definition can be offered: Phocomelus is a monster characterized by a more or less complete abortion of the intermediary segments of the limbs. Individuals affected by this anomaly consequently have normal hands and feet attached to the trunk by very short atrophied segments. Such is the arrangement normally observed in certain digging animals—moles—or swimming animals—seals—hence the term phocomelus created by I. Geoffroy Saint-Hilaire.

Phocomelia may involve all four limbs, in which case it is quadruple. It may be limited to the two upper members—bithoracic phocomelus—or to the two lower limbs—bipelvic phocomelus. Or the two limbs on the same side are the seat of the congenital defect—unilateral phocomelus, and finally a single upper or lower limb may be involved, in which case there is unithoracic or unipelvic phocomelus. In each of these forms the abortion of the intermediary segments is more or less pronounced. With Broca, we should note the fact that the word *abortion* as used here is not synonymous with absence, and usually there are very appreciable traces of the aborted intermediary segments, while in the less characteristic forms one may well hesitate to recognize true monsters. Phocomelia offers various degrees, from types solely characterized by a shortness of the intermediary segments up to their apparent complete absence.

It is natural to suppose that to each of these degrees a different anatomical structure should be found. The bones, muscles and other soft structures of the intermediary segments are all the more atrophic and reduced in extent the more the higher degrees of the defect are reached. But it must not be assumed that this reduction occurs in identical proportions of the different component elements of the intermediary segments. It will be found on the contrary that the anatomical structure of the various cases of phocomelus give rise to unexpected general considerations which have only recently been brought into relief. This congenital defect is perfectly compatible with life and the majority of these beings who attain adult life are endowed with perfect physical vigor and occasionally a mentality superior to the average. By a long and careful education these defectives can use their rudimentary limbs with considerable agility and some may even perform feats that cannot be accomplished by normal beings. There is usually no disturbance of the sensibility, no loss of muscular sense, nor any paralysis of the subsisting muscles.

The classical writers tell us little in respect to phocomelus, being content with invoking an arrested development as the cause, which certainly is vague, and comprises the most diverse teratologic phenomena. Even the cause of arrested development has been searched for in atavism, compression on the annios, a primary defect of the cerebrospinal axis, or even a circular of the cord around the

neck. But no observer has described any peculiar process ending in the production of phocomelic monsters, so that one is tempted to admit at first sight that phocomelus is merely the result of an arrested growth of the intermediary segments of the limbs. This, however, is not usually the case, the condition being due to complex processes. In 1898 Virchow emitted some very important considerations; he comprised under the same denomination of phocomelus all ectromelics, because for him they represented the most characteristic term of this category of monster. He placed the ectromelics in a continued series whose different terms are the degrees in a scale of a pathological malformation, Kauffmann's chondrodystrophia fetalis being the nearest type. Consequently, according to Virchow, these beings are not monsters, but defectively developed subjects. This conception of phocomelus has not been confirmed by others and all that Virchow did was to consider the condition as having its starting point in a localized affection of the osseous system. Although we cannot accept Virchow's opinion in its entirety, it may nevertheless be admitted that the majority of phocomelic monsters are merely achondroplasias, a theory most compatible with the present state of our knowledge.

MUST WE ALL BE LAW-BREAKERS?

THE average physician, we would fain believe, is not naturally a criminal, but since the uplifters have begun to regulate the practice of medicine and to determine what remedies the doctor can prescribe and in what doses he can give them, he is rapidly and perforce becoming one. He is forbidden to prescribe narcotics in certain cases and in others he must be careful not to give them too frequently or in doses which the lay bodies who are watching him may decide are too large. Moreover he can't prescribe narcotics in any case unless the revenue departments, national and State, sell him permission to do so, and then it is only after he has filled out half a dozen blanks and gone through various tedious formalities that the pharmacist dares honor his prescription. And even then he may find that some commissioner or other has made a new ruling so that he has become unwittingly a law breaker over night. A physician of this city, a practitioner of over thirty years' activity, writing in the *New York Times*, says that there are two sets of narcotic laws and sixteen regulations based upon them, but he overlooks the fact that these sixteen regulations refer to only one of the laws, and how many regulations there may be to-morrow or the next day, when some dreamy clerk wakes up with a new idea, relating to the other law nobody knows. The writer truly remarks that if all the laws were strictly enforced—and they might be any day if some deputy were suddenly to realize that he or she was not earning his or her wages—only a retired physician would be safe from jail.

Then there is the prohibition law. Any well man in New York City, and we presume elsewhere, who wants a drink and has the price can get it, but

the sick man whose health or life may depend on it can whistle with what breath is left in his body and won't get it. Owing to the vexatious formalities required of a physician seeking for a permit to prescribe alcohol, to say nothing of the insults to which he is liable from some swollen headed clerk or spy, comparatively few practitioners are able to prescribe the drug for their patients, and even these are restricted in the amount which they can order, the dose being limited to an average of twelve teaspoonfuls a day. The correspondent of the *Times* above referred to, claims that he is really not criminal in his instincts or habits, but says that he cannot practise his profession without doing perhaps petty but really criminal things. He states further that he has been trying for nearly nine months to get a permit to have pure ethyl alcohol for surgically external use in his office. "I have been visited," he writes, "by two inspectors, who examined my professional outfit and asked about my professional career. I have signed and sworn to various documents testifying to my correctness of life, etc., but I have no permit and must infer I am unfit." He doesn't say so, naturally, but we have little doubt that he has obtained the alcohol he needs by some criminal act. It was William H. Seward, we believe, who said that "there is a higher law than the Constitution."

There is a bill before the New York Legislature repealing the narcotic drug law of the State, which we hope will pass. (It is the Lord bill to which we refer, and not the Smith-Fearon bill.) The Harrison law with some amendments will be sufficient to restrict the traffic in these drugs without forcing the mass of the profession into the ranks of evaders, if not breakers, of the law.

CAN THE BLIND SEE?

CANTONNET, the well known ophthalmologist, asks this question in all seriousness in *La Presse Médicale* for December 8, 1920, xc, 90. By "blind" is meant actual loss of the eye bulbs, as in the result of double enucleation, and by "see" is connoted the ability to distinguish forms, dimensions, colors, etc. Hypnotists have often asserted that some subjects can read books placed against the chest or cranium, and in such cases thought transference has been excluded. Recently Farigoule has published a book on extraretinal vision in which he describes new experiments on the hypnotized with bandaged eyes. Some of these are striking, and after some delay the subjects have described and identified objects placed not only in front of the eyes but elsewhere on the surface. The practical end of this subject is the possibility of restoring sight to recently war-blinded victims. Cantonnet has thus far tested four blind men, all but one being war blinded. With two of these the result was absolutely negative after 12 or 14 hours of trial. A third gave also a negative result, although the duration of the experiment may have been too short. The fourth patient was a civilian aged 59, a medical colleague endowed with great faculty of analysis and perseverance. The trial lasted 45 hours but there was not so much

as a perception of light obtained. Nevertheless, Cantonnet does not abandon hope, since others have reported positive results. In Boirac's recent work on unknown psychology a hypnotized subject is said to have read print too fine for ordinary eyesight and in the absence of illumination.

DURATION OF PREGNANCY.

LABOURÉ writes briefly on this subject in *Le Progrès Médical* for December 4, 1920, xlviii, 50. He refers to a recent article by Vignes which claims that the difficulties in evaluating the length of a gestation are manifold. Vignes cites the interval between the Feasts of the Annunciation and Christmas, and certain episodes in mythology in the research for the earliest attempts at this computation. But it is universally admitted that the length of normal gestation shows much variation. The averages have been 9 solar or 10 lunar months—274 to 280 days, but the real unit should be the ovarian cycle. This varies from 27 to 30 days, according to the woman. In case 10 is the multiplier we would have 270 days for the first type, 300 for the last type, and others between. But while the ovary determines menstruation we do not know that it also determines the time of labor. There is a field here for exhaustive study—for comparison in healthy women of the ovarian cycle with the duration of gestation. The latter would also have to come up to a certain standard of perfection. But it is usually difficult to fix the date of the fecundating coitus and even impossible at times to determine within a day or so when labor really begins. An unknown component is the time required for the semen to reach the tubes; for while this may take place within a few hours as shown in special cases of violent death, we do not know the average interval. To fix the moment at which the spermatozoon enters the ovum is of course quite impossible, and it would be more practicable to fix the period of embedding which appears to be the first actual beginning of gestation.

MASTOIDITIS AND SUBOCCIPITAL POTT'S DISEASE.

PORTMANN of Bordeaux contributed a monographic article on the above named subject in the *Revue de Chirurgie* for September-October, 1919, xxxviii, 9-10. The subject is on the border line between surgery and otorhinolaryngology. The author finds that the question of differential diagnosis between the two above named affections has been much neglected. Failure to make the correct diagnosis might in either mistake prove disastrous. Suboccipital Pott's has repeatedly been diagnosed as mastoiditis, but the medical men who make the mistakes do not always publish them. Moure of Bordeaux has seen two cases and the present author one, which is described. The differential diagnosis applies to three separate conditions: (1) An abscess has not formed; (2) there is a cervical abscess; (3) there is a fistulous tract. If there is no abscess forming as yet, auricular symptoms point to mastoid disease and absence of such symptoms to Pott's. Stiff neck in mastoiditis is usually absent or at best very slight, while it is a marked symptom of Pott's disease. In Pott's the mastoid region

shows no deformation. Pain, both spontaneous and induced, is referred to the affected region. After abscess formation has occurred, the pain in Pott's is not conspicuous, while in mastoiditis it is pronounced and unilateral. In Pott's we have a "cold," in mastoiditis a "hot" abscess. Punctates show the characters of the two types. If not seen until the fistulous stage the fistula presents the characters of tuberculosis in the Pott's patient and that of a phlegmon in the other. Both the radiograph and the probe should be decisive.

News of the Week.

Hearing on Amendment of Compensation Law.—Little opposition was expressed at the public hearing in Albany on March 2 to the Burlingame bill amending the workmen's compensation law to provide medical treatment for injured employees at the expense of employers and empowering the commission to fix minimum fees for surgical and medical attendance. The measure was opposed by the State Industrial Commissioner, Henry Sayer, who suggested that a legislative committee be appointed to study the medical question so far as it related to workmen's compensation. Representatives of the State Federation of Labor spoke in favor of the bill.

A Case of Typhus Fever at Massena, N. Y.—A case of typhus fever was reported to the State Department of Health from Massena, St. Lawrence County, on March 2. The patient, a Hungarian woman, arrived at New York, Feb. 6, from Rotterdam. The vessel on which she came was detained at Quarantine for ten days. She arrived at Massena Feb. 16 and was taken ill a week later.

No Special Appropriation for Quarantine.—On March 2 Congress was asked to appropriate \$1,291,330 with which to fight typhus fever at the Quarantine stations at Boston, New York, Baltimore, and Philadelphia. In explaining the need for this appropriation Surgeon-General Cumming stated that the accommodations at Hoffman's Island had not been increased materially for the past twenty years, and are only sufficient for the detention of about 1,500 persons. There is at present no water supply at Hoffman Island, the water being supplied by lighters. The cost of properly equipping the station is estimated at approximately \$500,000. Congress adjourned without making the appropriation.

Doctors Turn Over Wartime Profits to Science.—The sum of \$500,000 has been given by Dr. Jay Frank Schamberg, Dr. John A. Kolmer, and Prof. George H. Raizess to the Dermatological Research Laboratory of the University of Pennsylvania. This sum represents the profits received by the laboratories during the war from the sale of arsphenamine. For more than a year after the German supply was cut off this was the only laboratory in this country supplying the drug. It was sold for about one-third less than the usual price of the German product and was supplied in great quantities to the Army and Navy. In turning the money over to the laboratory, Dr. Schamberg said that he in no sense regarded the half million dollars as a gift; he felt that it belonged to the laboratory; that he was simply going

through a legal process to turn it back to them. The Dermatological Laboratory has discontinued the manufacture of arsphenamine and resumed its scientific work along the lines which it originally followed.

Lay Cornerstone of New Hospital.—The cornerstone of the new Beth David Hospital at the corner of Lexington Avenue and One Hundred and Thirteenth Street, New York, was recently laid. This ceremony marked the opening of a campaign to raise \$150,000 needed to complete and equip the new building. The hospital has recently opened a new clinic and dispensary with a staff of twenty-six physicians and surgeons, at a cost of \$51,000.

United States Public Health Service Hospitals in Pennsylvania.—Plans prepared by the United States Public Health Service and about to be put into effect will largely increase the hospital facilities for ex-service men in Pennsylvania. At Pittsburgh the capacity of Marine Hospital No. 15 will be trebled at first by the addition of a dozen portable buildings of approved type, and later, when Congress appropriates the necessary money by permanent construction. At Philadelphia the United States Public Health Service has recently acquired from the Navy a large hospital for the care of ex-service men suffering from nervous and mental diseases. Its capacity is between 400 and 500. It is hoped that this hospital will become permanently devoted to work of this kind.

Public Health Service Gets Rutland Sanatorium.—The model tuberculosis sanatorium nearing completion at Rutland, Mass., originally established by the New England Sanatorium Association, has been leased for a term of years by the United States Public Health Service. Within two months it is expected that the hospital will be able to accommodate 100 patients and that it will ultimately care for 300. The finished building will be the last word in tuberculosis. The surroundings are ideal, and the ex-service men who will shortly fill this hospital will be assured of the best that modern science can provide.

Survey of Government Sanatoriums.—Eminent tuberculosis specialists who, at the request of Surgeon-General Cumming of the United States Public Health Service, have been visiting the tuberculosis hospitals of the service, have completed their task and submitted their suggestions. Steps to put into effect their suggestions were immediately taken and are already in operation in part. Those who made the survey are: Dr. David Lyman of Wallingford, Conn.; Dr. Victor Cullen of the Maryland State Sanitarium; Dr. Martin E. Sloan of Towson, Md.; Dr. George Thomas Palmer of Springfield, Ohio, and Dr. Henry Hoagland of La Jolla, Cal.

Community Hospital Unaffected by Action of Board of Regents.—According to an announcement made by Dr. William H. Diefenbach, president of the Community Hospital, New York City, the recent action of the State Board of Regents in removing the trustees of the New York Medical College and Hospital for Women will have no effect on the Community Hospital, which operates under a charter from the State Board of Charities. The college ceased to operate in 1918 and its charter was surrendered last year.

Hospital Cuts Wages.—The New York Post-Graduate Hospital has reduced the salaries of its 250 employees approximately 20 per cent., and as a result some 75 to 100 employees have resigned. In making this reduction the directors of the hospital state that the reduced wages compare very favorably with those paid in similar institutions. Six internes who received no salary, but only board and lodging, have also been dropped. It is said that by these salary decreases the institution expects to save about \$1,000 a month.

Campaign Against Cancer.—During the week beginning March 7 a series of mass meetings to control cancer were held in New York City through the cooperation of the American Society for the Control of Cancer, the New York City Department of Health, and the Board of Education. The meetings were held in various public school buildings throughout the city and were designed to educate the general public in the necessity for the early recognition and treatment of cancer.

In Memory of Elizabeth Blackwell.—A stated meeting of the Women's Medical Association of New York City will be held on Wednesday, March 16, at the Academy of Medicine, at 8:15 P. M., to honor the memory of Dr. Elizabeth Blackwell, pioneer woman physician of America, on the 100th anniversary of her birth. Papers will be read by Drs. Sarah J. McNutt, Ethel Blackwell Robinson, and Annie S. Daniel.

A Hearing on the Narcotic Bills.—A public hearing was held in Albany on March 8 on the three narcotic bills now before the Legislature. The opposition was centered chiefly on the Smith-Fearon bill, which would result in herding all addicts into institutions or forcing them to look to the underworld for the drug which they cannot do without. The bill was supported by the Medical Society of the County of New York, represented by Dr. W. P. Healy and opposed by the Medical Society of the State of New York through Dr. James A. Rooney of the legislative committee. It was also opposed by Dr. John P. Davin, Judge Cornelius J. Collins and others. Judge Collins took occasion to score the Health Commissioner of New York City for the cruel registration rule, which he said drove addicts to stand in line before the Narcotic Commissioner's office for the delectation of "rubber-neck" tourists.

English Village Holds Age Record.—A correspondent of the London *Daily Mail* writes that Dawes Heath, in Essex, a little town not on the railroad map, probably holds the record as regards number of aged inhabitants. In this village there are twenty people of eighty years or more, three of ninety or more, and any number of stripplings of seventy and youths of sixty or more. Everyone is expected, except by some dire mischance, to live at least until he is eighty. One energetic young woman of eighty-three, when asked why they were all so old and so well, replied that perhaps it was hard work; that it was her habit to rise at six in the morning and to keep busy until eleven or twelve at night.

Alcoholic Liquors in Patent Medicines.—Attorney-General Palmer has ruled that whiskey and other liquors may be used in the manufacture,

under permit, of certain patent medicines and toilet preparations. The products in which, under the ruling, whiskey and other liquors may be used are medical preparations manufactured in accordance with formulas prescribed by the United States Pharmacopeia, patent and proprietary medicines unfit for use as beverages, and toilet, medicinal, and antiseptic preparations unfit for beverage purposes.

Rear Admiral Cary T. Grayson has been ordered by the Navy Department to duty as officer in charge of the Naval Dispensary in Washington. It is stated that he will continue to be the personal physician of ex-President Wilson.

Dr. D. L. Rauch has removed his offices to Hotel St. Margaret, 129 West Forty-seventh Street, New York.

Dr. Leon Becerra, chief health officer of Guayaquil, Ecuador, and member of the Commission of the Rockefeller Institute studying the yellow fever situation, died on March 3 of injuries received in a street car accident.

The Second International Congress of Eugenics will be held in New York City, September 22-23, 1921. All communications concerning the meeting must be addressed to the Secretary-General, Dr. C. C. Little, American Museum of Natural History, 77th Street and Central Park West, New York City.

Professional Guild Organized in Chicago.—At a meeting held in Chicago on February 23, following an address by Dr. John J. O'Reilly of Brooklyn, an organization of doctors, dentists, and druggists was effected along the lines of the Professional Guild of Kings County. It has for its object the protection of the medical, dental, and pharmaceutical professions against the socialization of medicine and to keep the safeguarding of the public health out of machine politics.

Women Recover Control of Medical College.—The Alumnae Association of the New York Medical College and Hospital for Women announces that the State Board of Regents has removed the Trustees of the college, thus bringing victory to the group of women physicians who have sought to recover control of the institution from men physicians. The hospital building is now occupied by the Community Hospital and it is stated that control of the hospital building will probably become a matter of litigation.

The Parkin Prize.—The Royal College of Physicians and Surgeons of Edinburgh announces that the Dr. John Parker Prize of one hundred pounds sterling is open to competitors of all nations. The subject of the essay for the present period is "On the Effects of Volcanic Action in the Production of Epidemic Diseases in the Animal and in the Vegetable Creation, and in the Production of Hurricanes and Abnormal Atmospheric Vicissitudes." Essays intended for competition must be written in the English language and must be received by the Secretary, Dr. J. S. Fowler, not later than December 31, 1921. Each essay must bear a motto, and be accompanied by a sealed envelope bearing the same motto outside and the author's name inside.

Gifts and Bequests.—The value of bequests to charitable institutions made by the will of the late Henry Clay Frick has greatly depreciated since the testator's death, and according to estimates made

in Pittsburgh, where the will was probated, are as follows: Children's Hospital, Pittsburgh; Allegheny General Hospital, Home for the Friendless, Pittsburgh; Kingsley House Association, Pittsburgh; Mercy Hospital, Pittsburgh; Pittsburgh Free Dispensary, Western Pennsylvania Hospital, Pittsburgh; Uniontown Hospital, Fayette County, Pa.; Cottage State Hospital, Connellsville, Pa.; Mount Pleasant Memorial Hospital, Westmoreland County, Pa.; Westmoreland Hospital, Greensburg, Pa.; Braddock General Hospital, Allegheny County, Pa.; Homestead Hospital, Homestead, Pa.; each \$200,000; the Lying-In Hospital of the City of New York, \$600,000.

The will of the late Helen F. Massey of Philadelphia makes the following bequests: Hospital of the Protestant Episcopal Church, \$500,000; Pennsylvania Hospital, \$500,000; Pennsylvania Society for the Protection of Children, \$300,000, and the Gyncecan Hospital, \$150,000.

The Officers and Councillors of the American College of Physicians, held at Baltimore, February 25, 1921, elected the following officers: *President*, Dr. James M. Anders, Philadelphia, Pa.; *Vice-President*, Dr. Frederick Tice, Chicago, Ill.; *Second Vice-President*, Dr. C. C. Bass, New Orleans, La.; *Secretary General*, Dr. Frank Smithies, Chicago, Ill.; *Treasurer*, Dr. Clement R. Jones, Pittsburgh, Pa.

Vacancies for Physicians.—The New York Civil Service Commission announces a vacancy in the State Institute for the Study of Malignant Disease, Buffalo, for an internist, at a salary of \$2,500. Candidates must be physicians who have had not less than two years' experience in a recognized hospital of high standing. This is strictly a research position. A vacancy for a psychiatrist at the New York State Reformatory for Women is also announced. The position carries a salary of \$3,000 and maintenance. Candidates must be physicians with special experience in psychiatry. Application forms will not be sent out by mail after March 14 and may not be accepted after March 16. For the application form address the Civil Service Commission, Albany, N. Y.

New York Academy of Medicine Increases Non-Resident Membership.—At the stated meeting of the New York Academy of Medicine, held March 3, 1921, the recommendation of the Council that the Constitution be amended so as to increase the number of Fellows not residing in the city of New York from 250 to 300, was adopted.

Obituary Notes.—Dr. FRANK A. MCGUIRE, physician at the Tombs Prison, New York, for twenty years, died of heart disease at his home, on February 28, at the age of sixty-seven years. He was a graduate of New York University Medical School in 1877. He was appointed physician to the Department of Corrections soon after graduation.

Dr. WILLIAM FISKE WHITNEY, Curator of the Warren Anatomical Museum at Harvard University, died at his home in Boston, on March 4, at the age of seventy-one years. He was graduated from the Harvard Medical School in 1875.

Dr. RALPH C. KLEPSEK of Altoona, Pa., died on February 21 at the age of sixty-five years. He was graduated from Bellevue Hospital Medical College in 1878.

Correspondence.

LETHARGIC ENCEPHALITIS.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—We are apparently in the beginning of an epidemic of encephalitis lethargica (sleeping sickness). Several things stand out. First, it is evidently infectious or contagious. Secondly, we do not know the mode of transmission. Thirdly, there is no positive information as to the specific causative factor responsible for the disease, consequently there can be no specific serum treatment. The pathology of the disease indicates an unquestionable infection as shown by Marinesco and Mott, closely resembling the pathological changes demonstrated in the recent influenza epidemic, and therefore it may possibly be due to the same organism. Until the discovery of a specific germ, there can be no specific treatment.

It would seem, in view of the evidence submitted by McDonaugh, that the body produces certain non-specific substances on which it naturally depends for defence against infections of all kinds, and which his investigations seem to prove are capable of being stimulated to increased activity by certain metals. In combating infectious diseases to which "sleeping sickness" evidently belongs this natural defence of the body should be made use of. Metals, especially in colloidal form, do this and should be employed at a time when we have no specific treatment, because it is working along the lines of stimulating or assisting the natural resisting powers of the individual, while symptomatic treatment, used to remove symptoms to make the patient more comfortable, seems to be not only of doubtful value, but possibly harmful when the tissues to be acted on, owing to their diseased condition, are not capable of responding. Therefore material injury may accrue to the patient for the reason that, the cause not being understood, the treatment is directed solely to the symptoms. Colloids of several metals, gold, silver, manganese, etc., properly applied stimulate the protective resources of the body and consequently assist the patient to recovery.

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WHY IS A NARCOTIC COMMISSION?

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—An initial appropriation is a latch-key to the Deficit Door of the State Treasury. How true this is can be measured by the history of the Narcotic Commission which grew out of the Whitney investigation in December, 1917, and which comes before the people this year with a request for more than a quarter of a million dollars.

Why is this Narcotic Commission? Because there was not enough statesmanship in the whole State of New York in 1916 to write into the Statutes the Harrison Law and make possible the cooperation of the Federal and State authorities in striking at the various sources of supply through the American manufacturers and across the Border and by way of our Port of New York, instead of playing at cross-purposes, each jealous of the other and both making a mess of things.

Why is this Commission? Because when legislators want to be kept busy, after sessions, at the expense of the State, they put through a Commission and go about the State "investigating."

Why is this Commission? Well, a lady came from England, who was believed to represent an association which had purchased the rights to the Normyl Cure for drug addiction; this lady was taken up by some leaders of society and was designated a deputy narcotic commissioner and things went on for some time, the Commission as inactive as if it were narcotized and the new cure for drug addiction progressing actively, thank you. . . . And all this time there was tucked away in the law which gave the commission existence one of those cute provisions which empowers the commission to make "regulations" and to invest them with the "force and effect of statute," and on December 27, 1920, this commission made some utterly absurd regulations which prompted a mass meeting of doctors, dentists, and druggists in Kings County and afforded the lady deputy narcotic commissioner a chance to invite herself to the party and tell us that 20 per cent. of the doctors in the State of New York (one out of every five) indulged in the indoor sport of creating drug addicts and that the doctors had the harsh voice for the poor addict and the gentle voice and considerate attitude for the rich addict, and that we should cooperate with her commission and equip ourselves with duplicate and triplicate prescription books in order that we might write for so small a quantity as a millionth of a grain of codeine to a gallon of cough mixture, or any quantity of codeine's big brother, morphine, to infinity in both directions, whether it was intended to relieve the ordinary ills of man or the disease called drug addiction which, by some hocus-pocus, has been designated a "pestilential disease" in order to provide the citizens of New York with the very distressing picture of a snake line of unfortunate addicts in Centre Street. Well, that 20 per cent. statement is subject to one of two deductions—that there are 3000 medical prostitutes in the State of New York or that the charge is inexcusable. When the man in the street is making his choice of deductions he will please bear in mind the type and degree of self-sacrifice and devotion of the doctors of his State, in peace and in war, and per contra the fact which stands out like a sore thumb that the Normyl cure is a strictly proprietary remedy the property rights in which are held in England.

Why is this Narcotic Commission? To make it difficult, if not impossible, for a decent, self-respecting doctor to use, without risk of jeopardizing a reputation it has taken him years to construct, a class of drugs which have unquestionable value.

. . . It is all very well for this Commission to tell the public that it is after the panderers and rascals in the medical profession, but, as Grover Cleveland said: "It is a condition and not a theory which confronts us;" when it is possible for an official to deliberately charge the medical profession as a class with treachery to their order to the extent of 20 per cent.; when it is possible for a doctor to be arrested and put to the embarrassment and expense of his defense because he has made a mathematical miscalculation (People vs. Hoyt) and, after this is demonstrated to a chemist attached to the Depart-

ment of Correction (since dead) and detectives of the drug squad (still living), instead of an honorable apology for an over-zealous mistake, the doctor's medical counsel is informed, "If you beat us on this we will get him on something else." In view of this and of subsequent events the profession of medicine is warranted in believing that "the higher one is, the farther one falls" and in refusing, under the law of self-preservation, to treat an unfortunate victim of drug addiction by any method which includes the use of the sustaining drug, leaving him to the care (God save the mark) of the "experts" in drug addiction in the private sanatoria or to the mercy of institutionalism, which is precisely what the "uplifters" want.

Why is this Narcotic Commission when there is a "Lord Bill" before the Legislature which would abolish it and put the responsibility where it properly belongs, with the peace officers of the State and the local health departments and the agencies of healing, public and private? Then, this legislative excrescence being obliterated, *write into the statutes the Harrison Law* in its entirety and put it up to the police to round up the panderers, lay and medical, and to the Federal authorities to protect the border and follow the drugs right into a municipality where, instead of friction, they may find co-operation by the peace officers; putting it up to the medical profession to study and solve the problem, as individual practitioners and as groups in their hospitals and medical societies; protect the sick citizen in an honest endeavor to rid himself of his curse by throwing every safeguard around the honest doctor who is trying to help him. Don't make him feel the law is his enemy that will pick him up and stick him away and, after a week or ten days, send him forth "cured" whereupon some smug "uplifter" gives him the "right hand of fellowship" as he departs and with his left index finger points him out to a "gum shoe" man who will "check him up" in his home and place of occupation, regardless of his domestic privacy, self-reliance, and self-respect. Give the poor victim a chance; they can do it in Boston, why not here?

Personally I have no use for the "gradual reduction" method or the substitution of "pilocarpine" to produce what the poor victims call the "spitting and sweating" stage, but neither that fact nor the fact that I have not dispensed or prescribed any of these drugs in years (I am not conceited enough to believe) furnishes any argument against their proper use. I believe firmly in what the Bostonians call the "cold turkey" plan. The district attorney, acting in concert with the health authorities, receives an addict for treatment under any old name, John Doe, Richard Roe, etc., so as to preserve his pride of self and family; he is treated as a man who desires relief and not as a *thing* which deserves a blow; he is put to bed and by chologogue and mild cathartic and saline enemas thoroughly cleaned out, and then he is supplied with highly nutritious food, in small quantities, frequently repeated, and the tired, exhausted heart-muscle is watched and needful stimulation applied until he begins to get his percentage of tone from the digestion and assimilation of his food material. Of course he suffers some pain, but the fear which intensifies that pain is allayed because he is taken into the confidence of the

doctor and made to understand that it is due to body-waste producing irritability of his musculature and the nerves of sensation and if he will give nature a chance she will clean up shop. Then, above all other things, he is impressed with the fact that the doctor is the professor (who teaches), the man is the doctor (who practises), and the body is the patient, and upon their cooperative work depends the result. The personal equation is aroused by this man-to-man method and the records show that *they do not die* but get well and stay well and act as missionaries.

Here is no proprietary nostrum; here is no ad-dict-baiting for the sake of a record of arrests; here is a situation with which the medical man must be in sympathy; here is a condition which can be brought about in New York State just as soon as we get rid of an overlapping narcotic commission and awake to the narcotic situation as a disease—not pestilential which calls for an exhibition of unfortunates on the city's streets; not criminal, save in some instances in the underworld; but a purely physical condition of disordered chemistry which hysterical propaganda has made into a hopeless slavery. "Let's play the game," as Polyanna says, and be glad that Boston has shown us the way and go to it by passing the "Lord Bill," writing the Harrison Law into the Statutes; locking up and forcibly treating the vicious addict from the underworld; apprehending the panders, lay and medical, and shutting off their source of supply; letting the sincere victim turn with confidence to his family doctor and the family doctor, under the protection of law, do his level best in the home or in the hospital to restore the victim to health and civic and economic usefulness; save the patient's personal pride above all things and treat him as a man! but get rid of that commission that has not done a constructive thing since the unfortunate day it was born; the gratuitous insult to the people's agencies of healing bars any possible cooperation between men and women of medicine and lay commissioners, male or female, who proceed on the theory that the commission's the thing and the profession of medicine its Man-Friday to submit to fool regulations which have the force and effect of laws and to kiss the hand that issues them.

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OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, February 15, 1921.

Post-War Marriages.—An official of the Registrar-General's Department at the Ministry of Health informed a representative of the *Daily Telegraph* that the latest figures issued by the German Statistical Office show that the post-war marriage boom is even more accentuated in that country than in England and Wales. In the March quarter of 1920 the rate in the new Germany reached the unprecedented figure of 25.80 per 1,000 of the population, nearly double the rate for the corresponding quarter of 1913. In England and Wales the March quarter has long been the one in which fewest marriages are solemnized, but while those of 1914 were 11.2 per 1,000, the figure for 1920 was 14.8. Like those in England,

the German marriages show a great rise in the proportion of widows remarrying. In Bavaria, before the war, only 6.9 per cent. of the women marrying were widows, while in 1919 the number had risen to 13.8 per cent. There is, too, an increase in the ages of the contracting parties. Before the war only 20 per cent. of the men marrying in Herse were over 30 years of age, while in 1919 the percentage had risen to 32. In 1913 36 per cent. of the women were over 25 years of age; in 1919 the percentage was as high as 51.

State Medical Benefits.—Dr. Addison received at the Ministry of Health on February 10 last a deputation from the Trade Union Congress, which was then in session, who submitted a series of resolutions passed by the Congress relating to national insurance, the provision of a State medical service and the treatment of patients by panel doctors. The points urged by the deputation were: (1) Payment of increased benefits under the Insurance Acts for sickness of £1 a week for twenty-six weeks, and 10 shillings for the remainder of disablement; all members of 70 years of age, and becoming uninsurable, to receive 10 shillings a week disablement pay for the remainder of life. (2) The institution of a full medical service throughout the Kingdom under the Ministry of Health, the present hospitals and infirmaries to be taken over for the purpose and moneys provided by Parliament and local authorities. (3) An inquiry into the treatment of patients by panel doctors and a suggested limitation of the number of patients taken by one doctor. (4) Unhealthy and dangerous occupations to be provided for by State liability. Dr. Addison, in reply, said that while he was sympathetic to some extent with the aims of the deputation, they were asking the department to incur expenses which in the present condition of affairs it could not afford. The increase in the benefits under the Insurance Act, was not a practical proposition, nor was the suggested allowance of 10 shillings a week disablement pay to uninsurable persons of 70 years of age, which would involve an additional expenditure of forty million pounds a year. With regard to panel patients, the department had already limited their number to each doctor, and where the cases were more than the doctor could properly deal with the obligation rested upon him to employ an assistant. As for the provision of a State medical service, the time was not opportune for the consideration of such a proposal.

London Recuperative Homes for the Victims of Shell Shock.—The Ex-Service Welfare Society was formed with the object of securing for ex-service men of all ranks suffering from nervous and mental breakdown the best possible conditions for their recovery. The society takes the view that such cases are quite inadequately dealt with in asylums and that what is required is the proper atmosphere of cure and treatment of the most intensive kind. A recuperative hostel, or home of recovery, has therefore been started at Hampstead and another is to be opened shortly at Putney. Dr. Davis Waite and Dr. Laughton Scott have given recently some interesting particulars of the objects in view. The homes are to suggest a country house rather than a hospital. They

will be comfortably furnished, and each patient will be treated, as far as possible, as if he were in his own house. In the decoration of the house attention will be paid to the color scheme, which has been found of definite remedial value. The homes will be fully equipped for those forms of treatment which are found of great benefit at European and British Spas, among which are electrical baths, sedative baths, and lavage. Particular care is directed to dietetic treatment. The matrons and nurses have been selected for their proved skill and enthusiasm, and the services of expert medical advisers will enable each patient to enjoy the fullest benefit from modern psychotherapeutic methods.

The Expenditure of the Ministry of Health.—

A great deal of criticism is being launched by a section of the lay press against the schemes formulated by the Ministry of Health and in connection with the Ministry of Health stringent strictures have been made by certain journals which have a large circulation and consequently carry a considerable amount of weight, with respect to records which have been ordered by the National Health Insurance authorities to be kept by panel doctors of their patients. These records are to some extent public and a great fuss has been made in these journals as to the offence against recognized medical ethics in divulging professional secrets. These statements are exaggerated and that this is the case is evident from, at any rate, the fact that the two principal medical journals here have made but slight reference to the subject and have forbore to criticize. This attitude is doubtless because nothing is found to criticize with regard to record keeping. The nation is growing under taxation, and capital is made out of this by prejudiced journals to attempt to discredit the government. The Health Department is, perhaps, the one which has laid itself most open to criticism, mainly, perhaps, on account of its housing bill, and therefore every step taken by this department is subjected to almost virulent and oftentimes unfair criticism. It must be borne in mind that the keeping of records is essential to progress in medicine and surgery witness the success of "follow-up" departments in some American hospitals. In the leading article of the *Lancet*, February 12, comments are made upon an article by Dr. C. L. Gibson, which appeared in the *Annals of Surgery*, December, 1919, and which is an analysis of the results of six years' follow-up system in a hospital surgical service. The system is successful in that as the *Lancet* says it is only by such records of past history and happenings that real progress can be made in medical or surgical treatment, and it is to be hoped that establishments of this sort will rapidly be founded in all big hospitals. The animadversions against the policy of the Ministry of Health have been so acute that Dr. Addison, the Minister of Health, has thought fit to defend the schemes and doings of his department in the public press. In the course of his article he points out that some of the critics seem to be under the impression that the financial burdens of the Budget are at all events in a great measure due to the Ministry of Health and fail entirely to

realize how small a proportion fall on our national expenditure. On November 30 the Budget estimate for the year 1920-21 was stated to be £1,423,600,000. Of this prodigious and alarming sum only £1,100,000 was required in respect of maternity and child welfare services for England and Wales. This represents somewhat less than one-fifth of a penny (two cents) of each pound in the Budget, so that if the most enthusiastic reactionary had his way and the whole service were wiped out, including not only those developments of it for which the Ministry of Health is responsible, but the whole service lock stock and barrel, the relief to the taxpayer would be one-fifth of a penny out of every pound of taxation. He goes on to state that the particular services that the Health Department have sought to develop are: The health of the mother during and after confinement, and secondly, the welfare of the infant and little child. The maternal mortality due to childbirth is still high. From four to five mothers die per 1,000 children born and many more are injured permanently or temporarily. There is thus a loss to the nation of about 3,500 young women every year, a loss which should largely be prevented and which the department aims at reducing as much as possible. The Ministry are trying to do this by supervising the health of the expectant mother, by improving the midwifery service, and by providing small maternity homes where women whose home conditions are unsatisfactory, can be attended at childbirth under cleanly conditions by skilled workers. The department rely on two chief methods for promoting the welfare of the little child, namely, health visiting and the development of infant welfare centers. The object of both is education, the health visitor advises and teaches the mother in her own home. At the center the mother is advised by the doctor how to bring up her baby and how to keep it in good health. The intention is to train the mother to keep the baby well and prevent it from falling sick. During the past few years there has been a substantial increase in the number of maternity and child welfare centers, especially in the industrial districts where they were sorely needed. Dr. Addison said he had noticed that some of the department's hostile critics showed a really extraordinary promptitude to suggest that although this most remarkable decline in the infant death rate had occurred during the past two years, the Ministry of Health could not in any way claim any share in having assisted toward this result. Dr. Addison remarks that far be it from him to put forward high claims, but there is an almost ostentatious unfairness in criticism of this sort. It is pointed out that the awakening which the war has caused as to the vital necessity for the preservation and care of the childlife of the nation is a most important contributory factor. Increased wages and better feeding of the mothers are others. To pretend, however, that the improved measure of cooperation and effort in all directions of the local authorities and voluntary agencies which have been encouraged by the Ministry of Health and the sustained efforts which all have made to improve the quality of the service available have not had an

important share in producing the improved result is to ignore the true facts of the situation. The Ministry of Health have their hands too full and the housing scheme on account of its cost has rendered the department somewhat unpopular, but at the same time much of the criticism directed against its policy is far fetched and unjust.

Progress of Medical Science.

Boston Medical and Surgical Journal.

February 24, 1921, clxxiv. 8.

1. Seminal Vesiculitis. John H. Cunningham.
2. Primary Disease of the Pelvic Lymphatic Glands. John T. Williams.
3. Fascia Used to Mobilize a Stiff Knee. Louis A. O. Goddu.
4. Defective Delinquents in the Army of Occupation. L. Vernon Briggs.

2. **Primary Disease of the Pelvic Lymphatic Glands. An Unrecognized Gynecological Condition.**—John T. Williams presents the histories of three cases which lead him to the conclusion that primary enlargement of the pelvic lymph glands is a distinct clinical entity not generally recognized in gynecology. The diagnosis is to be based upon a pelvic mass definitely not connected with the uterus or its appendages, giving rise to pain and tenderness referred to the iliac fossa of the affected side, with or without elevation of temperature, and with or without psos spasm on the affected side. The white count in the cases observed has been only slightly elevated. The treatment of the disease of the pelvic lymph glands is the same as that of enlarged or diseased glands elsewhere in the body. A mass definitely containing pus should be opened. Where the glands are acutely inflamed, but suppuration has not taken place, treatment should be restricted to rest and cold applications. Where enlargement of the glands is sufficient to cause pressure on important organs and does not rapidly subside under palliative treatment, excision is indicated.

Journal of the American Medical Association.

February 26, 1921, lxxvi. 9.

1. Derangement of the Semilunar Cartilage: Observations in Seventy-six Operative Cases. Louis Strahlmann and J. W. White.
2. Gastric Analysis: II. The Interdigestive Phase or the Principles Governing the Phenomena of the Resting Stomach. Martin E. Rehfuess and Philip E. Hawk.
3. Indirect Expulsion of the Placenta. Joseph L. Baer.
4. Perforation of the Nasal Septum Due to Inhalation of Arsenous Oxid. Lawrence G. Dunlap.
5. Angina Pectoris of Diabetes. Max Kahn.
6. Splenomegaly with Multiple Abscesses of the Liver: Report of Case. J. Morrison Hutcheson.
7. Juvenile Tabes. Charles Rosenheck.
8. Rectal Injection of Massive Doses of Neo-Arsphenamin. Henry G. Mehtens.
9. Safety-Pins in the Stomach: Peroral Gastroscope Removal without Anesthesia. Chevalier Jackson and William H. Spencer.
10. Hereditary Multiple Cartilaginous Exostoses. H. II. Maynard and Clifton R. Scott.
11. Dissection of Intrahepatic Neoplasms by Aid of Diagnostic Pneumothorax. Maurice Fishberg.
12. Aleukemic Leukemia with Unusual Skin Manifestations: Report of Case. M. A. Blackenhorn and Harry Goldblatt.
13. Treatment of Aortic Aneurysm by Wiring and Electrolysis: A Further Report. Hobart Amory Hare.

3. **Indirect Expulsion of the Placenta.**—Joseph L. Baer describes as follows a procedure which he considers a reversion to nature's spontaneous method, utilizing the full power of the abdominal muscles to drive the uterus down against the separated placenta and so expel it. After the usual period of waiting, averaging half an hour, the placenta being separated, the uterus being in the midline and at the height of a contraction, as evidenced by its hardness and the pain the woman is experiencing, the abdominal wall is grasped by one or two hands, crosswise above the umbilicus, the fingers on one side beyond the rectus, and the thumbs on the opposite side also beyond the rectus. The recti are then pulled together and held firmly, thus taking up all the slack in the relaxed overstretched wall. The woman is now urged to bear down exactly as in the second stage of labor. Cooperation is essential, but

need last only a moment, the placenta being expelled exactly as in the spontaneous cases. Successful co-operation can be told by the tensing of the recti and their tendency to pull apart. The correct grip prevents this and the force is properly transmitted, that is, against the uterus. The method is applicable only after separation has occurred. This method was 90 per cent. efficient in the hands of seventeen men of limited experience. It entirely avoids manipulation of the uterus, and is considered worthy of a fair trial and possibly adoption as a routine.

5. **Angina Pectoris of Diabetes.**—Max Kahn considers that in treating a diabetic patient complaining of cardiac distress, the physician should make a thorough examination of the heart, and should determine whether or not the case is complicated by renal disease, and should prescribe the rest and quiet so essential in its relief, besides using the various medicinal remedies in his armamentarium, as well as controlling the diet. The bromides and codeine may be used as a sedative. One should particularly remember the fact that diabetes is essentially a disease of low blood pressure and one should not, on hearsay, prescribe the various drugs that induce reduction of blood pressure in his attempt to ameliorate the pain of angina pectoris.

7. **Juvenile Tabes.**—Charles Rosenheck reports a typical case of this rare condition, and from his study of the subject draws the following conclusions: 1. Juvenile tabes may be considered a distinct clinical entity in view of the long accepted dictum that adults alone were subject to the disease. That the creation of separate entities in a disease that affects both young and old may be justly criticised as being clinically confusing and scientifically unsound is not denied; but in view of the rarity of its occurrence and the special characteristics of the affection in the young, juvenile tabes is deserving of special recognition. 2. Juvenile tabes is the result of an hereditary syphilitic infection in the great majority of cases. An insignificant number of cases are due to syphilis acquired during infancy. 3. Its symptomatology differs in no way from that of the adult type, but special characteristics in its onset and course are worthy of note. 4. Early visual difficulties proceeding to blindness and optic atrophy are characteristic of fully 40 per cent. of the cases. 5. Lancing pains, ataxia, and visceral or vesical disturbances affect only a small number. 6. Trophic disorders are absent. 7. Females are particularly vulnerable to the affection; as twice as many girls show the disease as boys. The ratio in the adult type is placed as ten men to one woman (Gowers). 8. The prognosis is excellent for life, but extremely poor for vision.

The Lancet.

February 5, 1921, cc. vi.

1. Two Addresses on the Future of the Poor-Law Infirmaries. I. A. G. Stewart. II. R. Duddfield.
2. An Investigation of the Cause and Relief of Pain in Gastric Ulcer. E. P. Poulton.
3. The Induction of Abortion. Sir John Phillips.
4. The Incision for Appendicectomy. Norman C. Lake.
5. The Operative Treatment of Prolapse (Procidentia) of the Rectum in Adults. J. P. Lockhart-Mummery.
6. A Suggested London Co-operative Polyclinic. Charles A. Parker.

2. **An Investigation of the Cause and Relief of Pain in Gastric Ulcer.**—E. P. Poulton shows that an important element in the pain of gastric ulcer is due to distention of the stomach, and that it can be abolished by reducing the intragastric pressure. Two methods were adopted in this investigation: 1. A fine rubber tube similar to that used for withdrawing stomach contents in the fractional test meal method is passed into the stomach. There is some lead in the lower end of the tube, so that it can be localized by means of x-rays. Air or oxygen is passed into the stomach through the tube from a reservoir connected with a water manometer, so that the pressure exerted by the air current can be measured. The patient is asked to describe his sensations, whether of fullness or pain, while his stomach is being distended. 2. The patient is asked to pass a similar tube into the stomach when pain is experienced, and in many cases the pain is relieved within a few minutes by release of pressure. The tube should contain a

series of holes extending from its end in the stomach upward as far as the cardiac orifice. Stomach contents may be regurgitated through the tube. The gastroduodenal tube is a modification of the gastric tube. It connects the stomach with the duodenum, so that pressure is equalized through the pylorus. It is about two feet long, and contains holes about $1\frac{1}{2}$ inches apart throughout its length. Both ends are made opaque to x-rays by means of short pieces of thick lead fuse wire placed inside the tube between glass beads (in order to keep the digestive juices away from the lead) and securely fastened with silk. To one end of the tube is attached a piece of silk about 27 inches long. The end of the tube not attached to the silk is passed into the stomach, and then usually passes quite readily through the pylorus. The upper end of the tube is then anchored in the stomach 22 inches from the lips by means of the silk, which can be fastened round the ear or round a dental plate or pinned on the dress. The position of the tube can easily be determined by skiagraphic examination after the stomach has been outlined with a little barium sulphate suspension. It is important not to pass this tube too quickly into the stomach, for if the proximal end reaches the stomach before the distal end has reached the pylorus the tube may become tied into a knot and fail to get through at all. Thicker walled tubing is preferred to the thin rubber tubing, which is easily acted upon by the digestive juices.

5. The Operative Treatment of Prolapse (Procidentia) of the Rectum in Adults.—J. P. Lockhart-Mummery gives the following technique, to be performed after proper preliminary treatment: The rectum is thoroughly cleaned out with ether soap and lysol solution, and finally with 75 per cent. spirit and picric acid, the skin of the perineum and buttock being similarly rendered aseptic; after the prolapse has been returned a piece of gauze is placed in the rectum to prevent leakage during the operation. A transverse incision is next made about $2\frac{1}{2}$ inches long midway between the tip of the coccyx and the posterior margin of the anus. This is deepened until the connective tissue between the rectum and the sacrum is opened. With blunt dissection or with gloved fingers this space is opened as high up as possible and laterally till the rectum has been freed thoroughly at the back and sides. The whole of the space thus opened up is now lightly packed with sterilized vaseline gauze two inches wide, and made with a sewn edge, so that it will not fray and leave particles behind. A very considerable amount of gauze tape is used, but the object is to get this spread as flat as possible and not merely to fill the pelvis with it, and so block the rectum. As much as 40 yards of gauze have been employed in some cases. The end of the gauze is left protruding from the wound, and if (as is usually the case) more than one piece is used all the ends are firmly tied together at the finish. The anus is then restored. The type of operation for this purpose varies according to the condition to be dealt with. The method usually employed by the writer is to extend the ends of the previous incision forward on each side to about half-way between the anterior and posterior margins of the anal orifice. The flap thus formed is dissected up so as to expose the posterior half of the external sphincter. This muscle is then carefully defined and the lateral portions sewn together from behind forwards until the anal orifice is narrowed to the extent considered desirable. No. 1 catgut is used for the stitches, and they are not pulled tight enough to cut through the muscle fibers, but just to bring the sides of the sphincter in close contact. Supporting sutures are put in, and then the flap is loosely stitched back in position, leaving room for the removal of the gauze packing later. A short tube is placed in the rectum to prevent prolapse should the patient strain coming round from the anesthetic, and the whole perineum is covered with sterilized dressings. The wound is dressed twice daily and fresh dressings applied, but the packing is not removed for a week. An anesthetic is then given, all the packing removed, and a fresh lot of gauze introduced. This is left in for five days or a week, and then removed, no fresh gauze being introduced at this time, a drainage tube being placed in the cavity left by its removal. The wound should not be allowed to heal under three weeks, the more slowly

it heals the better being the results. The bowels are kept confined until the seventh day after operation, when they are relieved by an enema before the removal of the packing; after this they are opened daily with an enema. The patient is not allowed out of bed for six weeks and not allowed to sit up for an action of the bowels for two months at least. The prevention of sepsis is most important.

The Practitioner.

January, 1921, cvi, 1.

1. Treatment of Acute Nasal Sinusitis. Sir St. Clair Thomson.
2. Chronic Catarrhal Otitis Media. Sir William Milligan.
3. Venereal Diseases as We See Them Today. J. E. R. McDonagh.
4. Treatment of Gonorrhea in Women. Remington Hobbs.
5. Recent Progress in Gynecology. Frederick J. McCann.
6. Some Mistakes and Their Lessons. C. Hamilton Whiteford.
7. Raised Blood-pressure. Paul M. Chapman.
8. The Conduct of Practice: A Plea for Compulsory Apprenticeship. E. F. Pratt.
9. Theories of Malaria. Matthew D. O'Connell.
4. Treatment of Gonorrhea in Women.—Remington Hobbs discusses this subject with special reference to cases complicating pregnancy. It is generally held that treatment of the cervix is contraindicated, in cases of gonorrhea complicating pregnancy, by the risk of miscarriage, unless the circumstances are very exceptional, and the writer is of the opinion that under improper or unsuitable treatment this risk is a real one. He holds that there is greater risk of miscarriage from the infection of the endometrium than from properly applied treatment to the cervix. It is not only safe to treat the cervical canal, but decidedly in the patient's interest to do so. The eradication of the disease from the cervix presents one of the main difficulties, for by reason of the burrowing tendency of the gonococcus the deep-seated glands become infected, which after a time occludes their lining by adhesions. Gradual distention of the glands ensues, and ultimately the formation of small abscesses. In order to render the ducts patent again, it is necessary to denude a thick layer of epithelium, so that treatment can be more directly applied to the deeper structures. All that is necessary can be done to the endometrium with a minimized dilatation, irrespective of the condition of the surrounding adnexa, provided there are no acute symptoms. This simple operation can be repeated until the uterus is firm and hard, and the secretion in the cervix is normal. This method of treating the endometrium lessens the amount of congestion in the surrounding tissues, and does not promote it. From a surgical point of view cases are very familiar in which the tubes have been removed and the patient is as bad as ever, owing to the infection of the endometrium and cervix. When the infection is of an ascending type and salpingectomy would be necessary if other measures failed, the treatment outlined, unless the inflammation be of the grossest kind, obviates the necessity for surgical interference. An intensive form of treatment, as indicated, can be undertaken in cases of chronic gonorrhea, even in pregnant women, and it will do much to ameliorate the gravity of the conditions and to shorten the course of treatment.

British Medical Journal.

February 5, 1921, I, 3136.

1. The Cameron Lecture on the Necessity of Orthopaedic Training: Its Relation to the Prevention and Cure of Deformities. Sir Robert Jones.
2. A Preliminary Note on the Use of Vitex Peduncularis in Malarial Fever and in Blackwater Fever. Lieut.-Colonel J. C. S. Vaughan.
3. Dilatation of the Heart. D. W. Samways.
4. A Study of the Pneumococcus and Streptococcus Groups in Their Relation to Influenza. W. R. Logan.
5. Fracture of the First Rib. E. T. C. Milligan and R. E. Ford.
6. A Case of Myoclonic Encephalitis Lethargica Simulating Hydrophobia. Stanley E. Denyer and D. E. Morley.
4. A Study of the Pneumococcus and Streptococcus Groups in Their Relation to Influenza.—W. R. Logan studied the pneumococci and streptococci from cases of epidemic influenza, first in their relation to the earliest

stage of illness, when the infection was presumably a comparatively pure one; and second, with regard to their part in the more advanced cases, when pulmonary complications had set in. It was shown that pneumococci and aerobic streptococci could be cleared of suspicion of acting as initiating organismal causes in the epidemics; that the pathogenic organisms of these groups which were associated with the production of pulmonary complications were of a variety of types; that many of these were definitely infections from without, while with the remainder limitations of technique prevented exact proof as to their origin being brought forward; that the presence of saprophytic streptococci and of presumably saprophytic pneumococci in the lungs of many advanced cases may be explained as a late invasion of the already diseased lung, either by the patient's own mouth organisms or by the saprophytic mouth organisms passed on from another patient, while their presence in the sputum is, in many cases, due simply to the contamination of the specimen with organisms from throat and mouth. Both from the point of view of the history of the individual case and from that of the history of the epidemic itself, one may divide influenza into three stages: a primary stage, when the unknown infecting virus, whether it be Pfeiffer's bacillus, or some other organism, is apparently acting alone, though presumably frequently accompanied by other organisms which may or may not later be able to develop a like activity; a secondary stage, when pathogenic pneumococci and streptococci are active in producing pulmonary complications, either alone or along with other pathogenic organisms; and a tertiary stage, when saprophytic mouth organisms may invade the already diseased lung. It was shown that the type of pulmonary complication is to a considerable extent dependent on the type of pathogenic pneumococcus or streptococcus present; that pneumococci of Types I, II, and III, were associated, as was to be expected, with pneumonias showing definite consolidation, as were also certain of the Group IV pneumococci; that others of the Group IV pneumococci and the hemolytic streptococci were associated with complications of the bronchopneumonic and bronchitic types. The presence of complex infections in epidemics of this kind does not imply that the original bacterial cause at the beginning of the outbreak was not a single type of microorganism; nor does proof that the important organismal varieties are always types foreign to normal mouths and throats—are, in fact, infections from without—imply that the real primary agent in such epidemics may not be a temporary susceptibility, individual or general, due to causes at present unknown.

Archives Médicales Belges.

November, 1920, lxxiii, 11.

Implantation of the Sexual Glands.—Lydston, of Chicago contributes an original article on this subject and complains that he has been ignored by both Voronoff and Steinhach. His own début in the literature of this subject goes back to 1914. In one influential journal alone he published during that year no less than seven communications, and it is difficult to comprehend how his priority could have been ignored in Europe. The author then abandons the question of credit due and sums up the results of his extensive experiences, including one personal one. The recipient of the graft obtains a certain amount of hormone from the gland itself. Then the implanted interstitial cells of Ludwig continue to produce hormone for a longer or shorter time or until the implant has been absorbed or has come away. But the recipient obtains something in addition to the hormone, and this is probably an enzyme or other principle which acts as a stimulant to the entire organism. In other words, the hormone which produces the return of sexual potency may be distinct from that which generally stimulates the organism. In regard to human donors the glands may be derived from the victims of accident, acute poisoning, the drowned, gas-intoxicated, and those killed by hanging (but not the electrocuted). The criterion is instantaneous death, but this point could be stretched a little to include those who survive for a few hours (acute

intoxications). The results in practice differ greatly with the type of patient, the age, lack of masculinity, kind of impotence, etc. The most remarkable result cited was in a youngish man who was markedly effeminate, but apparently not an invert, who underwent a complete change of personality after one act of implantation.

Western Medical Times.

January, 1921, xl, 7.

1. Pain in Diseases of Abdominal Viscera. W. H. Foreman.
2. The Value of the "No Good". Burns, Douglas H. Stewart.
3. Smallpox and Vaccination Lantern Slide Lecture. F. E. Stewart.
4. A Few Words upon the Subject of Divine Healing and Something in Reference to a Cult That is Neither Christian Nor Science. Rev. Everett G. Johnson.

1. Pain in Diseases of Abdominal Viscera.—W. H. Foreman, in this, the first of a series of papers which will deal with gastrointestinal conditions, emphasizes the following points: 1. Visceral pain, due to distention, which the mind has learned to locate in the average position of the organ. 2. Referred pain which is the result of the arrival in the spinal cord of impulses from the diseased viscera, referred to the periphery of the sensory spinal nerves which arise from the spinal segment to which the visceral afferent nerves pass. 3. Parietal subperitoneal pain due to extension of the inflammation to the adjacent parietal subserous tissue. 4. Afferent sympathetic nerve fibres convey the visceral stimuli adequate to produce visceral or referred somatic pain. 5. Sensory spinal nerve fibres only are concerned in parietal subperitoneal pain.

II Policlinico.

January 24, 1921, xxviii, 4.

Epidemic Hiccough.—Zuccola of Cuneo refers to a type of what he calls epidemic encephalitis which seems to be distinct from the prevalent form. The first cases were reported from certain parts of France, and now something of the kind is evident in Italy. Unlike the older disease, the course is mild and the inception insidious. There is slight malaise, the head feels heavy and there is a certain amount of headache and vague rheumatoid pains in the body at large. The digestive and respiratory systems are almost spared. Fever may be slight and even absent, and chilliness is more marked. There are no pareses of the ocular muscles or implication of cranial nerves. Seemingly the chief if not the sole symptom is a clonus of the diaphragm, 15 to 25 to the minute, which may or may not be simple hiccough. It is not influenced by anything in the way of posture, medicines, etc. The condition is certainly not new in medical literature and the author cites many Italians who have formerly reported such cases. Hiccough has also been seen in both encephalitis lethargica and influenza, but the author believes in the autonomy of the new affection.

Incontinence of the Pylorus.—This is one of the new radioscopic maladies which has of late been attracting attention. At a session of the Paris Surgical Society last fall, reported in *Le Progrès Médical* for January 1, 1921, xlix, 1, Aubourg showed his fourth case. The prerequisite for its development is absence of all contraction of the stomach which involves failure of the pylorus to close. The ingesta pass directly into the duodenum on reaching the stomach. Other factors are tumors involving the pyloric sphincter and affections of the vagus and its gastric ramifications. There is no semiology of this condition, but under radioscopy we note an absence of contractions of the stomach and a gaping pylorus. The chief significance of the phenomenon is the revelation of the importance of the vagus to the gastric functioning. It is possible to divide affections of the organ into two groups in which there is either increased or defective innervation. In resection of the stomach involving the lesser curvature the terminal filaments of the vagus are apt to be sacrificed. The prompt escape into the intestine of undigested food naturally causes further trouble; one recent writer has noted the presence in these cases of fecal accumulations.

Book Reviews.

DIAGNOSTIK UND THERAPIE DER KINDERKRANKHEITEN. Mit speziellen Arzneiverordnungen für den praktischen Arzt. Von Prof. Dr. F. LUST, Oberarzt der Universitäts-Kinderklinik in Heidelberg. Zweite neubearbeitete Auflage. Berlin und Vienna: Urban & Schwarzenberg, 1920.

The first edition of this book appeared in 1918, the second in 1920. It is rare to see a text-book on the Diseases of Infancy and Childhood without illustrations. This book has been used by the students of the Heidelberg University and is intended to give the symptoms, the diagnosis, the differential diagnosis, and the treatment of infantile diseases. It does not describe the bacteriology or the pathology of diseases, but leaves these to other works dealing with these special subjects. The book is intended as an up-to-date handbook on diagnosis and therapeutics.

A TEXTBOOK OF MATERIA MEDICA. Being an Account of the More Important Crude Drugs of Vegetable and Animal Origin. Designed for Students of Pharmacy and Medicine. By HENRY G. GREENISH, F.I.C., F.L.S. Professor of Pharmacotics in the University of London, Director of the Pharmacy Research Laboratory, etc. Third edition, London: J. & A. Churchill, 1920.

The first edition of this book appeared in 1899 and the second ten years later. In the present edition the size of the book has been reduced while at the same time there have been numerous additions. The animal products now number 12, as follows: the leech, Spanish flies, cochineal, suprarenal and thyroid glands and pancreas, ox gall, pepsin, gelatin, musk, castor and cuttle fish bone. While the parathyroids, hypophysis, spleen, and thymus are mentioned they are not formally described. The book is considerably richer in information concerning the vegetable materia medica of the British Pharmacopoeia. Thus scammony appears under two classifications, gum-resins and roots, making nearly four pages of pure materia medica; while in the Pharmacopoeia the space devoted to the same subject is much less. Pyrethrum is described in two classifications, flowers and root, with double the amount of space found in the Pharmacopoeia, where flowers and root are described together.

MALARIA AT HOME AND ABROAD. By S. P. JAMES, M.D., D.P.H. (Lieut.-Colonel, I.M.S., retired). Fellow of the Society of Tropical Medicine and Hygiene, Fellow of the Royal Geographical Society and the Royal Society of Medicine, etc. New York: William Wood & Co., 1920.

The 10 sections of this volume are devoted respectively to the parasitism of the mosquito as the cause of the disease, which requires 4 of the sections; malarial surveys of England and of the tropics (two sections); the symptomatology, pathology, and diagnosis of malaria in 4 subsections; treatment of malaria; prevention and eradication of the disease and mosquito control. There are over 100 full page and text figures to 234 pages of text. The recent date of the book, together with the large number of illustrations, tend to give it precedence over other works in English. While the text is not voluminous in comparison with such great productions as the Italian work of Ascoli, there is a very full consideration of all the essentials of malaria and the book is entirely practical in its scope.

THE SERBIAN EPIDEMICS OF TYPHUS AND RELAPSING FEVER IN 1915, ETC. By WILLIAM HUNTER, C.B., Colonel A.M.S. Reprinted from the Proceedings of the Royal Society of Medicine, 1919, Vol. XIII (Section of Epidemiology and State Medicine), pp. 29-158. London: John Bale, Sons & Danielsson, Ltd., 1920.

Of three parts comprising the volume, the first shows the conditions preceding and present on the arrival of the Sanitary Mission, and the measures introduced by the latter. Part II describes the campaign against the disease until the latter was arrested and brought partly under control while Part III gives the status at the time of writing. At that juncture the work was by no means complete. The quarantine and cleansing station was firmly established with disinfection and

inoculation measures. The number of cases of typhus had been reduced one-half and of relapsing fever three-fourths, while typhoid had nearly been stamped out and over 20,000 men had been immunized against cholera.

THE COMMUNITY HEALTH PROBLEM. By ATHEL CAMPBELL BURNHAM, M.D., Health Service, Atlantic Division, American Red Cross; Attending Surgeon, Volunteer Hospital, New York City; Lieutenant-Colonel, Medical Reserve Corps, U. S. Army; Fellow New York Academy of Medicine. New York: The Macmillan Company, 1920.

THIS book may be divided into two parts. In the first part there appears an economic discussion which focuses the attention on the extent of sickness, gained from sources such as disability discovered by the draft, sickness surveys, examinations of school children, community health surveys, Framingham Health Demonstration and the Rockefeller Foundation. From these sources it is shown that "non-effectives" due to sickness at all times constitute a large group and reflect an economic loss to the community; from which it is justly premised that the public health problem of today not alone affects the individual but is a matter also for community consideration.

Following this the remainder of the book is devoted to a discussion of community activities in securing public health. There are discussed the campaign for better health, workmen's compensation and insurance, and compulsory insurance, these representing the combined efforts of the lay and professional campaigns. Then the purely professional activities, including industrial medicine, State medicine, and health centers, are presented. Chapters are included on special topics such as the social unit experiment and the question of tuberculosis. The obligation of the public in the matter of rehabilitating the disabled soldier is mentioned, though rather too lightly than too forcibly.

In its entirety the book represents a good elementary treatise that furnishes in a small compass a comprehensive understanding of the relation of social medicine to community health.

ANNALS OF ROENTGENOLOGY. A Series of Monographic Atlases. Edited by JAMES T. CASE, M.D., President of the American Roentgen Ray Society. Volume 1, "MASTOIDS ROENTGENOLOGICALLY CONSIDERED." By FREDERICK M. LAW, M.D. New York: Paul B. Hoeber.

DOCTOR LAW presents the classification of mastoids based on two general types: the non-cellular, including undeveloped or infantile, diploetic, and sclerotic; and the pneumatic, including large cell, small cell, and mixed type. Each sub-type is described and a table presented of the important points to be taken into consideration in the roentgen-ray examination of the mastoids.

Under the heading "The Pathological Mastoid" the course of the inflammatory phenomenon is reviewed and a summary given of the conditions definitely revealed by shadows on the plate. These are, 1, hyperemia of the mastoid cells; 2, mild acute mastoiditis; 3, purulent mastoiditis; 4, softening of the cell walls; 5, necrosis of the cell walls; 6, exposure of the sinus groove; 7, exposure of the dura; 8, cholesteatoma; and 9, sclerosis. Each condition is discussed and the points of x-ray importance that make for correct interpretation are emphasized. Some important features incident to the general technique are found in the descriptive section of the Atlas, and include a discussion of the posturing, the factors of exposure, and the photographic developing of the plate. There follow twenty-one exceptional prints illustrating pathological mastoids, their interpretation being furnished in the English, French, and Spanish languages.

The Atlas is remarkable for the clearness of descriptive exposition, for the artful skillfulness in the reproduction of the prints, and for the lucidly comprehensive interpretations supplied. Dr. Case, in the editorial preface to the volume, states that the Annals are meant to supply a series of "master roentgenograms that the roentgenologist may study at will." From the success manifestly achieved in this volume, there can be no doubt that "master roentgenograms" and "master interpretations" have been supplied.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting Held January 6, 1921.

FIRST VICE-PRESIDENT DR. CHARLES H. PECK IN THE CHAIR.

THE program of the evening was arranged by the Society for Experimental Biology and Medicine in association with the Harvey Society as a memorial to Dr. Samuel James Meltzer.

At a brief executive session the annual reports of the officers of the Academy were presented by title and accepted, and a resolution was passed increasing the resident membership of the Academy from 1300 to 1350.

Dr. PECK stated that the meeting had been called in memory of Dr. Samuel James Meltzer, a scientist of international reputation and fame, and one of whom the New York medical profession was justly proud. It was fitting that the president of the society which Dr. Meltzer had founded should preside at this meeting, and he therefore invited Dr. Gary N. Calkins, president of the Society for Experimental Biology and Medicine, to take the chair.

Dr. GARY N. CALKINS related how in 1903 a small body of men met at Dr. Meltzer's invitation to talk over the organization of a society to discuss experimental medicine and the biological sciences. One month later the society was launched with nineteen charter members, and Dr. Meltzer as first president. One of Dr. Meltzer's outstanding characteristics was his interest in younger men and their progress in science. He saw in the National Academy a meeting place for those who had reached established heights in research and he liked to think of the Society for Experimental Biology and Medicine as affording a place for fledglings, the younger men, to try their wings. Dr. Meltzer was always a man of the highest ideals in research, and he followed up and nourished this society to see that the high ideals set before it were attained. They were glad to believe that the scientific spirit which he had fostered had extended to its entire membership of four hundred workers, and it was in recognition of this scientific spirit and out of respect to Dr. Meltzer that he asked those members and all present who felt as they did to rise.

Dr. GEORGE B. WALLACE sketched in a general way the characteristics and attributes of Dr. Meltzer which had impressed him most. He described his first visit to Dr. Meltzer, nearly twenty years ago, when Dr. Meltzer was fifty-one years of age. The conversation was concerning practice, but mostly research work. At that time he was impressed by the clearness, fairness, and enthusiasm with which Dr. Meltzer dwelt upon the scientific work being done in New York. He regretted that the men in this work did not meet to exchange views and he drew outline plans for a society for the discussion of the medical and biological sciences. The next year the Society for Experimental Biology and Medicine was formed. The last time he saw Dr. Meltzer was in New Haven last summer, when he was seventy years of age, and in miserable health. The journey was tiresome for him, and he told of a very bad attack from which he had suffered the previous night. He did not dwell long upon it, but went on to describe the excellencies of the meeting and the fine research work being done in this country. One felt the spirit that led him to endeavor to overcome his physical infirmities, and his love and appreciation of knowledge for its own sake.

In Berlin it was the study of philosophy that interested him most, and he probably would have pursued that line had not financial considerations led him into the study of medicine. The great teachers of medicine of that period, Kronecker, Ringer, and others, also attracted him to this field. After careful deliberation he chose to come to this country because its democratic form of government appealed to him. Before locating permanently in New York he was a ship's surgeon for a number of trips, though he was never a good sailor. He was a man impressed with the necessity for careful observation, and with the importance of facts rather than theories. In the course of some of his experi-

mental work in Berlin on the deglutition reflexes, an investigation was carried out which required the subject to sit for hours with two stomach tubes inserted into the esophagus. Dr. Meltzer became the subject of this investigation, and while in this position a Prussian inspector of an antivivisection organization visited the laboratory. These antivivisectionists had held that investigators inflicted suffering upon animals that they would not endure themselves. After seeing Dr. Meltzer they said they would not go through the suffering and discomfort which they had seen this student of physiology endure. It was needless to say that in that campaign the antivivisectionists lost the day. It was in these investigations in Berlin that the idea was brought out upon which much of his future work on inhibition was founded. His studies in inhibition led to those on magnesium sulphate which were so well known that they needed no review. The wide knowledge he gained from experimental work regarding magnesium sulphate he endeavored to use for the relief of suffering. The experimental work on magnesium sulphate led him on to the work on intratracheal insufflation for the maintenance of artificial respiration and the administration of anesthetics. This method was remarkable for its simplicity. Dr. Meltzer showed a breadth of view and a reach of subjects that was remarkable, as his many clinical papers bore witness. These papers all showed great powers of observation and careful interpretation of facts. His first publication was on the reflexes of deglutition. Another early publication was on the "Behavior of Red Blood Corpuscles" a piece of work done in association with Dr. Welch. These papers were the forerunners of others on physiological subjects and set the standards for American experimental work. Another side of Dr. Meltzer was his chastened and hesitating attitude toward medical research; his high altruism and good judgment kept him from being impractical. Dr. Wallace quoted passages from several of Dr. Meltzer's presidential addresses showing this attitude. In one of these he said the physician of the future would be the man who spent years in acquiring knowledge in the pure medical sciences; clinical medicine and the sciences must be brought together. He had a part in the organization of the Society for the Advancement of Clinical Research, a society which was unique in character, in the ability of its members, and in the excellence of their work. His address on "Clinical Medicine" was especially inspiring. Another on the "Organization of Clinical Departments" was very instructive. Through all his addresses one found proof of his faith in the future of medicine in this country. Dr. Victor C. Vaughan had written a letter which reflected the general regard in which Dr. Meltzer was held and the recognition that though a busy practitioner of medicine he always found time to do research work. To present a paper which called forth constructive criticism, or excited comment from Dr. Meltzer was to receive stimulation and guidance. A large group of young men looked upon him as a trusted friend and adviser, and a source of inspiration.

Dr. PHOEBUS A. LEVENE said he was here not to speak to the old friends of Dr. Meltzer, who with him led the medical profession through the thorny walks of the primitive lowlands of medicine to its present heights of perfection. He would not review all these memories but would say something to the younger members of the profession who were unacquainted with Dr. Meltzer in order to give a general impression of his character, and one that the younger man might hold before himself while his life and ideals were in the shaping. He would picture him as a man expressing the great idea of service to humanity. It happened that Dr. Meltzer was born in that great country of irrepressible idealism, Russia, and it so happened that he was born of a race noted for its devotion to that which it chose as the object of its devotion. He was born in the modest city of Courland, not noted for its bankers and financiers, but where learning was held in great love and veneration. In the search for learning he dropped his native land and went to Berlin, and there came to know the great men of literature, philosophy, and medicine, and medicine became the medium of his service toward humanity. Physiology became the medium of his service to medicine and of his perfection. So thoroughly did he apply himself to the mastery of this

medium that his teachers became his friends and comrades, and had he remained in Germany opportunity was offered him to become one of them. But considerations already pointed out or perhaps an **impelling desire** for broader activities caused him again to emigrate, this time to our land. Imagine the background he had in his masters in Berlin, the background of big institutions and big ideas; when he arrived in this country the comparison of the present with the past was anything but cheering. We had at that time medical schools, it was true, but of institutions of learning we had none. As to laboratories, the space they occupied was in the annual announcements of the colleges; on the premises one had to search for them, and after search not find them. With his advantages it would not have been difficult for him to have exploited himself as a physician for personal gain. Other men who came at the same time did exploit their advantages, but Dr. Meltzer did not. He imposed upon himself the task of educating and broadening the American physician. Others who had the advantages of education abroad took upon themselves the same task, notably, Dr. Welch, Dr. Prudden, Dr. Janeway, Dr. Knapp, and others, but among them the position of Dr. Meltzer was unique. To what was this due? To describe it in one word, he was more democratic. The other men devoted themselves to university medical schools or hospitals, while Dr. Meltzer preferred to be independent and to devote himself to the education of the rank and file of the profession, whether in academic work or in the practice of medicine. To borrow from the political vocabulary, he had initiated the progressive minority against the conservative majority. Though for many years he remained unaffiliated with medical schools or hospitals, he realized the necessity for participation in active research. Many of his contemporaries became leaders in hospitals and lost their habit of research, and over them he had a great advantage. In addition he had an insatiable desire for reading, and also the advantage of a phenomenal memory. So it happened that though unaffiliated with hospital or university he became a leader, a critic, a teacher, and was called upon to present every new idea in medicine that appeared in Europe to the American profession. The reason he was successful in presenting these new ideas was that he assimilated them and tried them out in his laboratory, where he toiled and labored to attain self-perfection, and through his self-perfection to aid his fellow men. While still in the full vigor of life he saw his aim accomplished. Medical research was reaching a stage of activity he never dreamed of. He then thought he could devote himself to matters nearest his heart—these were the problems of physiology, some old, some new, and it so happened that the Rockefeller Institute for Medical Research came into existence and the opportunity opened for Dr. Meltzer to do what he liked. What he accomplished there had already been told and the rest might be told by men more competent than the speaker. To him Dr. Meltzer's scientific work and attainments spoke second; his life spoke first. It was a simple life; simple in its dignity, in its honesty, in its purpose, and in its service. The record of his life was the message Dr. Meltzer left not only to his friends and colleagues, but not only to the medical profession, but to all.

Dr. WILLIAM H. HOWELL said he wished to speak of Dr. Meltzer's contributions to physiology from the time he came to New York in the early 80's, as a ship's surgeon, poor and unknown, to the time of his death, when he was known throughout the length and breadth of the land as a prolific investigator. He had published two hundred and forty or more papers in forty-eight scientific journals in this country, in England, and in Germany, on subjects pertaining to physiology, pharmacology, pathology, and clinical medicine. It was a remarkable tribute to the breadth of his thought that he was an accredited investigator in all four branches. He was a member of some twenty societies, including the most important in these fields, and in every one of them he was able to take his part as a contributor or in discussion of the papers. It was also noteworthy that he had been president of many of these societies, of the Association of American Physicians, American Physiological Society, Association of the Advancement of Clinical Research, and the Harvey Society. It

seemed unique that one individual should have had this recognition from specialists in so many different branches. While his contributions were on many different subjects his first love was physiology, and in that specialty he became recognized as one of the foremost of American physiologists. His first contribution appeared in the transactions of the Berlin Physiological Society in 1880. In this he stated that he had severed the nerve going to the myohyoid muscle, and had demonstrated the importance of that muscle in deglutition. To the physiology of deglutition this was an important contribution. It introduced a new theory of the physiology of swallowing which had come to be universally accepted. Soon after this appeared the paper on the "Irritation of the Swallowing Centers and Their Importance." This was noteworthy for two reasons: it presented the widespread effect on the nervous system of the act of swallowing, and it brought out Dr. Meltzer's idea of inhibition. After discussing this theory, Dr. Howell said that Dr. Meltzer had attempted to support it experimentally all his life. It was perhaps not possible to say anything of its correctness or incorrectness as we were still very uncertain as to what entered into inhibition, but it might be stated that Dr. Meltzer was far ahead of his contemporaries in his understanding of inhibition. To him the theory was a rewarding one, a sort of compass by which he recorded his experimental physiological voyages and which served to explain his work in the laboratory. Without it one could not appreciate his position on the subject of shock. Nine or ten of his papers were written in collaboration with his daughter, Mrs. Auer. Dr. Howell reviewed some of the more important points brought out by Dr. Meltzer's experiments on the effect of epinephrin on blood vessels, in that of magnesium sulphate on the nervous system, and the antagonistic effect of calcium chloride, and on intratracheal insufflation for the maintenance of artificial respiration and for the administration of anesthetics. It was very evident that the latter had a wide field of application. Time and again Dr. Meltzer had attempted to bring this method into practical use in surgery, and it had met with some recognition in thoracic surgery; the principle would be used more and more. This investigation into the methods of artificial respiration led him to take an interest in the matter of resuscitation after accidents of various kinds, such as industrial accidents and drowning. He wrote a paper showing that artificial respiration was the most effective method of resuscitation for both man and animals, but realized that it required some anatomical knowledge and skill in order to apply it. He then turned his attention to pharyngeal insufflation and devised an apparatus for pharyngeal insufflation which was simple and the best single method of artificial respiration. He demonstrated that it was more efficient than any of the so-called manual methods and better than the pulmotor and lung motor. It was a matter of record that he was not able to convince his colleagues that it met all the needs of industrial and drowning accidents. It required a little training in order to be able to use it efficiently, so they thought it would not be desirable to recommend it under ordinary conditions for artificial respiration. His contributions to the subject of artificial respiration would have an enduring value not only to surgery but on the industrial and military side. In addition to these lines of work Dr. Meltzer published papers on many topics which time did not permit him to refer to here. One of these, however, was a Harvey Society lecture entitled "Factors of Safety." He used this simple term to designate the reserve power of many physiological mechanisms. His idea had no doubt occurred to many individuals before, but it had not been so crystallized and brought to the attention of scientists. Instigated by Chittenden's work on low protein diets he undertook metabolic studies and investigated the relation of the pancreas to hyperglycemia and glycosuria, and the speaker was under the impression that time would show that Dr. Meltzer's views on this subject were correct. To do justice to his many contributions would require a careful review of almost all the medical literature of this period. It seemed that as an interpreter or a contributor he made a point of contact with almost all points of medical science and practice. No one in this generation had

done more to bring about a sympathetic understanding between the laboratory worker and the practitioner of medicine. As to his relation to the American Physiological Society, he was elected a member at its first annual meeting, in 1888, and he became its most faithful member in attendance, in making contributions and in discussion. Not only did he attend the meetings regularly, but he was a model in behavior. Many others succumbed to the load of papers and disappeared to get fresh air and relief, but this was never the case with Dr. Meltzer. He loved to listen to the papers and take part in the discussion, and scarcely a paper was read upon which he did not make some remarks which were stimulating and beneficial. His influence increased constantly. From 1911 to 1913 he was president, and both before and after that time his advice was dominant both on questions of science and on matters of policy. The American Physiological Society owed him a great debt of gratitude. Both in that society and in other societies, Dr. Howell said, he had been much impressed with Dr. Meltzer's courage in always speaking his mind. His frankness, simplicity, and courage in speaking what he believed to be the truth aroused admiration. Everyone recognized his sincerity and that personalities counted for nothing, that all his interest was in the subject. He had always found Dr. Meltzer high minded, sincere, simple, optimistic, and enthusiastic, and his enthusiasm did not cool with age. Advancing age made some men shrink from the routine of research work; he showed no sense of weariness, but was always full of zeal, hope, and determination to carry forward his ideals, and when death came it was while he was at work in his study, as he would have wished it. His colleagues loved to feel that he was a good and faithful servant of science and research. He had had his reward in fame and honors, but his greatest recompense, one loved to believe, came from the joy of work and, it was to be hoped, also from a realization of the affection and appreciation with which he was held by his scientific friends and coworkers.

Dr. GRAHAM LUSK spoke of his recollections of Dr. Meltzer's physiological work. He said that a constant attendant at every important meeting had passed from us in the fullness of years and in the honor and esteem of his fellowmen. He was deeply imbued with the spirit of modern German scientific medicine and a highly skilled practitioner. Dr. Meltzer was a man not content to carry on a lucrative practice at the expense of a curious mind. Dr. Lusk recalled that in 1897 he sat at a dinner of a few physiologists, between Dr. Meltzer and his (the speaker's) father, and his father had stated that he considered that his success in obstetrics was due to the fact that he was a trained physiologist, and a believer in contact with scientific men. Dr. Meltzer had a phenomenal knowledge of medical literature. Often when some one would tell of some piece of work he would cite something similar done twenty, thirty, fifty years before. The Society for Experimental Biology and Medicine was at first called the "Meltzer Verein." Dr. Meltzer's original idea was that it should be a society of workers, and that those who were not contributors should be dropped from membership, but owing to the exigencies of friendship this was not carried out. He suggested that the number of papers presented by one man should be limited and that it be made obligatory for every man to present a paper. As he advanced in years it was suggested that he might lighten his work. He said there were only two things that would stop him from working: if some one said, "Meltzer, your work is no longer good," or, "You can no longer understand younger men," then he would stop work. When they met to talk of establishing the Harvey Society he opposed the idea, saying New York was not a scientific center; there would be no audiences. A few days later he called Dr. Lusk up on the telephone and said he had changed his mind and had overcome all the objections which a few days before he had considered insuperable. A few years ago New York as a scientific center was a pretty bleak place. After a time, however, a few scientists met together and came to know each other socially, and the biologists and chemists after a while merged together as the Society of Experimental Biology and Medicine. After one of these early meetings Dr.

Meltzer had driven the speaker home and told him that he was going to the new Rockefeller Institute for Medical Research. He said his main desire was for experimental work. While in assuming the work there he fulfilled the desire of his life; at the same time he renounced the treasures of this world. Dr. Lusk said he mentioned this to him and Dr. Meltzer regarded him with disapproval. Few men at the age of fifty-five would have done likewise. He had met Dr. Meltzer in 1916, when he was greatly cast down by the war. He tried to prepare the way for peace, and the method he chose was based on the assumption that the medical profession, like the Red Cross, served friend and foe alike. Dr. Meltzer believed in the younger men of this generation. He was particularly interested in the American Association for Clinical Research, a society so revolutionary that it had been called the "Young Turk." He continually reminded us that we had not reached the level of accomplishment. Honest words of strong condemnation and criticism from Dr. Meltzer meant much to those who knew the texture of the mind behind them. He said last summer, when his health had failed, "My good friends insist that I leave my laboratory. Let me work in your laboratory." In the face of pain and suffering, the indomitable spirit of his mind could not be overcome. In closing, Dr. Lusk said he was grateful to have known Dr. Meltzer, who had added so much to New York as a center of medical science. His life was of value to us all. He had said "I am from the race from which came Jesus Christ." He was one of the few men of our time who possessed all the Christian virtues.

Dr. WILLIAM H. WELCH said it seemed as if every side of Dr. Meltzer's life had been touched upon and there was very little he could add. At the same time, he would have regretted not having come here and paid his tribute to one with whom he had been pleasantly associated since his arrival in New York in 1883. Both Dr. Meltzer and he had been pupils of Kronecker at Leipsic. There Dr. Meltzer had come under the influence and enjoyed the friendship of Kronecker which had continued until his death. Kronecker always took an interest in his pupils, and he loved Dr. Meltzer. Before Dr. Meltzer came to this country Kronecker had written to him (the speaker), telling him that Dr. Meltzer was arriving, and inquiring if it would be possible for him to get an academic position. It was scarcely correct to say, as Dr. Levene had said, that Dr. Meltzer did not desire such a position. At the time of Dr. Meltzer's arrival in this country the status of scientific medicine was such that he was soon disillusioned of these expectations. Dr. Welch related that during the past year he had had a letter from Dr. Meltzer, which was of a very intimate nature, telling of his birth in a small Russian city, and describing his family circle, and the circumstances which led him to leave Russia and go to Berlin and enter into another life, another spirit, and another world of thought. In 1883 he came to this country with his admirable ideas of medicine, but with his attention centered on the problems of physiology. He came with a letter from Kronecker to Dr. Welch's little laboratory, which for four or five years was one room in the old Bellevue Hospital. He was unable to give Dr. Meltzer a separate room, but gave him a corner in this room. Here he was faithful in his attendance, and together they did a little piece of work which, Dr. Welch said, was in reality Meltzer's separate work. This work was published, but he had never quite followed Meltzer in his broader views and elaborations based on that work, in which he insisted upon the importance of vibratory movements to living matter. His broader views on this subject were somewhat philosophical, due no doubt to his earlier philosophical bent. Dr. Meltzer left him to go to Dr. Prudden's laboratory, which had been started at about the same time that he had started his laboratory, and these were at that time the only laboratories where anyone desiring to do any kind of laboratory work could be accommodated. As Dr. Levene had said, these were the lowlands of medicine as compared with the heights of to-day, and in reaching these heights no small influence was that of Dr. Meltzer. In the laboratory of the College of Physicians and Surgeons, and in his own home at night, most of his laboratory work was done. He presented a marvelous

and almost unique combination, namely, that in the cultivation of experimental activities he was genuinely interested in the practice of clinical medicine. He had been a clinician more especially in the earlier and leaner years of his life, but at the same time he had done excellent work in the laboratory. As years went on he gave more and more time to experimental work. His life combined in a most wonderful manner the life of the real experimental physiologist, and at the same time that of the practitioner of medicine, and that without neglecting either. This was a very remarkable phenomenon. Dr. Meltzer must have exercised no little self-restraint not to have turned from the laboratory, and there were years not so prolific in experimental work, those in which he was establishing himself in a comfortable practice, but he never allowed himself to be drawn from his scientific ideals. Dr. Meltzer was one of the few earlier practitioners in this country whose practice was based upon physiological training, aptitude, and interest. Dr. Weir Mitchell was another, and, as Dr. Lusk had mentioned, the latter's father was a man whose work in obstetrics and gynecology was founded on physiological studies, and he made an excellent practitioner. In the early days when Dr. Meltzer came to New York the leading physicians were Abraham Jacobi, Alonzo Clark, Austin Flint, the elder Janeway, all interested in purely clinical studies from the anatomical side. And while the last to object to pathological anatomical studies, it was the functional and physiological side that they were coming to recognize as important. Dr. Meltzer typified this idea more than anyone else in the country. He lived during a time when there were great advances in medicine in this country, and especially was there a great improvement in medical education and in laboratories. It was also the period that witnessed the formation of various specialties; physiology was developed. Dr. Howell had told of the work of the Physiological Society. Not only was Dr. Meltzer interested in the work of the society, but in the establishment of a special journal devoted to the publication of technical research. This served not only to provide needed reading, but positively stimulated productive work. Then the *Journal of Experimental Medicine* followed, and then other publications of this nature. On the development of these publications Meltzer played an important part. His influence on the clinical side was not measured by his contributions to clinical medicine, but by the way he impressed one with the fact that clinical research was just as important and just as capable of scientific advancement as physiology. That was the great impression he brought into the science of the profession. Dr. Meltzer was one of those who realized that the younger generation was worth working with and trying to impress. The speaker was delighted to see so many of the younger men at this meeting because of the thought that they were drawn here by affection for a man who must have impressed his ideas upon them, not by precept alone but by example. He questioned whether it would be possible for a man devoted to laboratory work alone to have done this. Dr. Meltzer's great opportunity came when he was chosen chief of the Division of Physiology and Pharmacology of the Rockefeller Institute for Medical Research in its early days when it was important that the particular problems investigated should fall within a well-defined group of subjects. Here was a genuine physiologist with a wide reputation who was interested in those problems with relation to the practice of medicine, though he was the last man to advocate that practical utility should be the guiding principle in research. He was manifestly the expression of the combination that was ideal for the position. There he followed the great opportunities opened to him and did splendid work. Dr. Welch said he felt sure he spoke for all the scientific workers in the institute when he expressed their great appreciation of and debt to the work of Dr. Meltzer. He was glad to have had the opportunity to say a few words in memory of one with whom he had had a long continued friendship, and whose character he admired very much. It was well to come and pay our tribute to his memory and to call to mind his wonderful qualities of heart and mind and character, but it was better, and he would have so wished, to go away actuated by his desire to advance medical science and serve our fellowmen.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

MEDICAL COUNCIL OF CANADA.

Toronto, Winnipeg, and Vancouver, June, 1920.

(Continued from page 378.)

OBSTETRICS AND GYNECOLOGY.

1. Eclamptic toxemia: (a) Describe in detail the prodromal symptoms and signs; (b) indicate the appropriate treatment at this stage.
2. Occiput posterior: (a) Make the diagnosis; (b) give concisely the management.
3. Induction of labor: (a) What are the indications? (b) describe in detail any one method of induction.
4. Cesarean section: (a) Indications therefor; (b) the important points in the technique of the operation.
5. Prolapsus uteri: (a) State the anatomical lesions which may be present in prolapsus uteri; (b) what routine measures should be taken to prevent their occurrence?
6. Salpingitis: (a) What are the common causes? (b) indicate the course the disease may run; (c) describe the treatment in the acute stage, the chronic stage.

MEDICINE (INCLUDING THERAPEUTICS).

1. Enumerate the symptoms of the four most common complications which may occur in the course of typhoid fever. Give in detail treatment of two of these with prescriptions in full.
2. A note of impaired resonance is discovered in an area at the base of the right lung from the angle of the scapula downward. Give in detail the physical signs of four conditions which may produce such impairment.
3. Give etiology, symptoms, and prognosis in gastroptosis in a man forty-five years of age.
4. Discuss, briefly, the etiology, pathology, and therapy of chronic hypertension.
5. Enumerate the symptoms and signs which may be associated with (a) an acute lesion of the anterior horn cells; (b) a chronic progressive lesion involving the posterior columns of the cord.
6. State, briefly, your treatment of (a) Graves' disease; (b) impetigo contagiosa.

ANSWERS.

OBSTETRICS AND GYNECOLOGY.

1. ECLAMPTIC TOXEMIA—*Symptoms*: "Headache, nausea, and vomiting, epigastric pain, vertigo, ringing in the ears, flashes of light or darkness, double vision, blindness, deafness, mental disturbance, defective memory, somnolence; symptoms easily explained by the circulation of toxic blood through the nerve centers. These may be preceded by lassitude, and accompanied by constipation, or by diarrhea. Headache is perhaps the most significant and common warning symptom. In bad cases the urine is reduced in quantity (almost suppressed), very dark in color, its albumin greatly increased, so that it becomes solid on boiling. Next comes the final catastrophe of convulsions. The convulsive fit begins with twitching of the facial muscles, rolling and fixation of the eyeballs, puckering of the lips, fixation of the jaws, protrusion of the tongue, etc., soon followed by violent spasms of the muscles of the trunk and limbs, including those of respiration; hence lividity of the face and stertorous breathing, biting of the tongue, opisthotonus, etc. The fit lasts fifteen or twenty seconds, ending in partial or complete coma, possibly death; or consciousness may return, to be followed by other convulsions."—(King's *Manual of Obstetrics*.)

"The prophylactic treatment consists in frequent and regular examination of the urine. After the first appearance of albumin, daily quantitative examination of the urine should be made. The diet should be milk; the bowels should be kept freely open by means of calomel and salines; the skin should be kept active by hot baths, followed by vigorous rubbing. Diuretics, such as Basham's mixture, digitalis, and caffeine should be administered. During pregnancy, if the percentage of albumin increases in spite of the treatment, abortion or induction of labor is indicated."

2. OCCIPUT POSTERIOR.—*Diagnosis*: "Vaginal examination reveals the occiput and smaller fontanel posterior in the median line, while anteriorly the bregma is within easy reach. The sagittal suture corresponds to the conjugate diameter of the pelvis. If the complication be the result of an imperfect perineal floor, the head will be low down in the pelvic cavity, while if it occur from some insuperable obstacle to entrance into the superior strait, it will be found resting high up on the pelvic brim. Abdominal palpation will, in the latter class of cases, show an anterior median situation of the fetal extremities, with a transverse position of the shoulders; the head may be readily mapped out, while the fetal heart-sounds will be indistinct, and only heard far back in the flanks, or they may be altogether absent."—(Dorland.)

The normal course of delivery in occipito-posterior positions, is the same as in occipito-anterior positions except that the head must rotate to the front through three-eighths of a circle; of course this takes longer and is more tedious.

In abnormal cases, the management is as follows:

(a) *When diagnosed while the head is at the brim.*
(1) Leave it alone. The occiput will probably rotate to the front all right if it is given plenty of time. (2) If flexion appears to be deficient, try to increase it by pushing up the sinciput with the fingers in the vagina during a pain, at the same time pressing down upon the fundus with the other hand. (3) The head may be rotated by passing the hand into the vagina and grasping it between the fingers and thumb. At the same time the shoulders must be rotated by abdominal palpation, or else the head will at once go back to its original position. This maneuver generally requires an anesthetic.

(b) *When diagnosed after the head has entered the pelvis.* (1) Leave it alone. After exercising the patience of all concerned, it will probably rotate spontaneously. Only about one case out of twenty fails to do so. (2) An attempt may be made to increase flexion as before. (3) Manual rotation may be attempted as before, but the head must first be flexed and gently pushed back out of the pelvis. (4) If the pains are weak, forceps should be applied well back on the head, so that when traction is applied, flexion will be promoted. The head should then be pulled well down on to the pelvic floor. If it begins to rotate, take off the forceps and leave the rotation to nature, merely keeping the head on the pelvic floor by pressure on the fundus. After rotation the forceps may, if necessary, be reapplied and delivery completed.

(c) When the occiput has definitely rotated into the hollow of the sacrum and the case has become a persistent occipitoposterior, forceps should be applied and the head delivered with the occiput posterior. The perineum should be guarded as much as possible, and any tears stitched up at once. In extreme cases craniotomy and pubiotomy may require to be considered."—(Johnstone's *Textbook of Midwifery*.)

3. Conditions that justify the induction of premature labor: (1) Certain pelvic deformities; (2) placenta prævia; (3) pernicious anemia; (4) toxemia of pregnancy; (5) habitual death of a fetus toward the end of pregnancy; (6) hydatiform mole; (7) habitually large fetal head.

Method of inducing premature labor: "Catheterization of the uterus: The first step consists in separation of the membranes from the lower uterine segment by means of a uterine sound or with the finger. The operation must be aseptic. Detachment of the membranes with the sound may be done with the woman in either the left lateral or dorsal recumbent position. For the use of the hand the dorsal position is best. The second step consists in the insertion of one or more No. 12 English bougies, or a sterile rectal tube, between the membranes and the uterus. No anesthetic is required. Usually the bougie or rectal tube is most readily passed with the aid of the Sims position, the Sims speculum exposing the cervix, which is drawn forward and held with a volsella. The bougie is sterilized by boiling or steaming, the proximal end is cut off, and a stylet inserted. To facilitate introduction the bougie is bent to nearly a right angle at about three inches from the distal end, giving it a large curve. Great care must be used to avoid rupturing the membranes. The in-

strument is then pushed up gently and in the direction in which it passes most easily. After it has entered between the membranes and the uterine wall, the stylet is drawn down about one inch. The flexible tip of the bougie finds its way readily with little risk of perforating the membranes. The bougie fully in place, the stylet is withdrawn. A second bougie may be inserted if it can be pushed into place without too much difficulty. Bleeding is probable evidence that the instrument has passed behind the placenta. The hemorrhage may occasionally be excessive. It is then best to withdraw the instrument and pass it in another direction. A light tampon of gauze may be packed in the vagina, but it is not required to support the bougie. The instrument is left to be expelled with the child. Labor usually is established within twenty-four hours. This method is not suited to cases in which immediate delivery is called for."—(Polak's *Obstetrics*.)

4. *Cesarean section*.—"Indications: The cases in which it is performed are: (1) Extreme deformity of the pelvis, in which delivery by forceps and version is excluded, and in which craniotomy is either impossible or would be more dangerous to the mother than cutting into the abdomen and uterus; and in which there is not room for a successful symphyseotomy. Such cases present the 'positive' indication for cesarean section; there is nothing else to be done. Flat pelvis having a conjugata vera of $2\frac{1}{4}$ inches or less, and justo-minor pelvis with a conjugata vera of $2\frac{1}{2}$ inches or less, present this positive indication; (2) cases of more moderate pelvic contraction in which craniotomy is possible, but cesarean section is agreed upon to save the life of the child; (3) mechanical obstruction in the pelvis from fibroid, cancerous, bony, or other tumors which cannot be pushed up out of the way or be safely removed; (4) irreducible impaction of a living child in transverse presentations; (5) in women dying near the end of pregnancy the child, if alive, is rapidly delivered by post-mortem cesarean section; (6) various other obstructions from inflammatory adhesions, atresia, constrictions, etc., of the vagina, and uterine displacements, may rarely require the operation; (7) recently the operation has been done in eclampsia cases, where more conservative methods of rapid delivery were impracticable; and (8) in placenta prævia, chiefly with a view to lessen the infant mortality attending the usual treatment of this complication."—(King's *Obstetrics*.)

Cesarean section.—"Fluidextract of ergot, mxxx, is injected into the thigh muscles just as the anesthesia is begun. The operator assures himself that there is no loop of intestine between the uterus and abdominal wall, beneath the field of incision. Should a coil of intestine be found there, it is pushed above the fundus. An assistant holds the uterus in central position. The skin incision extends one-third above and two-thirds below the level of the umbilicus. It is best made through the right rectus muscle. The external layer of the rectus sheath is divided, the muscular bundles separated with handle of scalpel and the fingers, and the deep layer of the sheath and the peritoneum divided after lifting them with tissue forceps. Bleeding vessels are controlled by gauze sponge pressure or held by catch-forceps before opening the peritoneum. A short longitudinal median incision is made in the uterine wall beginning at the fundus, avoiding the membranes if still unbroken. This is extended downward with fingers, scissors, or scalpel to a total length of about six inches. The hand is thrust through the membranes and the child is extracted by the head or the feet, whichever is most accessible. In case of anterior implantation of the placenta, usually the hand may best be passed directly through it. The cord is clamped at two points with catch-forceps, cut between them, and the child is passed to an assistant. The uterus slips out of the abdomen as the child is extracted, and the intestines are kept back with hot sterilized towels placed over the upper part of the incision. The coverings help also to protect the peritoneum from soiling. The uterus is wrapped in hot moist cloths. As a rule, it is better not to wholly evert the uterus. The placenta, if not spontaneously separated, may be peeled off by grasping it with one hand like a sponge. If the cervix is not sufficiently open for drainage, a large rubber tube or gauze strip is passed down through it and withdrawn from below. Irrigating or mopping the uterine cavity is unnecessary.

Asepsis is promoted by leaving it as nearly as possible untouched. The peritoneum is sponged dry with the least possible friction or handling. The uterine wound is closed with deep No. 2 chromated catgut sutures at intervals of about $\frac{1}{2}$ inch. They are given a wide sweep laterally through the muscular wall, falling short of the decidua. The peritoneal coat of the uterus is closed with a No. 1 continuous plain catgut suture, forming a welt over the deep suture line. The hemorrhage is inconsiderable and usually ceases with the introduction of the first sutures—a hypodermic of ergotole should be given before beginning the operation, and one of ergotole and pituitrin on the delivery of the child. Retraction of the uterus is ensured by manipulating it, if necessary, through a hot towel, or by faradism. When there has been much blood lost, a quart or two of warm sterilized 0.9 per cent. salt solution may be left in the peritoneum. The parietal peritoneum is closed with a plain running No. 0 catgut suture. Interrupted silkworm-gut sutures are then passed at intervals of about $\frac{1}{4}$ inches through all but the peritoneum, from within outward. The fascia is brought together with interrupted No. 2 plain catgut sutures, or with a continuous suture. The silkworm-gut sutures are now tied. The abdomen is cleansed, and the wound covered with a dressing of several thicknesses of dry sterile cheese-cloth; over this is placed a thick compress of sterile absorbent cotton. The dressings are secured with strips of zinc oxide adhesive plaster, and held in place by a Scultetus binder.—(Polak's *Obstetrics*).

5. *The anatomic lesions which may be present in prolapsus uteri*, are:—Lacerated perineum, relaxation and elongation of the ligaments of the uterus, subinvolution, cystocele and rectocele, and laceration of parts of the triangular ligament and various layers of the pelvic fascia.

The perineum should be protected during labor, examined after labor, and if lacerated it should be repaired; subinvolution should be guarded against.

6. **SALPINGITIS.** *Common causes:* Gonorrhea, septic infection, subinvolution, and certain diseases such as syphilis or tuberculosis. *Symptoms:* Pain or discomfort, made worse by pressure, examination, defecation, or colicky pains over the tube; dysmenorrhea; increased menstrual flow; tubes are found to be dilated and swollen. *Varieties:* Hematosalpinx, when tubes are distended with blood; Pyosalpinx, when they contain pus; Hydrosalpinx, when they contain serous fluid or exudate. The patient complains of a dragging sensation in the neighborhood of the affected tube; colicky pain, which is increased on exertion or even on standing; abdominal tenderness; menstrual disorders, as amenorrhea, metrorrhagia, dysmenorrhea, menorrhagia; dyspareunia; there may be septic symptoms and peritonitis; sterility generally ensues. On examination there will be found a fullness in Douglas' pouch and one or both lateral fornices; in these latter will be felt either the tubes, distorted and possibly adherent, or a sausage-shaped tumor, which is very painful; the uterus is retroverted or retroflexed, and may be bound down by adhesion; there may be an intermittent expulsion of pus accompanied and preceded by a burning pelvic pain. *Treatment of acute Salpingitis:* Rest in bed, hot vaginal douches, saline purgatives, liquid diet, morphine (if necessary) for pain, removal of pathological conditions and complications; radical operation (salpingectomy, or salpingo-oophorectomy) may be necessary. The chronic form requires removal of the tubes.

MEDICINE (INCLUDING THERAPEUTICS).

1. **COMMON COMPLICATIONS IN TYPHOID FEVER.** (1) *Intestinal Hemorrhage:* *Symptoms:* A sudden fall of temperature, followed by blood in the stools; there may be collapse. *Treatment:* Ice-bag over the cecum, hypodermic injection of morphine sulphate, gr. $\frac{1}{4}$. (2) *Perforation of the intestine:* *Symptoms:* Sometimes there is severe, sudden pain localized in the abdomen, and sometimes there is little or no pain. Marked tympanites, great weakness, collapse, anxious look, small, rapid pulse, and difficult breathing are present. The legs are apt to be drawn up, and nausea and vomiting may ensue. Hepatic and splenic dulness disappear, and leucocytosis may be present. *The treatment is surgical;* laparotomy, with suture of the intestine, should be done as soon as possible. In the meantime opium

(or preferably morphine) should be administered. (Morphine sulphate, gr. $\frac{1}{4}$). (3) *Bedsore.* And (4) *Pneumonia:* *Symptoms:* "The first stage is characterized by sudden onset with chill, a sharp pain in the side, rise of temperature, a short and sharp cough, rusty-colored, viscid sputum, and dyspnea. There may be headache, insomnia, scanty urine with diminution of urea, chlorides, phosphates, and sulphates, insomnia, and herpetic vesicles on the face, and there is always an increase in the number of leucocytes in the blood. Physical examination will reveal diminished expansion, impairment of the normal percussion note, feeble or suppressed respiratory murmur, moist or dry râles, crepitation, and sometimes a pleural friction sound. In the second stage the dyspnea is more marked; the face is more or less livid in color; the temperature is high (104° - 105° F.); and the pulse increases in rate (110-120), its tension and fullness lessening with the progress of the disease, and growing feeble and intermittent. Headache, delirium, and various other nervous symptoms may be present. Expansion is diminished and vocal fremitus is exaggerated upon the affected side. There is dullness with increased resistance over the consolidated lung, and auscultation detects bronchophony or bronchial breathing over this same area. The third stage is ushered in by a sudden drop of temperature on or about the fifth or ninth day, followed by a natural sleep, free sweating, and relief from suffering. In this stage the subcrepitant râle (râle redux) is heard in the midst of the bronchial breathing, together with numerous moist râles. Dullness may persist for some time, but usually by the twelfth or fourteenth day the lung has returned to its normal state."

2. **PHYSICAL SIGNS OF PLEURITIC EFFUSION.** *Inspection* shows immobility of the chest walls, with some enlargement on the affected side; the intercostal spaces may bulge, and there is displacement of the heart beat. *Palpation* shows the vocal fremitus to be absent. *Percussion* shows flatness or dullness, with increased resistance to the pleximeter finger. *Auscultation* shows absence of respiratory sounds except at the upper part of the compressed lung, where bronchial respiration and bronchophony or egophony are heard. Over the healthy lung the respiratory sounds are exaggerated.

The physical signs of empyema are those of fluid in the pleural cavity; that side does not move well, the percussion note is dull, there is absence of breath sounds, vocal fremitus and resonance are diminished.

Physical signs of pneumothorax: *Inspection:* "Bulging may be local or general on the affected side. *Percussion* usually yields a hyper-resonant or tympanitic note. If the valve-like opening be patent, a typical cracked-pot sound can be elicited. *Palpation:*—Absence of vocal fremitus. *Auscultation:*—Absence of breath-sounds. On coughing, the sounds produced are peculiarly amphoric and have a metallic ring. If the chest be struck with two coins whilst listening with the stethoscope, the characteristic bell or anvil sound is heard."—(Wheeler and Jack's *Handbook of Medicine*).

Impaired resonance is also found in the second stage of lobar pneumonia. See *Answer to Question 1*.

3. **GASTROPTOSIS IN A MAN OF 45 YEARS OF AGE.** *Etiology:* "The condition is predisposed to by imperfect development of the abdominal and other muscles and by their early loss of tension with wasting. Occupations which favor stooping postures, such as sewing, tailoring, shoemaking, etc., are important factors in its production. Relaxation of the abdominal walls, loss of abdominal fat, and abnormal descent of the diaphragm may cause displacement of the stomach.

Symptoms: "The patient complains of dyspepsia, abdominal distress and pain after eating, eructations of gases, anorexia, various nervous symptoms, weakness, and constipation. *Physical phenomena:*—In the standing position the lower part of the abdomen projects and the upper part sinks in. In the recumbent position the abdomen shows a lateral extension. Aortic pulsation is frequent. There is often a ridge lying across the abdomen to be determined by palpation. Inflation of the stomach often detects its prolapsed position with a lowered gastric splashing. The x-ray, with the aid of a bismuth subnitrate solution, will determine the location of the organ."—(From Hughes' *Practice of Medicine*).

Prognosis: This is good in mild cases; severe cases require operation, which may help.

4. *Chronic Hypertension.* "The pathogenesis is still obscure, as is also its precise relation to the associated renal and arterial diseases. . . . Whatever may prove to be the ultimate cause, its immediate cause must be either an increased output from the heart or an increased resistance to the escape of blood from the larger arteries." But there is no proof of an increase in the flow of blood, and the left ventricle is known to be hypertrophied; hence the immediate cause of hypertension is an increased resistance to the escape of blood from the arterial tree of the systemic circuit. Sclerosis of the larger arteries is not necessarily associated with an increased arterial pressure; the main resistance to the onward flow of the blood is not encountered in the larger arteries, but in the terminal arterioles and capillaries. There is frequently a sclerosis of the smaller arterioles; but the hypertension is not due to an anatomical narrowing alone, but to a narrowing that is in part caused by an increased tone of the muscle fibers surrounding the arterioles. (*Monographic Medicine.*)

Treatment. Prevention consists in the avoidance of severe exercise and excessive use of alcohol, tobacco, and of overeating. The patient should have his gastrointestinal tract purged; his diet and habits must be regulated; he should rest regularly, sleep well, and (if his blood pressure continues to rise) submit to venesection. Sodium nitrite in one half to one grain doses, or nitroglycerin (1/250 of a grain) may be given.

5. "*Lesions of the anterior horns* produce motor paralysis, but of the lower motor neuron type, of the spinomuscular type. This paralysis is restricted entirely to the particular group of muscles whose cells of supply in the anterior horn are affected, and usually in lesions of the anterior horns, instead of there being a complete extremity involved, or one isolated muscle, there will be a group of muscles. The clinical signs are (1) Atrophy, (2) loss of reflexes, (3) vasomotor paralysis, (4) fibrillary twitchings, (5) reaction or degeneration following electrical examinations.

"*Lesions of the posterior columns* produce sensory disturbances, especially as to pressure and muscle joint sense. All types of cutaneous impressions are delayed and there is a diminution of the sense of temperature and of pain. The clinical signs are ataxia, loss of deep reflexes, and paresthesia. These posterior columns degenerate upward and, therefore, the signs occur above the level of the lesion." (*Hunt's Diagnostic Symptoms in Nervous Diseases.*)

6. *Treatment of Graves's disease:* "Physical and mental rest, in severe cases rest in bed, fresh air, light, nutritious diet, and avoidance of stimulants are the general measures. Belladonna and bromides are useful sedatives, and the continuous application of an ice-bag may reduce the cardiac frequency. Sodium phosphate gr. xv to xxx thrice daily, sodium iodide, and arsenic have at all times been beneficial, and electricity to the thyroid is often useful. Application of x-rays to the gland has of late given good results, and is the most hopeful method of treatment, though there is some risk of subsequent thyroid insufficiency. Adrenalin and pituitrin have also been employed. In severe cases which are rapidly advancing, operation may be performed. Ligation of the thyroid arteries, and partial thyroidectomy are the favorite measures." (*From Wheeler and Jack's Handbook of Medicine.*)

Treatment of Impetigo contagiosa: The crusts should be removed, and an ointment of ammoniated mercury applied, care being taken that the ointment is not too strong; mild antiseptics may be applied to the surrounding areas. In children, means must be taken to prevent scratching the lesions.

(To be concluded.)

Persistent Virulence of the Nervous Centers in Encephalitis.—Harvier and Levaditi mention the case of a man who contracted epidemic encephalitis in January, 1920. On the following June he succumbed to cachexia with pseudo-Parkinson syndrome. Autopsy revealed lesions characteristic of the disease in the peduncles and locus niger. The tissues were virulent to rabbits although the virus had become attenuated. The incubation period, which ordinarily is but 5 or 6 days, was in this case 3 weeks. Passage through other animals did not increase the virulence.—*Le Progrès Médical.*

Books Received.

The MEDICAL RECORD is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.

A HANDBOOK OF MIDWIFERY. By COMYNS BERKELEY, M. D. 550 pages with 74 illustrations. Published by Paul B. Hoeber, New York.

PRÉCIS DE MICROBIOLOGIE CLINIQUE. Par FERNAND BEZANÇON. 894 pages with illustrations. Published by Masson et Cie, Paris.

A SYNOPSIS OF MEDICINE. By HENRY LETHEBY TIDY, M. D. 952 pages. Published by William Wood & Co., New York.

MEDICAL SERVICE IN MODERN WAR. By P. S. BOND and C. F. MARTIN. 76 pages. Published by George Banta Publishing Company, Menasha, Wis.

FRENCH-ENGLISH MEDICAL DICTIONARY. By ALFRED GORDON, M. D. 161 pages. Published by P. Blakiston's Son & Co., Philadelphia.

CORNELL UNIVERSITY MEDICAL BULLETIN. Volume X, No. 2, October, 1920. 487 pages with illustrations. Published by Cornell University, New York City.

SURGICAL THERAPEUTICS AND OPERATIVE TECHNIQUE. Volumes II and III. By E. DOYEN. 1,491 pages with illustrations. Published by William Wood & Co., New York.

DISEASES OF THE NOSE AND THROAT. By HERBERT TILLEY, M. D. 844 pages with illustrations. Published by Paul B. Hoeber, New York.

THE TRANSACTIONS OF THE EDINBURGH OBSTETRICAL SOCIETY, Volume XL. Session 1919-1920. 147 pages with illustrations. Published by Oliver & Boyd, Edinburgh.

ZUR KLINIK DER HOHEN ZANGENOPERATION. Von S. E. WICHMANN. 156 pages. Published by Nordiskt Mediciskt Arkiv, Stockholm.

DAS EPOPHORON. Von S. E. WICHMANN. 224 pages with illustrations. Published by Suomalainen Tiedekatemianni, Helsingfors.

EXPERIMENTAL-BAKTERIOLOGISCHE UNTERSUCHUNGEN AN DURCH KAISERSCHNITT ENTBUNDENEN UND ASEPTISCH GEFFELTEN NEUGEBORENE. Von S. E. WICHMANN. 139 pages. Published by Suomalainen Tiedekatemianni, Helsingfors.

DERMATOLOGY. By WALTER JAMES HIGHMAN, M. D. 482 pages with illustrations. Published by The Macmillan Company, New York.

TREATISE ON GENERAL AND INDUSTRIAL ORGANIC CHEMISTRY. By ETTORE MOLINARI, M. D. 454 pages with illustrations. Published by P. Blakiston's Son & Company, Philadelphia.

A COMPEND OF DISEASES OF THE SKIN. By JAY FRANK SCHAMBERG, M. D. 314 pages with illustrations. Published by P. Blakiston's Son & Co., Philadelphia.

A SYNOPSIS OF SURGERY. By ERNST W. HEY GROVES, M. D. 620 pages with illustrations. Published by William Wood & Company, New York.

MANIC-DEPRESSIVE INSANITY AND PARANOIA. By Prof. EMIL KRAEPELIN. 280 pages with illustrations. Published by E. & S. Livingstone, Edinburgh.

GONOCOCCAL INFECTION IN THE MALE. By NORMAN LUMB, M. D. 328 pages with illustrations. Published by William Wood & Company.

DISEASES OF THE EAR. By PHILIP D. KERRISON, M. D. 596 pages with 332 illustrations in text. Published by J. B. Lippincott Company, Philadelphia.

GENERAL PATHOLOGY. By Dr. ERNST ZIEGLER. 594 pages with illustrations. Published by William Wood & Company, New York.

17TH ANNUAL REPORT, BELLEVUE AND ALLIED HOSPITALS, CITY OF NEW YORK. January 1, 1918, to December 31, 1918. 102 pages.

SURGERY OF THE LUNG AND PLEURA. By H. MORRISTON DAVIES, M. D. 259 pages with illustrations. Published by Paul B. Hoeber, New York.

THE AMERICAN YEAR-BOOK OF ANESTHESIA AND ANALGESIA, 1917-1918. Edited by F. H. McMechan, M. D. 483 pages with illustrations. Published by the Surgery Publishing Company, New York.

Miscellany.

NEW BOOKS AND OLD.

By JOHN RUHRÄH, M.D.,
BALTIMORE, MD.

Foreword.—This is to be a column of comment on books chiefly medical, not book reviews, but an informal, first person chat about things that cross the library table on their way either to the shelves or to the waste paper basket. Books, articles in journals, and other subjects which may appeal to what is so frequently referred to as the "cultural in medicine," will come within the scope of these occasional papers. The Editor of the MEDICAL RECORD has kindly consented to print a series of these little library table talks, but the future of this venture will depend largely on whether it finds a sufficient number of responsive readers. It is not my intention to be definitely instructive, not to do my readers' reading for them, but to suggest things which have interested me and which I, in turn, believe will be worthy of the attention of those interested in medical libraries, history and biography. It may be that this column may be the means of leading some neophyte to wander in what good old Richard de Bury, the patron saint of librarians, called "these pleasant fields."

The study of medical history is slowly but surely coming into its own in this country. For a long while it was a field worked chiefly by the Germans and, to a less extent, by the French and Italians, but now in England and America there are signs of an awakening to its importance, a recognition by others than specialists or semi-specialists. In America, amongst those who have stimulated an interest in this direction, Osler will easily be given first place. He did more to arouse and sustain an interest, not only in his students but in those who came into occasional contact with him. He founded, in Baltimore, the Book and Journal Club and the Johns Hopkins Historical Club. His essays on historical and biographical subjects are full of charm, splendid examples of his delightful style. It was due to his genial influence that a great many of his students and friends undertook the preparation of articles dealing with medical biography and history and his influence lives on and will continue to live, let us hope, for many years into the future. His magnificent collection of books relating to the history of medicine and the history of science, which is now being catalogued in Oxford, will eventually find its final resting place in McGill University of Montreal, where it will be cared for by a board of curators, and some scholar, as yet to be selected, will preside over it and help all who come in search of knowledge.

In a somewhat different manner a second personality has imprinted itself on American medical letters. The man now most influential in this country in matters historical is Lt. Col. Fielding H. Garrison, of the Library of the Office of the Surgeon General at Washington. To the cognoscenti nothing further need be said, good wine needs no bush; but he has worked so quietly that

the force of his influence may be overlooked or even placed elsewhere by those out of the current of medical letters. There are few publications of any note dealing with his subjects, medical history and bibliography, that are not graced by an introduction, biographical sketch or explanatory notes by this writer, who has so effectively, yet so quietly and modestly, helped to forward the work of others. Witness the reprinting of Choulant's "History and Bibliography of Anatomic Illustration, Translated and Edited by Frank," and "The School of Salernum, the English Version by Sir John Harington," to mention two of the latest publications. Of both of these, more at another time.

What I started out to do was to call attention to "The History of Medicine," by Garrison, now preparing for its third edition. To those about to embark on a voyage of discovery in the realms of medical history there can be no better guide. Garrison has done for medicine what Baedeker did for Europe, and he has done it with infinite charm. There is no one volume in English, nay, nor in any other language, where there has been brought together such a mass of fact, of detailed information, on the subject in question and told in such a readable, interesting manner. In every way the foundation stone of any library of medical works.

If you are a busy doctor with a taste for good novels there are two of the past year that can be highly recommended for the bedside table. "Main Street," by Sinclair Lewis, is well worth reading. It is a little long but one forgives that, it has many chuckles in it and some laughs. It has a medical interest, the chief male character is a physician. Note that I do not say hero. It is a novel without a hero or heroine. The characters in the story are just real people. If it has not already been given you, buy it and spend a pleasant evening.

The second recommendation is much shorter, a splendid story by Zona Gale, called "Miss Lulu Bett." Sketched in lines, and none too many, it is like a remarkable fine etching by Goya. A sort of caricature, but amazingly well done. The career of the old maid, hopeless and much imposed upon, with her success as a husband catcher is one of the cleverest things that has come out of America for many a long day.

11 EAST CHASE STREET.

Old Physicians and Surgeons of Bordeaux.—Durodié, who is one of the most indefatigable of medical historians, has contributed a paper on this subject to the *Gazette hebdomadaire des sciences médicales* for November 14, 1920, xli, 46. He confines himself to the XV and XVI centuries. The first of whom there is a record was a German named Ram who had taken his degree at Montpellier and had settled in Bordeaux. He arrived with a warm letter of introduction from Professor Colne of the Montpellier faculty and was licensed by the local examining board in June 1414. He arrived in time to serve as City Physician, the previous incumbent, a Spaniard, having recently succumbed to some severe malady. He had to defend a thesis before the Board which comprised *ex officio* the mayor and

assistant mayor. He made a brilliant success and at once became eligible to the salary of city physician, which was 80 Bordeaux francs per annum, a Bordeaux franc being equal to nearly nine of the present French francs. He was obliged to take an oath of loyalty to the French king, being of foreign birth, and another to the city to serve it faithfully. It is not meant that Ram was the first practitioner of Bordeaux, for there is evidence of others. Thus when Jean de la Poyada followed Ram in passing his examinations, it is recorded that his preceptor was one Pey Arben, a native practitioner of Bordeaux of whom nothing further is known. De la Poyada was licensed only a few weeks after Ram. We know nothing of his antecedents.

The regulations of the practice of medicine apparently did not begin until 1411, which accounts for the inception of our information at that period. A drastic regulation of November, 1414, made it necessary that every surgeon to be licensed must be the son or direct heir of a surgeon. If a foreigner, he had also to pass a rigid test and was subject to certain contingent penalties. Nevertheless there were numerous master surgeons and barber surgeons in Bordeaux in the XVI century. In 1508 the court physician was a naturalized Spaniard, one de Granolax who was succeeded by his nephew Lopez in 1551. In 1541 he had been able to buy a house, the property of a nobleman. In 1526 the pay of the city physician was increased to 200 Bordeaux francs, de Podio being the incumbent at the time.

In 1532 one Allepin, a stranger in Bordeaux, came to town to practise medicine and went before a Medical Board comprising de Granolax, de Podio, and two others. He failed and appealed to the jurats who ordered that he be given a new examination. This like all examinations was held in a certain convent. The author omits to state the outcome, but the question came up in 1556, in which the Board and jurats again clashed. The outcome was a letting down of the bars toward outsiders who wished to settle in Bordeaux. The friction, however, was by no means ended. We learn that there was a function, the "sermon of the master surgeon," a sort of oration delivered annually. Nothing further is known of it. In 1534 a druggist was charged with selling a drug which was accused of killing several people. Our old friends de Granolax and de Podio were two of three complainants. The druggist Laverigne was heavily penalized and ordinances were enacted to safeguard the public from the apothecary. The master surgeons occasionally got after the barber surgeons for breach of ethics. De Granolax, in addition to the post of Court Physician, also held the position of City Physician for years and his successor was voted for by the jurats who elected Pichot as having had more experience than a competitor Lataste. These extracts suffice to show that official and political medicine, despite the revolution of medical science, was not very different from that of the present day, 500 years later.

The Grassets, Father and Son, in Literature.—Voivener calls attention to the literary activities of Professor Grasset, the neurologist recently deceased, and his son Pierre, physician and novelist, in the Bulletin of *Progrès Médical* for November

27, 1920, xlviii, 48. The elder published nearly 500 articles during his lifetime and before his demise was at work on his "Dogme Transformiste," which has been edited by his son. It is a critique of the views of Darwin, Spencer, Haeckel, Le Dantec, and other biologists and of evolution and monism in general. The criticism is partly constructive, but Grasset belonged to that faction which does not believe in pushing evolution too far into human history.

The younger Grasset has published the following books: "Un Evadé de la médecine" (1906); "Le Journal de Pierre Daunis," a work of fiction (1908); "Un Conte Bleu," fiction (1910); the "Hymne à la Provence" to which Mistral wrote a preface (1912); and a three act play, "Jeannine." Since the war he has written "La Cœur et la Guerre" and "Aimer." The first-named consists of a series of three novels and the latter a romance of a biographical character. In all of these works the younger man had the advantage of his own medical training and of frequent conversations with his father on medicopsychological subjects. He was familiar with the writings of the Freudian school. In introducing psychology into fiction he has enrolled himself with the medical and neurological school of authors of imaginative works which includes Holmes, Mitchell, and other Americans.

Death of Professor Debove.—In the obituary of Dr. Debove in *La Presse Médicale* for November 17, 1920, xxviii, 86, his career is said to have been one of unusual brilliancy and his life unusually well filled. After graduation from a lyceum he began the study of medicine in 1869, and in 1873 his graduation thesis had for its subject buccal psoriasis. In 1877 he had become chief of clinic to the celebrated Germain Sée. He attached himself also to Ranvier, the histologist, and to Charcot. Among his histological researches he studied mycosis fungoides, cancerous lymphnodes, and myocardial sclerosis, while at the same period he published numerous papers on neurological subjects, including tremors, contractures, tabes, etc. Despite these early proclivities he became an internist like his master Sée, published studies on hepatic uremia, superalimentation, and tuberculosis, and was the first in France to take up examination of sputum in the diagnosis of the latter for Koch's bacillus.

Debove was also interested in the treatment of neuralgias by refrigeration, in a special technique for thoracentesis, in catheterization of the esophagus, in gastric lavage and feeding by the sound. It was inevitable that he should become one of the earliest gastroenterologists in France, and (with Rémond) he published a textbook on diseases of the stomach, along with monographs on gastric ulcer and lavage. He edited systems of manuals on medicine and diagnosis, clinical medicine, internal pathology, and therapeutics. He was a pioneer in social medicine with special reference to racial poisons—syphilis, tubercle and alcoholism. He became Faculty Professor in 1890 and in 1913 was made perpetual secretary to the Academy of Medicine. He succeeded Brouardel as Dean of the Faculty. He delivered the funeral orations of many distinguished colleagues and wrote well on episodes in medical history.

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TEA INTOXICATION.

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NEW YORK.

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THE custom of drinking tea is so universal and its usual effects, are so insignificant that it may not seem worth while to call attention to tea intoxication. Yet the subject is really of some importance, because of the increasing use of tea and because of the liability of physicians to overlook the fact that certain disagreeable symptoms may really be due to its abuse.

It may not be generally known that next to water tea is the beverage most widely used the world over. It was known in China as long ago as 2700 B.C., but was not brought into Europe till A.D. 1600. That it was quite a luxury at that time is shown by its price, for it sold in London in 1650 for £10 a pound. Pepys wrote in 1660: "I did send for a cup of tea, a China drink which I had never drunk before," a note which proves its rarity. But soon after this the East India Company began to import it freely and introduce its use in England and now statistics show that for every person in the British Empire six pounds of tea is required a year. In 1918 151 million pounds was imported into this country, making a pound and a half for every person, and as this is an increase of 40 per cent. over the importation of 1913 it is evident that the use of tea in the United States is increasing rapidly.

Acute cases of tea poisoning are extremely rare. Spillman (*Gaz. Hebdom. de Med.* 1901, Feb. 7), has put on record one interesting case.

A woman who, for some gastric disturbance had been advised to take a test meal of toast and tea, took by mistake 300 grams of tea in 300 grams of water. The active principle of tea being caffeine and the proportion of caffeine in tea leaves being 3 per cent. it was thought that she had taken about 9 grams of caffeine, or 135 grains. A fatal dose of caffeine for an animal is 1 grain to the pound. Within fifteen minutes the woman began to tremble violently, became very weak and fainted, had mild convulsive movements of the limbs and then vomited. The emesis continued for eight hours. She was pale and cold, had a rapid feeble pulse which after two hours became slow and remained at 40 for seven hours, gradually coming up to 80. Her respirations were shallow and rapid. Her temperature was subnormal, and her body was covered with a cold sweat. She was very restless, suffered from headache and mental excitement, but after eight hours became somnolent and by the end of twenty-four hours seemed to have recovered entirely.

This is the only case I can find in recent literature of acute poisoning. It is evident that the dangerous

effect was chiefly upon the circulatory and vasomotor systems, but that the motor system and cerebral activity were violently stimulated. It is interesting to note that in Sir James Mackenzie's book on the Study of the Pulse (p. 111) he states that he knew of a man who after an attack of influenza could not drink a cup of tea without his pulse intermitting every third or fourth beat for a short time and that this tendency persisted for several months. This effect upon the heart has been noticed by me in two cases.

H. C. Wood, in writing upon Caffeine, states that 12 grains is the largest amount that he had met with as having been taken by man. In that case in about two hours intense physical feebleness and a very uneasy condition of the mind were developed; very marked general muscular tremulousness soon followed, and the mental anxiety increased. After this passed off, there was obstinate sleeplessness, with active and persistent thinking and frequent urination. The brain power was stimulated very markedly. There was a diminution in the excretion of urea from 12 to 20 per cent., also in the elimination of nitrogenous matters.

While many chemists have stated that the active principle of tea, theine, is identical with caffeine, it seems from the very different physiological effects of tea and coffee that there must be some chemical differences in their active principles. This requires further investigation.

The following is an example of less acute poisoning:

Some time ago the captain of a college football team brought three members of the team to me in a state of great nervousness. These young men were well nourished—each weighed nearly 200 pounds—but were suffering from marked tremor of the hands, restlessness, insomnia, loss of appetite, indigestion in spite of the very careful and rigid diet of the training table, and nervous apprehension and depression of spirits. They had been treated for two weeks for indigestion by tonics containing strychnine, and the captain, having looked at the prescriptions, thought they were being poisoned by strychnine purposely given by the physician, who was an alumnus of a rival college, about to play the team. The nervous symptoms, the rather rapid pulse, the increased knee jerks, and excessive irritation of the nervous system in general made his theory of strychnine poisoning plausible. An inspection of the prescriptions of the tonics showed that the maximum dose of strychnine given was only 1/60th gr., quite inadequate to produce the symptoms, and the reputation of the physician in question made the theory absurd. On careful investigation I found that the athletic trainer had been giving the team large doses of tea. They were accustomed to drink it at breakfast and luncheon and before the practice hour two or three large glasses of fairly strong tea were given them. Thus each man drank at least two quarts of tea daily. The three men in question evidently had not been able to endure this amount as well as the others and were

suffering from tea poisoning. This supposition was confirmed by the result. For all the symptoms disappeared within a week when the tea was withdrawn.

I subsequently learned that it has been the custom of athletic trainers in many colleges to give strong tea before contests in tennis or ball or rowing.

It is well known that Swiss Alpine guides carry tea and urge its use in climbing mountains. When a night is spent in the mountain hut strong tea is given at the early rising meal, and tea is carried and given at intervals during any ascent.

In Russia, where tea is drunk more generally as a beverage than in any other country, those who are called upon to make muscular efforts are given tea in large quantity. During the war the English troops were freely supplied with tea and carried it instead of water in their canteens. The Americans preferred coffee, which they thought more palatable, and which contains the same or a similar principle. But aviators in both armies preferred to take tea before making hard flights.

Chronic tea poisoning is much more common than acute poisoning and may not always be detected. Sometimes, as in the following case, the discovery is accidental.

I was once consulted by an eminent colleague from Chicago regarding a nervous condition which had caused him much alarm. He had suffered from headache, and very persistent vertigo which caused a feeling of great uncertainty and swaying in walking. There was occasional tinnitus aurium. No affection of the ears could be determined and he naturally feared a beginning cerebellar tumor. This I could positively rule out, but was unable to ascertain the cause of his vertigo, and was not able to relieve the symptom by medicines. Some time afterward I received the following letter, which proved that the condition had really been due to tea:

"You may remember that last spring I consulted you relative to my own health—a certain confusion of the space sense with ringing in the ears and kindred symptoms. The trouble continued until last fall and although I have never been an excessive tea drinker (one or two cups a day) the entire difficulty disappeared upon giving up tea. I have resumed the tea repeatedly since, and the same symptoms have returned. Even a single cup of strong tea will produce them now. I am sure that the relation of cause and effect is clearly established and make this report under the impression that you will certainly be glad to know of my relief and possibly interested in its mode."

A patient was sent to me from Japan who was suffering from chronic tea poisoning. He had been for some years employed in the tea business as a tea taster. It was his habit to make an infusion of about a teaspoonful of each sample and take a tablespoonful in his mouth, taste it, and throw it out. In this way he often tested a hundred samples a day. He would chew a slice of apple between samples to eliminate the taste of the previous sample. He had gradually developed a condition of extreme nervousness, restlessness, mental depression, and insomnia with tremor of the hands, attacks of headache and vertigo. He had palpitation of the heart with a rapid irregular pulse. He had complained of loss of appetite, indigestion, and constipation for a long time before the nervous symptoms appeared. When he arrived in this country after the four weeks' trip from Japan all the symptoms mentioned were persistent and he was in a state of extreme neurasthenia. It was not until after three months of rest, care and hydrotherapeutic treatment that he finally recovered. The insomnia was the most distressing symptom of all and did not yield to ordinary hypnotics. As he had always been of a cheerful disposition his depression seemed also traceable to the tea.

That mental symptoms may possibly be caused by an abuse of tea has not been generally recog-

nized, but in the reports of asylums in Ireland I find that excessive tea drinking is mentioned as a cause of insanity. The Irish alienists state that the characteristic symptoms are insomnia, periods of despondency alternating with states of anxiety, and great restlessness. These cases may perhaps be ordinary cases of manic depressive psychosis in a tea-drinking people. Yet the influence of tea in their production has been affirmed by competent men.

These facts have convinced me that the influence of tea in causing certain nervous symptoms should not be disregarded. In the *MEDICAL RECORD* in 1912 James Wood of Brooklyn, published a study of the effects of tea among Irish servant girls in his dispensary practice and came to the conclusion that about 10 per cent of the cases of ordinary ill health among this class are traceable to tea. The symptoms manifested in the order of frequency were headache, vertigo, despondency, palpitation of the heart, indigestion, insomnia, restlessness, mental confusion, constipation, loss of appetite, and tremors. These girls were accustomed to drink tea more or less all day, often taking as many as 12 or 15 cups daily. Several women, who were keeping house, admitted to using a pound of tea daily—others had tea boiling on the range all the time, and took a cup at frequent intervals—all took more than 5 cups a day. In all the cases treated the symptoms subsided as the tea was abandoned. In many cases the diagnosis of the cause had been overlooked, and the treatment had been directed to the indigestion or to the headaches and general nervousness without result. Too often in our dispensaries such cases are dismissed with a mixture of rhubarb and soda and the true cause is not suspected. Even in private practice such cases may occur and the true cause may be overlooked.

Is there any reason for the general use of tea and what is the agreeable effect which has led to its use? Hoch and Kraepelin in 1895 made a careful study of the bodily and mental results of the use of substances containing the active principles of tea. They showed that during the first hour after an appreciable dose of strong tea there is a marked increase in muscular power and endurance. This began about twenty minutes after the tea was taken, reached its maximum in an hour, and lasted several hours. It is well known that the mental effects of tea can also be measured. There is a more rapid train of thought, an increased association of ideas, keener appreciation of things read or heard or seen—and a mental stimulus which they estimate as an increase of mental activity during the first hour of from 5 to 8 per cent. There is a sense of increased power which is attended by a pleasurable sensation, a feeling of brightness, cheerfulness, and mental activity—not perhaps as rapidly developed or as intense as that produced by alcohol, but quite comparable.

I hesitate to put this on record lest a wave of tea prohibition be started which may overwhelm the tea addicts. It is a result, however, which explains the growing and almost universal use of tea, especially in the late afternoon when the fatigue, both physical and mental, of the day seems to make one desirous of an artificial stimulant. It would be foolish to assert that this is in any way harmful

in moderation. But an occasional case of tea-intoxication may occur, and unless the physician is aware of its possibility it may be overlooked. On the other hand, general experience, clinical and laboratory, derived from the study of cases, and personal from the social use of tea leads us to the conclusion that much solace and satisfaction is to be obtained from "the cup which cheers but not inebriates."

5 WEST FIFTY-FOURTH STREET.

DIAGNOSTIC POINTS OF VALUE FOUND IN THE URINE.

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To distinguish normal from abnormal functioning is exceedingly simple, so much so that even the fastest runner may differentiate them, if he will but keep his eyes open while he is running. That the distinction is not evident to every medical man, however, is only another proof of the superficiality of our knowledge of the vital principles of chemistry.

Man, as Crile well says, is merely an adaptive mechanism; he is, nevertheless, a mechanism run on immutable chemical formulæ, the operation of which formulæ is accurately registered in the urine. If the urine is free from indican we know that there is no putrefactive fermentation going on in the intestinal canal nor in any other part of the body. If there is no overproduction of uric acid, and if the ratio between uric acid and the urea elimination is normal, we know that the protein substances are being thoroughly oxidized. If there is no over-elimination of phosphates we know that the nervous mechanism is assimilating normally.

When the physiological economy is working perfectly the urine is free from indican. At the same time it must be remembered that the urine almost always contains a trace of etherial sulphates; so that if there is the slightest amount of putrefactive fermentation in the intestinal tract, a trace of indican will be found in the urine. Under these circumstances, in our reports of urinary findings, the term "trace of indican" should be used instead of "indican normal," so often seen. Beyond this point the record should read "a pronounced trace," or "abundant," or "very abundant," as the case may be. If so recorded an accurate knowledge is obtained as to the amount of the putrefaction taking place in the intestinal canal. The chief reason for being so exact in regard to the indican question is the fact that indican when correctly reported is a true guide to the proper functioning of the digestive and hepatic systems. Through the indican we can determine whether our patients are on the correct diet or not, and also when our therapeutic agents are producing the desired results.

By a similar token, any deviation in the uric acid balance, indicated by an over-production of uric acid, is also abnormal. This over-production of uric acid may not be of any immediate pathological significance. On the other hand, unless the cause which produced the over-production can be detected and corrected, the over-produced uric acid may be

indicative of the development of even grave structural changes in vital organs.

If there is an over-elimination of phosphates, either with or without oxalates, we know positively that there are mal-nutritive conditions affecting the nervous system, unless the patient happens to be taking an excessive amount of phosphates; as, for

TEST FOR INDICAN

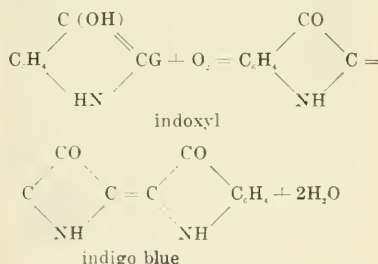


Take 10 C.C. of urine, 10 C.C. hydrochloric acid and 5 drops of 1/2% solution potas. permangan. and shake. Then add 5 C.C. chloroform and shake. Purple coloration followed by deposit of blue pigment shows presence of indican.

FIG. 1

instance, when the phosphates are administered freely as medicine, or when the patient is on an unusually liberal diet of vegetables.

Principal Varieties of Indican.—When the indican test is applied to a sample of urine there are many gradations in the color reaction that may be obtained. Fig. 1. These are so classified that they will have a practical application to the clinical picture that the different colors represent. Every physician should be able to distinguish simple indicanuria, in which the test gives a clear indigo blue color, and which indicates that there is a simple putrefactive fermentation taking place in the intestinal canal, one in which there is very little toxic absorption from the lumen of the intestine into the blood stream. This process is expressed by the following equation:

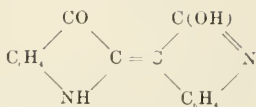


Then we meet with an indican class in which the color is a decided purple. When this results, there is more or less toxic material produced in connection with the fermenting process, the system being poisoned by the absorption of the toxins. Now we have a true toxemia to deal with.

We meet with other cases in which the color obtained is a bluish black or almost black. The darker the color the greater the intensity of the toxemia.

Then we have the red indicanurias, expressed by the following equation:

The formula of indigo red is



In this particular type of indicanuria the indican is not precipitated, as is the case with the blue forms, but the result is a very pronounced reddish coloration of the urine in the test tube above the surface of the chloroform, while the chloroform itself remains colorless.

Quite frequently the application of the indican test results in a greenish coloration of the chloroform below the line of demarcation between it and the urine above. When this develops it indicates that the internal ends of some of the capillary bile ducts within the liver are occluded. Instead of the bile reaching the intestinal canal as it normally does, it works back into the lymphatic spaces surrounding the hepatic cells and ultimately reaches the blood stream by the thoracic duct. Its final elimination from the system is through the kidneys. It is quite possible that the biliverdin so excreted may in part account for the green coloration.

In case the patient is taking iodide of potassium and there is no indican present in the specimen under examination, the reaction to the ordinary indican test gives a clear cherry red color to the chloroform. On the other hand, if the specimen contains

plied, there is invariably a sharp line of demarcation between the chloroform and the superimposed layer of urine. On the other hand, if assimilation is impaired a more or less opaque disc forms at the junction of the two fluids—the urine and the chloroform. This disc will vary in thickness from an eighth of an inch to an inch. It may be situated largely in the urine above the line of junction, or the disc may be below the line of demarcation, lying wholly within the chloroform zone. Upon the character and situation of this disc, we can determine different grades of malassimilation.

The Porter Metabolism Test.—This test, when properly applied and interpreted, determines also the state of the metabolism, whether perfect or imperfect, and also indicates the degree of imperfection. This peculiar reaction giving rise to the disc formation, as already described, is noticed in connection with the ordinary indican test. It develops as a result of adding equal quantities of urine and chemically pure hydrochloric acid in an ordinary test tube, then adding 8 or 10 drops of one-half per cent. solution of permanganate of potassium, and then (depending upon the size of the test tube) from one-half to one dram of chloroform. The test requires from twenty-four to forty-eight hours for its full development, which emphasizes the inadequacy of this metabolism test when superficially and hastily made.

When dissolution is imminent a peculiar flocculent material develops in association with a fairly large amount of indican, or even in the absence of indican, shading in color from a light gray to almost black. This flocculent and oil-like matter is often observed in the absence of indican. Upon microscopic examination, it is found to be composed of two distinct types of material, one part consisting of fine granular matter, which when abundant, masses together and collects above the level of the chloroform. The other substance is composed of this same granular material in conjunction with numbers of large and small globules resembling fat globules under the microscope. When the latter predominates it collects as a white, snow-like mass, which seems to fall below the level of the junction of chloroform and urine. When the light gray, flocculent material forms above the junction of the chloroform and urine, numerous fat-like globules are present in some instances, in conjunction with or enmeshed in the simple granular matter.

When this flocculent matter is dark and solid it is usually composed entirely of this granular material, the fat-like globules being absent, thus explaining the various ranges of coloration observed in conjunction with the application of this test. When this matter is very dark and abundant, and forms rapidly it is seen above the level of the chloroform, it is of grave prognostic import; for death is sure to ensue within a very short time, unless this can be speedily overcome. My experience with this reaction, extending over a period of ten years, proves conclusively that this peculiar condition cannot be permanently eradicated. Hence we are in the habit of speaking of it as the "dead line" in the urine. On the other hand, when the flocculent ring is white and "snowy" and beneath the level of the chloroform, it indicates varying

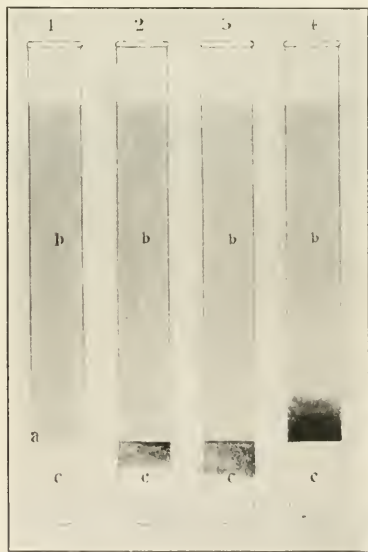


FIG. 2.—Indicanuria test, showing variations in assimilation. 1, Normal; 2, slight malassimilation; 3, marked malassimilation; 4, beginning dissolution, or the "dead line"; a, line of demarcation; b, urine; c, chloroform.

indican, the color reaction will be modified, being reddish blue, reddish purple, or reddish blue-black, or even black.

Perfect and Imperfect Assimilation.—When the assimilation is perfect and the indican test is ap-

degrees of disturbed metabolism, depending upon the depth and density of the ring. And now the prognosis is always good.

During the past summer Professor John William Gies made an extensive study of these precipitates and his report is as follows:

During the course of this work, you called my attention to a peculiar precipitation you had frequently obtained in applications of the ordinary chloroform-acid test for indican. You observed, you said, that when such mixtures (that is, urine, hydrochloric acid, a weak solution of permanganate of potassium, and chloroform) were allowed to stand, a heavy, dark flocculent precipitate collected above the chloroform in the urine of patients suffering from nutritive disturbances who were approaching a fatal termination, but did not appear under similar conditions in the urine of normal people, or of patients whose diseases did not involve serious nutritive disorders. You also stated that a white oily precipitate frequently appears in such mixtures in the upper part of the chloroform but *within the range of the chloroform*, this precipitate showing special tendency to adhere to the side of the vessel in which it is separated.

At your request, I endeavored to determine the nature of the dark precipitate that forms, under those conditions stated, immediately above (and that rests upon) the chloroform. You sent me urine from several of your patients for this purpose. I found that this substance is a modified form of coagulable protein and that it consists of a mixture of modified albumins and globulins, presumably from the *blood* of the individual affected.

I have been unable to obtain enough precipitated material to determine satisfactorily the character of the white precipitate that frequently is produced in the upper part of the chloroform zone, under the conditions stated above.

For the full development of these peculiar reactions relating to assimilation, the specimen of urine under observation, when so tested, must be permitted to stand for from twenty-four to forty-eight hours for the full development of these reactions. Failure to follow this time procedure is, in my opinion, the reason why these important and valuable results have not been more generally observed. Unless the specimen is kept under observation for a sufficient length of time to permit the development of these reactions, these diagnostic and prognostic points will be lost.

Harmless Versus Toxic Uric Acid.—The imperfect reduction of the protein molecule is evidenced by an *over-production* of uric acid. This is accurately indicated by a test which it was my privilege to discover thirty years ago and which I have used almost daily since. When the protein molecule is perfectly oxidized in connection with the physiological working of the human economy, there is no over-production of uric acid. With imperfect oxidation, however, there is a varying degree of over-production, depending upon the amount of free uric acid excreted.

It is not generally known that there are two distinct types of over-produced uric acid. One form results from simple over-eating, or from a deficient supply of oxygen, but without a general toxic condition of the system. In this variety the uric acid is spontaneously deposited, simply on account of its high insolubility, shortly after the urine has been voided and allowed to cool.

The other type is associated with a decided toxic condition of the system. In this form the antecedent protein molecule from which the uric acid molecule is produced in the cells of the kidneys, is

a highly toxic one and gives rise to more or less profound clinical symptoms. (Fig. 3.)

This particular type of uric acid for some as yet unexplainable reason, is often held in solution in the urine for several days, even when it is present in considerable quantities. Its presence, so far as I know, can be readily shown to exist in the urine only by the application of my test for determining the presence of over-produced uric acid.

The Porter Test for Over-produced Uric Acid.—

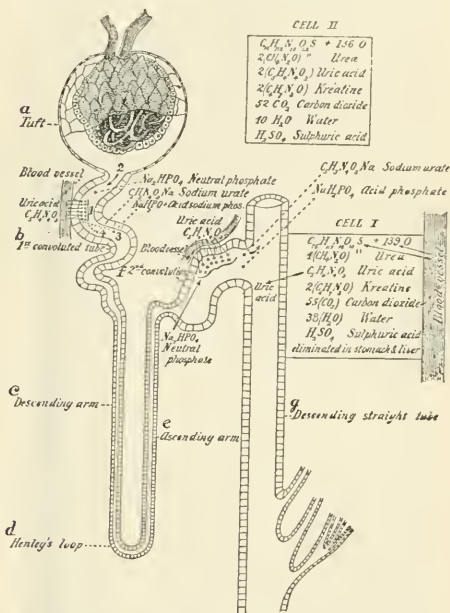


Fig. 4. Schematic drawing showing single (a) uriferous tubule from Malpighian tuft to papilla or its outlet, (b) Malpighian tuft and blood vessels, (c) First convolution, (c) Descending arm of loop, (d) Henley's loop, (e) Ascending arm of loop, (f) Second convolution, (g) Straight or collecting tube. Uric acid is dropping into the tubule from the side, 2. Neutral phosphate of soda molecule as it unites with the uric acid to form 3. The acid phosphate of soda; and 4. The salts of soda formed by this chemical mutation. Cell I, the cell on the left side of the tubule, is the cell on the inside and the blood vessel on the opposite side, illustrating normal oxidation of protein molecule within the protoplasm of the cell. The protein and oxygen coming from the blood into the cell, where the oxidation is taking place, produces the uric acid dropping into the lumen of the tube, while the carbon dioxide flows back into the blood. All the other reduction products dropping into the tube as does the uric acid. The cell II, the cell on the right side of the tubule, is identified as cell II illustrating abnormal or suboxidation in the renal tubule. Urea diminished one half while the uric acid is overproduced fifty per cent. In both the normal and abnormal oxidation of sulphur is added in the urine as a sulphate. The sulphuric acid is produced from the reduction of hydrogen. Cell II, when it reaches the urine, is in the form of a sulphate, Na_2SO_4 or "Glauber's" salt. This salt being produced in connection with the oxidation reduction of the protein ele-
mentary sulphur, is added to the urine in the process of producing sulphuric and hydrochloric acid.*

For those who may not be familiar with this test it may be stated that it consists in boiling the super-strata of urine in the test tube, and then adding a very dilute acetic acid solution; so dilute that even in the presence of heat it will not decompose the normal urate of soda, or any other urate contained in the urine. A 4 per cent. solution is

*Porter, Wm. H., The Therapeutics of Decreasing Body Alkalinity, MEDICAL RECORD, September 18, 1920, p. 471.

recommended. Emphasis is placed upon a *weak solution* from the fact that ordinary hydrochloric acid or any other strong acid, will decompose the normal urates in the urine, with the formation of uric acid crystals.

After boiling the urine, adding the few drops of the dilute acetic acid solution, and re-boiling, the test tube and its contents must be allowed to stand in a cool place for from twenty-four to forty-eight hours. During this time, if there is an over-production of uric acid, the uric acid crystals will begin to form just underneath the free surface of the urine. The crystals appear to hang, as it were, from the surface of the urine. When formed rapidly and in large quantities they will in part drop to the bottom of the fluid.

By the amount of uric acid and crystals present we can estimate the relative percentage of uric acid contained in a given specimen. If one wishes to make this test quantitative, it is necessary to collect the crystals on a weighed filter, dry, and re-weigh. This is, in my opinion, the most simple and accurate of all the devised tests for both qualitative and quantitative estimation of over-produced uric acid. So far as I know, it is the only test

TEST FOR OVERPRODUCED URIC ACID

After boiling the upper strata of urine add a few drops of 4% acetic acid. Let it stand for 3 or 4 hours, after which the overproduced uric acid will crystallize out just beneath the surface of urine in test tube.

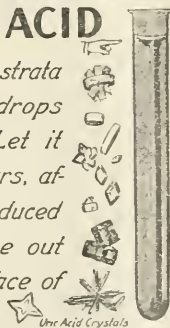


FIG. 4

that determines *only* the over-produced uric acid. It is unquestionably the best one for the general practitioner.

Urea Elimination.—The study of the over-produced uric acid is more valuable than estimating the total of urea eliminated. This is especially true if we wish to know whether the protein molecules are perfectly or imperfectly oxidized.

The determination of urea as it is ordinarily done, by simply estimating the percentage in a small quantity of urine, without any knowledge of the total quantity of urine passed during the twenty-four hours, is of no value whatever. Even if the total twenty-four hours amount of urine is known, estimation of the urea is of no practical value, unless the examiner knows also the total amount of nitrogen ingested and assimilated. Even with all this knowledge, when studying the urea output, the estimates must be made for several days in succession for anything like a practical working knowledge.

From such a study it is clear that if the patient is on a very low protein diet, the elimination of urea must be small; or else the fixed protein must be

breaking down with undue rapidity. The same is true, in many instances, when one is living exclusively on a vegetable diet.

In some cases of pregnancy, in which the intake of protein is low, and when a part of the protein that is ingested is constantly entering into the building-up of the fetus in utero, the urea output is also very low; a condition which on many occasions has unnecessarily alarmed the obstetrician, a subnormal physiological condition being mistaken for a truly pathological one. The use of a low protein diet, as advocated by some obstetricians, to keep the child small and make labor easier, is taking an undue advantage of the helpless fetus in utero.

More than forty years ago, at the time Weston made his famous six days walk in Madison Square Garden, the attempt was made to determine the nitrogen output for the week by estimating only the quantity of urea excreted every twenty-four hours. The statement was made at the time that as the result of this tremendous physical exertion there was less and less urea excreted. As it was then interpreted, it proved that over-exertion did not necessarily greatly augment protein destruction.

Two points in this connection should always be remembered; first, that over-exertion always increases the uric acid elimination and decreases the urea. Therefore, if we wish to determine the nitrogen output more accurately we must compute both urea and uric acid; and we must remember the fact also that each uric acid molecule carries twice as much nitrogen out of the system; so that augmentation of the elimination of uric acid takes considerable nitrogen with it. Second, that the output of nitrogen is more largely governed by the amount of protein contained in the foodstuffs than it is by the breaking down of the proteins within the body. In fact, however, over-physical exertion demands a larger supply of protein, and hence the system eliminates more nitrogen.

Phosphates: Over-Elimination and Significance.—To determine the over-elimination of phosphates, boil the super-strata of urine in the test tube. If there is an over-elimination, a white, cloudy opacity occurs, which at times has been mistaken for albumin. The addition of a few drops of a four per cent. solution of acetic acid, however, will differentiate between the two, for if this precipitate is due to an over-elimination of phosphates, it will rapidly vanish on addition of the acid; whereas if it is due to albumin the precipitate becomes more intense.

To detect the oxalates which are often present in connection with phosphaturia, the specimen must be examined microscopically, when, if oxalates are present, the oxalate of calcium crystals will be readily seen.

With a simple phosphaturic condition, it indicates a mal-nutritive condition of the nervous system, and is evidenced by general weakness and lack of nervous energy. When the overproduction of phosphates is associated with the oxalates, the symptoms are likely those of the so-called neurasthenic type.

Lethal and Harmless Varieties of Glucose.—It is interesting also to note that in glycosuria there are two types, distinctly differentiated by uranalysis. In one of these types the glucose as found in the urine is the result of extrinsic causes, such as eat-

ing too much, inability to oxidize, lack of out of door exercise, and so forth. In the other type of glycosuria there is some well defined intrinsic change, which always plays an important role in the production of the glucose and its presence in the urine.

I have gone into certain associated phases of this matter very extensively in my book "Eating to Live Long"*, and have considered very carefully the etiological relationship between glycosuria and the over-production of uric acid in these conditions.

While we use the same test (the Trimmer test) to determine the presence of glucose in the urine, there is a decided shade of difference in the reaction secured in the two varieties. In the extrinsic type the reduction of the copper is effected slowly; it at first assumes a dirty yellow aspect; and it often requires an hour or more before the well-known brick-dust colored deposit is evident. In the intrinsic variety, however, the brickdust reaction is almost instantaneous, and the deposit very rapidly produced. This difference in reaction is probably due to the fact that the $C_6H_{12}O_6$ molecule is known to exist in seven or more different isomeric forms: that in connection with these different results following the application of Trommer's test, we have, in one instance, one of these seven $C_6H_{12}O_6$ different isomeric forms of glucose-like molecules, and in the other a still different isomer.

It is a well established clinical fact also that the prognosis is good in the first type, whereas in the second form the condition is quite likely to prove fatal within a short period of time. This is especially true in young subjects.

Three Types of Albumin and Their Significance.—With albumin, as with indican and glucose, the urinary test discloses several types of protein reaction. The very translucent type of albumin indicates merely a slight disturbance in metabolism, but without retrograde changes in the kidney cells, either present or proximate.

A second type, which is decidedly opaque, is seen in varying amounts.

Then there is a third type in which the precipitate is in the form of a highly caseous, dense mass. This form usually indicates a pronounced parenchymatous metamorphosis taking place in the renal cells, and that the case is of a serious nature. It is usually most pronounced in syphilitic cases; less fatal, however, in this connection than in the absence of this infection.

Occasionally we meet this form of albumin in cases in which there is little or no degenerative change going on in the renal cells. When this is the case, there is no extensive degenerative change in the renal cells lining the uriniferous tubules, a sufficient number of cells, retaining their full physiological vigor, remaining attached to the basement substance.

Unless these different kinds of albumin are distinctly differentiated, and so stated in the report of the uranalysis, it is impossible to judge accurately just what the nature of the metabolic process is in the case under observation. To say simply, "albumin present," means almost nothing so far as giving a clear picture of the pathological processes is

concerned. Both the kind and relative amount found should be clearly stated.

Another pertinent fact in connection with this class of work is the necessity for analyzing a night and morning sample for at least three days in succession. In some instances it may be necessary to continue the twice daily observations for a week at a time, if the internist is to become fully conversant with every phase of these complex metabolic disturbances.

The reason for this is the fact that the abnormal changes fluctuate with extraordinary rapidity; so much so, that within a few hours the metabolic changes will be diametrically opposite, and the condition of the urine may be changed from one indicating a normal to one that is abnormal and vice versa. For example, a night specimen may indicate an abnormal condition, while a sample of the following morning may be nearly perfect. In adolescents, albumin may appear only at certain times of the day and be absent in the morning and at night. Knowing these facts, the only accurate method of arriving at an opinion of any true value is to insist upon examining a series of samples, or separately a sample from each urination during the day, and then striking an average.

It is only in conjunction with an intimate knowledge of all the clinical details and idiosyncrasies of the patient by the one who makes the urinary analysis, that these fine gradations and their full significance can be fully comprehended.

Microorganisms of Diagnostic Value.—There are but three microorganisms that are of real value as aids to diagnosis in connection with urinary analysis, namely: the colon-typhoid bacillus group, the gonococcus, and the tubercle bacillus. As regards the colon bacillus, little time need be spent in determining its presence in connection with pyelitis, since Lenhartz (Mikros. u. Chem., 9te Auf., Berlin, 1919, p. 384) has proved that more than 90 per cent. of such cases are due solely to this bacterium. Cases due to the presence of other microorganisms are rarely met with. Aside from the gonococcus and tubercle bacillus, determination of the species of cocci or bacilli present in voided urine is useless from a practical or therapeutic standpoint, and even of scientific value only in aseptically obtained urine; because there is no specific therapy based upon the species of infectious bacteria. Therefore, to ask the bacteriologist to search for other kinds of microorganisms is largely to waste his time and also to impose unnecessary expense upon the patient. In the case of gonococci and tubercle bacilli, however, determination is absolutely essential, both diagnostically and therapeutically.

In connection with all these facts, it may be said that to be an accomplished diagnostician and internist necessitates that, in addition to being thoroughly trained in urinary analysis, one must have intelligently performed a large number of necropsies. The number should run well into the hundreds; the number can never be too large. The more the examinations are made upon subjects who during life were directly under the care of one who makes the necropsy, the greater will be the knowledge thus obtained. At the same time that the case is under observation, the physician in attendance should personally conduct the analysis of the urine along the

*Porter, Wm. H.: "Eating to Live Long," 2 ed. Reilly & Lee Company, Chicago, 1920.

lines indicated in this paper. In no other manner can the physician learn how to interpret accurately the urinary findings which dovetail together with the symptoms with absolute precision. Evidence of what is transpiring within the system is usually recorded in the urine in advance of the objective symptoms, thus often forewarning the clinician of that which later will be observed at the bedside.

After the physician has become proficient in these three fields, he can easily learn how best to arrange the diet for his patient; for he knows full well how these morbid processes are brought about and what is necessary to combat and overcome them. In like manner, he knows how best to select his therapeutic remedies, and he then becomes a thorough expert and scientific and practical therapist. Empiricism in a complete measure disappears, the use of his remedial agents becomes more exact, and the results of his endeavors more certain and satisfactory to his patients.

46 WEST EIGHTY-THIRD STREET.

ALVEOLECTOMY.

A SURGICAL PROCEDURE FOR THE TREATMENT OF TRIFACIAL NEURALGIAS OF LOCAL ORIGIN.

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ALVEOLECTOMY is the surgical removal of the diseased or the jagged buccal or lingual portions of the alveolar processes of either the upper or lower jaw. The proper application of this procedure in the treatment of trifacial neuralgias of local origin has proved to be of great value.

Neuritis of one or more branches of the trigeminal or 5th cranial nerve (trifacial neuralgia) is said to be the most painful of human maladies; the neuralgia is most excruciating, and the suffering most intense. Primarily it is not a disease, but the nerves express pathological disturbances general or local in some part of the anatomy of the head and neck.

Etiology.—The nerve trunks may undergo degeneration from long continued irritation, which when once fully established becomes an entity in itself. Most cases of trifacial neuralgia occur either during middle life or advanced age. They become active with the advent of fall and winter continuing until the weather settles, at which time the paroxysms become quiescent. Females are inclined to be more susceptible to the attacks of neuralgia than males, the condition prevailing more among inhabitants of crowded cities than of country districts.

Neuralgia is the sequel of either general or local disturbances. The general causes are the toxemias of infectious diseases. The local causes are far more important. They may be the result of adhesions from burns or wounds, compression, contusions, strains, cold, trauma; also dental diseases resulting from injuries following extractions, malformation and malposition of the teeth, impacted teeth, fractures of the jaw, nerve tumors and pulp nodules. The teeth, more frequently than any other

tissue of the body, are subject to the many diseases that may be directly or indirectly responsible for a greater number of trifacial neuralgias than all other causes combined. A tooth lesion may involve a nerve, around which there may be the formation of cicatricial tissue, induration of the nerve sheath, or an exostosis of the bony wall surrounding the tooth in question. Not infrequently we encounter teeth which apparently are free from decay, the pulp cavities of which are filled by the formation of either secondary dentine or pulp nodules. These nodules or calcific matter exert pressure upon the nerve filaments and are oftentimes responsible for the paroxysms of neuralgic pain. Though the tooth or teeth in question may have been removed, the pathological tissue they produced may remain, or develop other conditions which may be the origin of the most severe type of trifacial neuralgia. Thus the unsuspecting surgeon may overlook this area from which a tooth had been extracted, in searching for a cause for the neuralgia. It has been my privilege to have just such cases referred to me for treatment, and after careful study of the histories, clinical symptoms and x-rays, they were diagnosed as trifacial neuralgias. Alveolectomies were performed for these patients, resulting in complete relief of their sufferings.

Injuries to the alveolar process resulting from extraction of teeth, in the form of fracture of either the external or internal plates or both, permit spiculæ of bone to remain, which oftentimes reattach themselves to the periosteum of the alveolus, and act as peripheral nerve irritants. Fragments of root very often are forced into the cancelled portion of bone, and may cause pressure upon the nerve, especially in the lower jaw on account of the mandibular canal. Abscesses from unerupted teeth, impacted teeth, and granulomata which are the results of low grade infection of the periodontal membrane, besides being a focus from which toxic absorption takes place, may be the cause of trifacial neuralgia. These usually give no local discomfort, but may cause irritation and inflammation of any or all of the branches of the trifacial or 5th cranial nerve, thereby inducing neuralgia.

Symptoms.—Paroxysms of pain may occur suddenly without any warning. The pain may appear anywhere along the course of the terminal branches of the 5th cranial nerve. If it is situated in the superior maxillary branch, the pain will probably radiate over the cheek-bone, beneath the eye, the alæ of the nose, lips, gums, and teeth of the upper jaw. If it is displayed in the forehead, temple, inner canthus of the eye or the globe itself, the ophthalmic branch is affected. Profusion of tears is produced by involvement of the lacrymal branch. Pain along the mandible or the tongue indicates affection of the 3rd division, and is described as sharp, lancing, stinging, and intermittent, increasing in violence until a climax is reached after which it subsides abruptly only to recur after a short duration of rest, or to remain quiescent until a future attack.

The pain in trifacial neuralgia may originate from one or more centers. It does not occur at regular intervals, and as the period of rest lengthens, the patient is led to believe that there will not be a recurrence, when suddenly, without any

warning whatsoever, there is a paroxysm of burning, boring, darting pain, which increases in severity and duration. I have seen patients holding their hands to their heads, walking with fear in their eyes, saliva drooling from the corners of their mouths, and almost unable to speak due to the intensity of their pain. Under the stress of such violent pain patients have been known to tear the hair from their scalp. I have seen paroxysms of pain induced by the slightest touch to the lips or cheek, or even by currents of air. The pupil of the eye of the affected side may be slightly contracted accompanied by such other manifestations as conjunctivitis and photophobia. Flushing of the face is also a prominent symptom. Not infrequently do we find hysteria a most confusing companion to trifacial neuralgia. Patients seeking relief from this terrible malady have subjected themselves to all sorts of medicinal and surgical treatment without any apparent success.

Diagnosis.—As in all other abnormalities, the most important consideration is an accurate diagnosis. A most painstaking search for the general as well as local causes should be made. The taking of the patient's history must be accomplished in a most careful and exacting manner. The patient should be questioned as to his occupation, environment, whether or not he was exposed to poisons, whether or not he had any disease which might have lowered his vitality. He should be further questioned as to whether he was injured or had any dental irritations; what the condition of his teeth were prior to their extraction, the manner in which they were removed, and what if any post-operative treatment was received. The diagnosis can be arrived at only by eliminating one possible cause after the other. The use of the x-ray is quite important. Radiographs should be taken to eliminate the presence of unerupted, impacted, or supernumerary teeth, broken off roots, or odontomas in remote parts of the maxilla or mandible. The presence of chronic abscesses (granulomata) in edentulous mouths is rarely if ever detected in radiographs. The knowledge of their retention in the jaw bones in some cases may be obtained by searching the patient's history. It is my opinion that a large number of cases of trifacial neuralgia result from diseases teeth which leave definite areas of infection in the cancellous portion of the jaw bones in relation to the teeth involved, or which when extracted permit the alveolus to remain jagged. In some instances these areas may be ascertained by careful digital exploration. If the exact area is palpated there is often produced a distinct paroxysm of pain. An x-ray examination of such areas may sometimes prove of value.

The writer believes that the majority of cases of trifacial neuralgia are of local origin, and that most often the local cause is not discovered or removed. He is also fully aware of the fact that certain types of trifacial neuralgias may have their origin in parts of the body quite remote from the seat of pain and it is not his intent to include such cases within the scope of this paper.

Treatment.—Medication is usually first resorted to for the purpose of arresting the pain. The use of anodynes or narcotics may afford the patient temporary relief, but their use should not be con-

tinued over a long period for fear of establishing the drug habit. Such local remedy as crystallized menthol dissolved in alcohol and then diluted about one-half with water has been recommended. Several thicknesses of flannel saturated with this solution and applied over the region of the pain may afford the patient some slight relief.

In spite of the many measures, conservative or heroic, that may be employed to relieve the pain of trifacial neuralgia, the condition will either persist or recur unless the cause is removed. I have seen numerous cases of neuralgia in which alcohol had been injected, but instead of affording the patient relief, the condition seemed to have been aggravated by such procedure. A temporary maniacal condition oftentimes was produced almost immediately following the injection. In some cases of recent origin, the patient would be afforded relief following alcohol injections, but it was of only a temporary nature. On the return of the paroxysms the pain would usually be more intense, more severe, and last longer. Pitres and Vaillard, in 1887, and Schüssler, in 1900, undertook a series of experiments with alcohol injections, and the latter perfected a method of injecting alcohol within the substance of the Gasserian ganglion, with excellent results. In Schüssler's analysis of 209 cases, 123 had injections in the trigeminus. Recurrences, on an average of ten month intervals, were noted in the large majority of cases. Oswalt claimed better results from his injections, saying that 90 per cent. may be benefited, relapses occurring within 5 months in 30 per cent. of his cases. Numerous modifications of the above experiments have been devised, all of which have been found wanting.

For many years division of individual branches of the 5th cranial nerve has been practised for the relief of neuralgia and while such operations may give relief for some months or possibly years, they are not positively curative; such procedure may be warranted when the case, having failed after undergoing conservative treatment, becomes chronic, and the neuralgia is limited to a single branch of the nerve. In the majority of cases, however, the neuralgia eventually extends to other branches and in such cases the more radical operation advised by Krause and Hartley, which consists of the removal of the Gasserian ganglion, may be performed.

The most difficult cases for diagnosis and treatment are those presenting edentulous mouths. In the first place, if anything like an approach to an accurate diagnosis is to be attempted a special set of radiograms that will distinguish the cancellous from the soft tissues is essential. Aside from the fact that one may see in these radiograms cysts, fragments of roots, and granulomata, it is the shadows of the sharp fragments or irregularities of bone (productive of the severe paroxysms in trifacial neuralgias) that are difficult of interpretation. Pathological involvement may be so extensive as to make differentiation of the various tissues extremely difficult, particularly in those cases in which radiographs and histories regarding previous extractions are not available. In such cases a great deal is dependent upon the clinical picture that the patient presents together with the results obtained by careful palpation. Should the patient be wearing dentures, the articulation should be

carefully studied for possible traumatic influences.

The most important step in the treatment of trifacial neuralgia is the discovery and early removal of such local causes as foreign bodies, pressure of bone, irritation of teeth whether from disease, malposition, or impaction, improper adjustment of artificial dentures, scar tissue, callus, adhesions, exostosis of bone, and crowded dental arches. In the attempt at the removal of any of these causes, either by extraction of teeth or by any other surgical procedure, as a result of faulty technique, the alveolus may have been permitted to remain in a jagged condition over which the mucoperiosteum has healed. This irregular state of the alveolus, over which the normal mucoperiosteum is drawn taut, will then act as a local irritant to these already hyper-stimulated peripheral nerve-endings. The correction of this condition can be effected by the operation known as Alveolectomy.

Instrumentarium.—The selection of the proper instruments to perform the operation of alveolectomy with ease and speed is quite important. To some extent it may be a matter of personal equation, but the writer's clinical experience warrants the recommendation of the following instruments for this procedure: (1) Fischer hypodermic syringe with proper needles for the administration of novocain conduction anesthesia; or if (2) general anesthesia is preferred, an anesthetist with the proper outfit for the administration of ether by nasal insufflation; (3) numerous wooden applicators with sterile cotton twisted on one end; (4) cheek retractors; (5) gum retractors; (6) sharp scalpel; (7) periosteal separator; (8) curved scissors; (9) blunt bone chisel; (10) nickel weighted mallet; (11) curets of various sizes; (12) hemostats (mosquito); (13) thumb forceps, several pair; (14) Rongeur forceps; (15) alveolar plane; (16) full curved suture needles; (17) needle holders; (18) black suture silk, No. 6; (19) normal saline solution; (20) novocain-suprarenine tablets E.; (21) tincture of iodine $3\frac{1}{2}$ per cent.; (22) plain sterile gauze.

Operations about the face and jaws should be performed under as rigid aseptic conditions as possible. While extra-oral operations may be performed under strict surgical asepsis, nevertheless such is not possible within the mouth. It should be the surgeon's aim, however, to obtain the strictest asepsis possible in the oral cavity by removing old broken-down teeth, root fragments, tartar, etc., and by the use of a mild, bland antiseptic mouth wash. Before proceeding to operate, the region of incision is swabbed with a $3\frac{1}{2}$ per cent. solution of tincture of iodine.

The hands of the operator and his assistants are sterilized by scrubbing for 10 minutes, using tincture of green soap followed by alcohol and a bichloride solution. It is hardly necessary to add that the instruments, towels, and in fact everything that comes in contact with the wound must be sterile.

Anesthesia.—Perfect anesthesia is absolutely essential to successfully carry out the technique of alveolectomy. Either general or conduction anesthesia may be employed.

The general anesthetics in common use are: ether, chloroform, and nitrous oxide. The choice

of an anesthetic depends upon several factors, such as the length of anesthesia required, region and nature of operation, and the condition of the patient. For prolonged anesthesia, ether and chloroform are the anesthetics of choice. For the vast majority of cases ether should be selected, as it is very much less dangerous than chloroform.

Before the administration of ether for complete anesthesia the following precautions should be observed. No food should be taken by the patient for several hours before its administration, the bowels should be properly evacuated prior to operation and the patient's heart, lungs, and kidneys should be carefully examined. Before administration loose artificial dentures should be removed from the mouth, clothing about the chest and neck must be loosened. The horizontal position is preferred in the administration of the anesthetic, but the patient may be placed in a more convenient position for operation later on. All general anesthetics should be administered by one properly trained for this purpose, preferably an expert anesthetist. The best way of administering ether is by the method known as nasal insufflation. This method facilitates matters for the successful performance of all oral operations.

The clinical experience of the writer is that conduction anesthesia undoubtedly gives the best results. It is imperative that the operation be performed painlessly, therefore, any reasonable method which accomplishes the desired result is suitable. If correct technique of conduction anesthesia is followed the patient experiences no pain whatever. *In operating in the upper anterior region it is essential to give the naso-infraorbital injection on both sides on account of the intermingling of the peripheral branches of the anterior nasal and superior maxillary divisions of the 5th cranial nerve. This injection is my modification of the infraorbital injection taught heretofore.*

Technique of Naso-infraorbital Injection.—The inferior border of the orbit below which the anterior orifice of the infraorbital foramen is situated is palpated, and the tissue overlying the foramen is compressed with the index finger of the left hand, the lip at the same time being drawn upward and away from the gum with the thumb of the same hand. The infraorbital foramen is found 0.5 cm. below the lower border of the orbit and almost exactly above the first bicuspid tooth. The needle is inserted in the reflection of the mucous membrane between the root apices of the canine and first bicuspid. The needle being parallel with the long axis of the canine tooth is advanced obliquely upward and slightly backward at which site the major part of the solution is injected, retaining about $\frac{1}{2}$ c.c. of the solution in the barrel of the syringe. The needle is then deflected slightly upward from the original point of insinuation and almost on a parallel line with the infraorbital ridge, the point of the needle being advanced towards the nasal ala on that side and the rest of the solution in the barrel of the syringe being deposited there. Complete anesthesia with a blanching of the nasal epidermis will be perceived almost immediately after injection. This is verified by the usual exclamation from the patient that he cannot breathe through the nose on the side injected. The patient

should then be assured that breathing has not been impaired but that he is exhibiting the effects of this form of anesthesia. Thus perfect anesthetization of the entire infraorbital region is obtained. Two c.c. of a 2 per cent. solution of novocain suprarenine is all that is ordinarily required for a single injection. The anterior superior lingual area is anesthetized by an injection into the anterior palatine foramen which may be reached by inserting the needle into the posterior border of the large papilla situated in the median line immediately behind the upper central incisors. Anesthesia of the posterior portion of the maxilla may be obtained by the so-called tuberosity injection which is given in the reflection of the mucous membrane above the apices of the second upper molar tooth and behind the molar process. The needle is advanced upward, backward, and inward until about $\frac{3}{4}$ of an inch has disappeared in the soft tissues. The posterior palatal anesthesia is given by inserting the needle into the depression found in the mucous membrane at about the apex of the lingual root of the second upper molar tooth.

Anesthesia of one or both sides of the mandible may be obtained as follows: the tip of the index finger of the left hand is carried along the posterior portion of the body of the mandible following the course of the external oblique line, to a point on the ascending ramus at which the external and internal oblique lines meet. Between these lines is found the retromolar fossa or triangle into which the tip of the index finger is pressed. With the finger in position the needle is then introduced into the tissue about 1 cm. above the level of the masticating surfaces of the lower molars advancing it posteriorly along the lingual side of the ramus for about $1\frac{1}{2}$ -2 cm. at which site 2 c.c. of novocain-suprarenine is deposited.

The time necessary to elapse between the injection and the first incision varies from ten to twenty minutes for tuberosity and infraorbital injections, and one-half hour for mandibular injections. Beginning the operation too soon before anesthetization is complete causes the patient to suffer much discomfort and pain. It is unnecessary to hasten the first incision, since the anesthesia will last from forty-five minutes to one hour.

Technique of the Operation.—The operation known as alveolectomy was originally designed in 1905 by Dr. William L. Shearer of Omaha, Nebraska, for the preparation of mouths for the wearing of artificial dentures; in other words for cosmetic purposes. Since then there have been many modifications of this operation, one of which was the smoothing off of the remaining alveolus by means of carbundum stones used in conjunction with the dental engine. This modification does not appeal to the writer as being good surgical procedure.

The writer, after having performed many such operations either for cosmetic purposes or in the treatment of trifacial neuralgias of local origin, designed a plane for the smoothing off of bone in order to satisfy that step in the technique. This alveolar plane, the name given the instrument, consists of a handle and shank, such as is used for curets, with the plane extending from it at an angle of about 135 degrees. The plane has a flat surface

with cross cut serrations on it, and measures $\frac{1}{2}$ -inch by 1 inch over all. It is operated by a pull and push motion and may be adapted for any portion of the maxilla or mandible; it is hoped that the instrument will be found useful to those engaged in this class of surgery. It is not patented and is cheerfully given to the profession for what it is worth.

The patient is prepared for the operation by having the head and eyes covered by sterile towels and the operating apron adjusted. A $3\frac{1}{2}$ per cent. solution of tincture of iodine is applied to the mucous membrane around the field of operation. The lips, for operations in the anterior portion of the mouth, or the cheeks, for operations in the posterior part of the oral cavity, are retracted, the saliva ejector is placed in the patient's mouth, and sterile gauze pads are placed around the field of operation. After one has carefully observed the area requiring operation, the necessary incisions are made. Anterior to the second bicuspid two deep vertical incisions are made through the buccal mucoperiosteum to the bone, one on either side of the region in question, which are joined by a horizontal incision along the crest of the alveolus. Posterior to the second bicuspid only one deep vertical incision is made through the buccal mucoperiosteum to the bone, which meets a horizontal incision along the crest of the alveolus and is extended beyond the third molar.

The periosteal separator is now used to disengage the entire flap, thus formed, from the bone. Old cicatricial tissue often causes difficulties in loosening this flap from its bony adhesions. This flap, after being raised, is held back by an assistant using the gum retractor for that purpose. The assistant should be prepared to swab rapidly all blood flowing from the exposed region. In many instances these regions are found to be quite vascular and the surgeon may encounter, while operating, several spurts of blood from severed arterioles found in the cancellous bone. These spurts may be controlled by the use of a blunt chisel and mallet, tapping against the exact site from which the blood is pouring forth.

The amount of bone to be removed may be predetermined, the surgeon being guided by the radiographs and experience. This may be accomplished by the use of the rongeur forceps. Very often the surgeon may be forced to change his plan during the operation, due to the fact that the pathological areas or irregular alveolus when exposed is much larger and more complex than revealed by the radiographs. The bone must now be made smooth, leaving no jagged edges, if rapid healing and relief from pain are to be expected. This is accomplished by the use of the alveolar plane devised by me, which is operated by a push and pull movement without creating any heat or maceration of the soft tissues. After having properly rounded and smoothed the bone, the debris is carefully washed away with warm normal saline solution, the area dried with sterile gauze, inspected and palpated.

The successful termination of this operation is dependent upon the painstaking removal of all pathological and jagged bone tissue from the alveolus. The retractors are removed, the area painted with a $3\frac{1}{2}$ per cent. solution of tincture of iodine and

the wound closed by suturing the flap, using black suture silk No. 6 for that purpose. In suturing care should be exerted to engage the periosteum with sufficient tissue to prevent rupturing of the sutures and not to draw them too tightly.

Postoperative Treatment.—The patient is advised to use a mouth wash of boric acid solution with witch-hazel every three hours, which seems to give excellent results. In cases of postoperative edema the patient is advised to apply an ice bag to the swollen face for five minutes every half hour for twenty-four hours. If postoperative pain is severe the patient may be given a powder or capsule containing

R Aspirin gr. x.

Codeine sulph. gr. ¼

Proper evacuation of the bowels is highly desirable to overcome possible autointoxication.

Daily applications of a 3½ per cent. solution of tincture of iodine are made for seven consecutive days. On the seventh day the sutures may be removed, using a pair of thumb forceps, sharp scissors, and cheek retractor for this purpose.

The following case histories have been selected from a large number and are quite characteristic:

CASE I.—Mr. H. F., age 34, occupation, operator on cloaks and suits. Nine months ago patient while engaged in work felt a sudden attack of pain in the right upper jaw involving ear, eye, and upper lip on that side. He endured his pain for a few days, thinking that it was only a cold, but on realizing that his condition was growing worse, he went to his physician and received treatment. After several weeks of treatment the pain persisting the patient was advised to see a dentist, who decided that the pain was due to a bridge that the patient was wearing in the upper jaw on that side. The bridge and teeth to which it was attached were removed, after which the patient felt relieved. A few weeks thereafter the pain returned, only this time more severe than before and the patient repaired to his dentist for relief. Tooth after tooth was extracted with the condition only growing worse. A slight gust of cold air against that side of the face or coming into the mouth produced severe paroxysms of pain. The slightest touch on the affected side, with anything, regardless of how soft or soothing it might be, induced a paroxysm. Walking was painful and the patient was forced to cease his work and for about eighteen weeks suffered from these agonizing pains. He had visited neurological and surgical clinics without any apparent relief.

Family history, negative.

The x-ray examination showed a suspicious condition of the alveolus in the region of the second and third right upper molars.

Wassermann test was negative.

All teeth up to the lateral incisor in the right upper jaw were missing and the gum was apparently normal. Palpation of the edentulous portion revealed slight elevation in the region of the second and third right upper molars.

Alveolectomy was performed April, 1919. The patient was discharged in May, 1919, devoid of pain and feeling well. He returned in October, 1919, as per instructions and reported feeling fine and has not had a pain or an ache since his discharge.

CASE II.—Mrs. C. O'R., age 49, occupation, housewife. Up to about four years ago the patient had worn a partial upper rubber plate which was supported by clasps around the left upper canine and bicuspid teeth. These teeth, for some reason or other were extracted and after the part had healed a full upper denture was constructed for her. Her suffering commenced from the day this full upper denture was inserted into her mouth, beginning with sharp pains in the canine and bicuspid region. She called the dentist's attention to this condition and he exerted every effort to remove the cause by continually filing off the plate. This pro-

cedure gave no relief and the patient ceased going to the dentist. She found that by keeping the plate out of her mouth great relief was afforded her. However, she gradually became accustomed to wearing the plate regardless of the suffering it caused and finally noticed that the left eye was the seat of occasional pain. She consulted an eye specialist under whose treatment she had been for quite some time. The pain in the eye seemed to be growing worse and was accompanied by a twitching of the palpebral muscles. She finally decided to try clinic treatment and after three years of suffering with the eye very much aggravated, came to the department of Oral Surgery for relief.

Family history, negative; Wassermann test, negative; x-ray examination, negative.

The upper jaw was edentulous, and palpation revealed suspicious area in the left upper canine region.

Lower jaw, all teeth present with the exception of the left lower first molar, right second bicuspid, and first molar. Gingiva, apparently normal looking.

Alveolectomy was performed in February, 1920, and the patient was discharged in the early part of March, 1920, with a total subsidence of her pain and a cessation of the twitching of the palpebral muscles. I have seen the patient several times since and she is enjoying the greatest amount of comfort.

CASE III.—Mrs. M. G., age 46, occupation, millinery business. Five years ago the patient complained of pain in the right maxillary region. She visited a dentist who deemed it advisable to extract the right upper second bicuspid, first and second molars. After the extraction of the teeth in question a stationary bridge was constructed and inserted in this region. After being discharged, she experienced periodic attacks of pain. This condition continued for about five years when during the month of June, 1918, she experienced violent attacks of pain in both the maxilla and mandible on that side. The pain was so very severe and intense that she found it impossible to place her head on a pillow without having her husband place the palm of his hand against the occiput and gradually lower her head to rest. Chills and fever accompanied this condition with a drooling of saliva from the corners of her mouth. Turkish towels were placed under the side of the face of the patient while in a recumbent position to absorb the saliva, so great was the pyralism. She felt as if her eyes were growing weaker and weaker. Walking or talking would induce paroxysms of pain which made it necessary for her to support the chin constantly in the palm of her hand. The slightest touch to the lip, cheek, or jaw would induce a paroxysm of pain. She visited a dentist during July, 1918, for relief and he found it necessary to grind into the first lower molar. This tooth after having received quite some treatment, was extracted as well as the bicuspid next to it. The pain after extraction was so severe that the patient was forced to remain in bed for some time, a physician being in constant attendance. When her condition warranted, she was advised to go to an exodontist. Curetage of the bone sockets of the right lower first molar and second bicuspid was performed by the exodontist which gave the patient relief for a few weeks, after which the condition recurred.

The mouth revealed a stationary bridge in the right upper maxilla supported by gold crowns on the first bicuspid and third molars. This bridge with the abutments was quite loose. In the lower jaw the first and second bicuspids and first and third molars were missing. Gingiva apparently normal looking.

Wassermann test, negative. An x-ray examination of the upper jaw showed areas of rarefaction attending the roots and apices of the right first bicuspid and third molar, the crest of the alveolus between being very jagged; the lower jaw showed retained fragment of the root in the first bicuspid region and a pulp nodule in the lower second molar.

After numerous operations, including an alveolectomy, for the removal of the various etiological factors, the patient slowly regained her health with a complete elimination of the pains. This patient has been seen by me for fully one year after the last operation and her condition remains unchanged. She is enjoying the best of health and comfort.

CASE IV.—Mrs. M. G., age 50, occupation, housewife. One year ago patient was nursing her son who was con-

fined to bed with an influenza pneumonia. The son lived in New Jersey at that time thereby necessitating the patient to travel from New York every night, and she would leave for her home early in the morning between the hours of four and five A. M. One month after her son's death the patient was attacked with a sudden paroxysm of pain in the region of the right zygoma. On attempting to open her mouth, the pain was so severe and intense as to make closing of the mouth very difficult. She endured this pain and after six months visited a dentist who had extracted five teeth in the upper jaw on that side in an attempt to relieve her of this pain. The pain grew worse after extraction. She then visited a hospital clinic and was informed that she would have to be operated on to which she submitted very willingly. The patient does not know the exact nature of the operation but claims to have felt better for a short while thereafter. The pain recurred, being more intense and severe, and she decided to return to her dentist who extracted six teeth in the lower jaw on that side. Since these last extractions, her condition has become intolerable making it almost impossible for the patient to speak at times. When the paroxysms of pain come on they are so severe and intense as to cause the patient to pace up and down the floor screaming at the top of her voice. These pains recur on the average of about every twenty minutes causing a twitching of the facial muscles on that side. Walking induces paroxysms of pain with this twitching, and while this condition prevails the patient cannot touch the lower lip.

Past history negative. Wassermann test negative. Family history: Parents died of old age.

Palpation of the edentulous portion of the upper jaw on the right side reveals a jagged condition of the alveolus beneath the mucoperiosteum. The same condition exists in the lower jaw which is also edentulous on that side in the region of the canine and bicuspsids.

Alveolectomy was performed for the patient and recovery followed almost immediately thereafter. There has been a complete cessation of pain and after six months of watching her condition remains the same.

Conclusions.—1. Diseased teeth may be directly or indirectly responsible for a greater number of trifacial neuralgias than all other causes combined.

2. The regions from which these teeth have been extracted may retain pathological tissue or the alveolus may have been injured to such an extent as to have caused a jagged condition thereof, over which the mucoperiosteum has healed.

3. These conditions then act as local irritants to the already hyperstimulated peripheral nerve-endings.

4. Heretofore, the treatment of trifacial neuralgias has consisted of such conservative methods as medication, and alcohol injections, or the more radical procedure in chronic cases, as neurotomy and possibly gasserectomy. These procedures have been considered as symptomatic treatment.

5. Alveolectomy is the surgical procedure proven to be of great value in the treatment of trifacial neuralgias of local origin, causing complete cessation of the severe paroxysms.

25 FIFTH AVENUE.

Diagnosis of Chronic Farcy.—A cab driver was attacked by erysipelas about the elbow joint, following a contusion which did not break the skin. An abscess formed and was followed by other periarticular phlegmons. The pus contained none of the familiar germs. The diagnosis was cryptogenic sepsis, although hemoculture was also negative. Light was thrown on the case when two horses in his stable were found to have acute glanders. A positive seroreaction was now obtained in the patient. The brother of the latter about this time died of an acute malady recognized at autopsy as farcy. The infection of the first patient was finally traced back many months and the disease had pursued a singularly mild course.—*Wiener klin. Wochenschrift.*

RELATION OF PULMONARY INFECTIONS TO THE CALCIUM METABOLISM: SUGGESTIONS FOR A NEW METHOD OF TREATMENT.

By G. DELGADO PALACIOS, M.D.,

CARACAS, VENEZUELA.

WHETHER man has completely lost the instinct, possessed notably by the lower animals, given by nature to guide him in the proper selection of his foodstuffs, or whether this kind of instinct has never existed for him, the fact remains that the immense majority of people and a great majority of physicians do not know that an exclusive, or almost exclusive cow's milk diet is a very harmful dietary, a sort of physiological absurdity.

A simple statement of facts, however, can establish the truth of this proposition.

Milk, by its composition and purpose in nature, is a food intended to supply the mineral as well as the organic necessities of the newly born and growing animal. The quantity of calcium in cow's milk, especially, is far in excess of the physiological needs of adult metabolism. A brief table of foodstuffs, following, shows the relative amounts of calcium in cow's milk and other foods.

According to Bunge¹ foodstuffs are classified in the order of their increasing calcium content for 1000 grams of dry solids as follows:

	Grams		Grams
Sugar	0.000	White of eggs.....	1.30
Honey	0.067	Green peas	1.37
Rice	0.12 to 1.70	Oatmeal	1.42
Brown bread.....	0.26	Prunes	1.66
Beef	0.29	Mother's milk.....	2.43
Wheat bread.....	0.46	Egg yolks.....	3.50
Grapes	0.50	Figs	4.00
Graham bread.....	0.77	Butter	4.11
Pears	0.95	Strawberries.....	4.53
Potatoes	1.00	Cow's milk	15.10
Dates	1.03	Spinach	19.50

It is obvious from the above table, which is presented in some detail on account of the dietary discussion to follow, that cow's milk contains a far greater calcium content than any of the common foods in regular use. Now it will be seen, in the subsequent discussion, that in an individual who partakes of an exclusive cow's milk diet, or of a diet in which cow's milk is the dominant item, a striking phenomenon in the calcium metabolism of the organism of such an individual can be demonstrated.

In the case of an individual fed upon a mixed diet in which cow's milk is minimized, it will be found, in an adult, that, if the intake of calcium present in the mixed foodstuffs is estimated, and a careful determination of the excretion of calcium in the urine and feces is made, both quantities are equal. That is to say, in such a case there exists an equilibrium or balance between calcium intake and excretion.

On the other hand, as soon as an adult individual gives up the natural feeding of mixed foodstuffs and follows an exclusive milk diet or one in which milk is dominant, the same chemical experiment demonstrates the fact that a considerable amount of calcium is retained in the body.

T. Rumpf² was the first investigator who detected this fact: some months later Hirschler and Terray³ verified calcium retention during a milk diet by means of exact and extensive balances of nutrition. F. Ofringa⁴ has also made nutritional in-

vestigations upon individuals during a diet in which milk was dominant and, in addition, a diet to which calcium salts were added.

The author of this paper,* during investigations seeking to establish the cause of this lime retention in the human body, by varying the milk diet was successful in demonstrating the cause and control of certain of the points in question.

In his experiments, during the first period the diet was almost exclusively composed of cow's milk. In the second period a similar diet was followed, but was more abundant, and allowed more water, together with cellulose and lime juice which were added to increase the volume of the feces and the urine.

The comparative results of these two series of experimentations follow:

First Period—Milk Diet—Six Days

	CaO
Calcium intake with milk, food and beverages.....	11.439
Output by urine.....	0.862
Output by feces.....	10.242
Calcium retention.....	0.335

Second Period—Acid Milk Diet—Six Days

Calcium intake with foodstuffs, milk and beverages..	15.166
Output by urine.....	1.203
Output by feces.....	14.025
Calcium retention.....	0.062

These experiments show that lime retention may be prevented if by some mechanism its elimination by the urine and feces is provided for. But for the moment the opposite fact is the more significant. On a dominant milk diet fecal stagnation usually occurs and this, with the diminution of the urine, is the main cause of calcium retention.

During fecal stagnation intestinal putrefaction is greatly increased and from this cause abnormal amounts of ammoniacal compounds and volatile fatty acids are produced, which attack the abundant calcium carbonate and phosphate of the feces, forming, in this manner, soluble calcium salts of putrefactive origin; that is, in the main, the soluble calcium salts of the volatile fatty acids. These are reabsorbed into the blood, and by a mechanism to be discussed later, are likely to remain there. For a more detailed explanation of this process the reader is referred to another paper of the author,* "The Retrograde Circulation of Calcium in the Human Body."

I do not intend to assert that calcium retention is invariably the result of a heavy milk diet, for, as I have shown, if this diet is modified with the admixture of other foodstuffs, especially fruits rich in vegetable acids and cellulose, elimination of lime is provided for, and little retention is a consequence. On the other hand, other foodstuffs rich in calcium, under conditions of fecal stagnation may bring forth the phenomenon of calcium retention.

It is interesting to note that for lime retention it is not necessary that the individual be an adult, for a human baby can charge its body with calcium if mother's milk is substituted by cow's milk. The enormous difference between the amounts of lime in the two milks explains the retention. Blaubeurg⁷ determined that in infants, during a course of nursing on mother's milk, the relation between the amounts of excreted urinary and fecal calcium was 76:24, that is to say, the adult ratio is inverted in infants. When infants were fed upon cow's milk, however, the relation was similar to that for adults and varied from 45:55 to 22:78.

A very important point to mention is that in nursing babies the reaction of the feces is normally acid (lactic acid); in adults and infants fed upon cow's milk the reaction is usually neutral or alkaline (volatile fatty acids). The fact is, that when nursing infants are changed to a diet of cow's milk, diluted or undiluted, remarkable amounts of lime salts accumulate within the body, very probably, as has been suggested, by retrograde fecal absorption.

From what has been explained, one must not consider calcium as a poisonous element, and that the elimination of calcium in an adult assures health. As a matter of fact, a certain amount of calcium is necessary for the proper function of the tissues, organs, and the whole economy. Certain authors estimate that 1.5 grams of calcium oxide is a sufficient amount to fulfill this purpose every twenty-four hours.

In addition to its direct action as calcium ions on metabolism, this element is an excellent antitoxic base, making insoluble many known and unknown poisonous organic compounds produced during intestinal digestion, fermentation, and putrefaction.

But when these latter phenomena are abnormal, and there is a long-lasting fecal stagnation, and lime salts are abundant, then an active fecal reabsorption of poisonous compounds into the blood takes place. The result of this process is an intense predisposition to certain diseases or actual disease resulting therefrom.

For a more extensive study of this subject the reader is referred to the second chapter of the author's book⁸ treating of these topics. It is only necessary to point out here that when this sort of calcium intoxication is taking place—and the author believes, and will offer supporting evidence that this special intoxication is the chemical basis for certain diseases—the fundamental therapeutic indication is to provoke a sharp decalcification of the body by means of prolonged fasting⁹ during which there is a really enormous excretion of lime, with all other poisonous substances.

Influenza and pneumonia, together with other pulmonary infections, are the special diseases that the author believes have a chemical basis in abnormal calcium retention. In short, what has been called empirically until now "a peculiar predisposition to suffer from croupous pneumonia," and similar statements, is, actually, a predisposition resulting from calcium retention.

The reasons for this statement follow:

1. *Calcium salts are necessary for the production of fibrin.* Although the phenomena of blood-clotting has been studied many years by various investigators, the biochemical problem is very far from its complete solution. But it is a well-established fact that calcium is an element absolutely essential in the process whereby fibrinogen is converted into fibrin. Blood from which calcium has been precipitated will not clot, and the addition of calcium salts promptly causes it to do so. Presumably, provided all other chemical and pathological conditions are favorable, the more abundant is the supply of available calcium salts, the richer the production of fibrin.

2. *In such conditions as lobar pneumonia (croup-*

ous or fibrinous pneumonia, lung fever) the phenomena of the disease include an abundant production of fibrin, which appears in the lungs, in the blood, in the organs and excretions.

"During red hepatization lung tissue is solid, firm, airless. One of the most remarkable features is the friability, in striking contrast with the healthy lung, which is torn with difficulty. The surface has a granular appearance due to the fibrinous plugs filling the air cells. The smaller bronchi often contain fibrinous plugs. Microscopically the air-cells are seen to be occupied by coagulated fibrin, in the meshes of which are red-blood corpuscles, mononuclear and polynuclear leucocytes, and alveolar epithelium."¹⁰

"In typical cases of croupous pneumonia almost without exception the Frankel Weichselbaum pneumococci will be found, and eventually the Friedlaender pneumobacilli, both germ producers of the disease. By employing the coloration method of Weigert for fibrin, it is possible to show them in the fibrin shreds."¹¹

"A striking feature of the blood slide is the richness and density of the fibrin network. This corresponds to the great increase in fibrin elements, the proportion rising from 4 to 5 parts per thousand. The blood-platelets are greatly increased."¹²

"Pfeiffer determined the fibrin content of blood in diseases and found it increased in diseases with leucocytosis (pneumonia, rheumatism, erysipelas, scarlet fever) except leukemia, where it was normal; in diseases without leucocytosis (typhoid, malaria, nephritis) the fibrin was normal in amount. Stassano and Billon have furthermore shown that the amount of fibrin ferment varies directly with the number of leucocytes in the blood. In experimental infections in animals Langstein and Mayer found a specific increase in pneumonia sepsis, which bears undoubtedly an important relation both to the characteristic fibrinous nature of the exudate in pneumonia and the striking amount of fibrin in pneumococcus pleuritis, peritonitis, etc."¹³

"The latter authors consider the increase of fibrin also a specific property of the pneumonia germ, and to corroborate their opinion that the greatest fibrin exudation they have observed was found in cases of peritonitis produced by pneumococci."¹⁴

Loeper and Béchamp,¹⁵ who have studied especially the lime retention during disease, say that in the course of certain diseases, although a rich feeding in lime is given, the lime diminishes considerably in the urine and feces, suggesting an internal retention in the tissues. The following interesting figures are quoted from their paper:

	Weight of the Lime in the Diet Grams	Total CaO Excreted
Acute tuberculosis	1,200	0.165
Cavernous tuberculosis	1,500	0.22
Pneumonia	1,400	0.25
Congested lung	700	0.07
	CaO in 1,000 Grams Dry Solid	
Pneumonic sputum	0.45	
Bronchopneumonic sputum	0.50	
Bronchopneumonic sputum	0.70	
Asthmatic bronchitic sputum	0.26	
Simple bronchitic sputum	0.24	
Pneumonic heart	0.47	
Normal heart	0.29	

The efforts of the human organism to clear itself

of these abnormal and pathological retentions of lime lead to the formation of insoluble organic compounds (fibrin and other proteins) which obstruct the air passages, and these insoluble compounds are finally removed only by a slow process of autolysis, effected by digestive and leucocytic enzymes.

As a final deduction from what has been established, the radical indication to prevent or to cure pneumonia, influenzal or otherwise, is, as the author's experience has taught, to provoke a rapid decalcification from the body of abnormal lime retention.

This can be done, as has been suggested and established by the author's clinical experience, by:

1. Suppression of milk and other dairy products during the disease and convalescence.
2. Repeated purgatives, at least one every day. The selected purgative has been castor oil, which has been employed until all the fever is gone, the tongue clean, and the appetite reestablished.
3. Prolonged fasting until the same phenomena of returning health are well established.
4. Plenty of pure filtered, or thoroughly boiled water. In order that the water be entirely lime-free, distilled water is preferred above all other.

To this system may be added, when deemed necessary, the indicated drugs to moderate fever or remove pain.

The author realizes that this method of treatment will be considered too energetic, but in the light of his own excellent results, it deserves careful consideration, for it must be remembered that pneumonia "is the most widespread and fatal of all acute diseases."

Other methods of treatment, that might be styled milder, cannot be pointed to with much pride when it is remembered that more than 100,000 cases of pneumonia are lost every year in the United States.

The author has had not only a wide experience in practice with the method of treatment outlined above, but also a personal experience. Since the pandemic of 1918 he was attacked twice; afterwards, having applied his method of abortive treatment, at every incident influenza the disease was easily prevented.

During the terrible pandemic of 1918, this method of treatment was employed in an unusually large number of cases by Dr. A. Benchetrit, of Caracas, Venezuela, with almost invariably good results. The mortality in Dr. Benchetrit's series of cases was reduced to less than 0.5 per 100. At the same time in Caracas, the author's son employed the same method. The incidence and mortality in Caracas were appalling. By this method the mortality was vastly reduced.

The Bureau of the Census in Washington says that of 46 large cities in the United States with a total population of 23,000,000, 82,360 deaths occurred from influenza and pneumonia in the period from September 8 to November 9 during the great year of the pandemic. The normal death rate during the same period would be 4,000.

Comparing this with the death rate in Caracas, a city of 100,000 people, during the same period, we find:

100,000 people in American cities during 31 days—339 deaths.

100,000 people in Caracas during 31 days—2,000 deaths.

This figures at about seven times the mortality rate of the American cities and demonstrates the severity of the epidemic in Caracas. With this in mind it is enlightening to observe the mortality figures obtained from recorded cases in which the author's method of treatment was employed.

Dr. A. Benchetrit (and associates): 900 cases in Caracas, three deaths; 600 cases in Maracaibo, no deaths; 2,000 cases in San Fernando de Apure, five deaths.

G. Delgado Palacios, Jr.: 1,800 cases in Caracas, including 112 cases of pneumonia, nine deaths.

Fiat experimentum! and save American lives. Remember that more than 83,000 lives are lost every year in the United States, and that the present guiding medical ideas in the treatment of this infection must be entirely inadequate.

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A CONCEPT OF X-RAY PATHOLOGY.

IX.—FRACTURES.

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THERE are two motives that actuate the x-ray study of fractures: first, to determine the presence or absence of fracture; secondly, if present to determine the degree of deformity. For purposes of x-ray pathology, fractures may be divided into those of flat bones and into those of long bones. Flat bone fractures involve the skull, and, so far as x-ray pathology is concerned, the vertebra.

FRACTURES OF THE SKULL.—In the question of skull fractures, the points to be considered are the character of the fracture in accordance with its lines, such as comminuted, depression, linear, fissure, or with loss of substance; and whether one or both tables are involved.

Linear fractures occasion a radiopaque line if both tables are involved, a radiolucent line if only one table is involved. They may take any linear direction and are to be differentiated from suture lines, diploic vessels and arterial grooves, all of which have different typographic curves and are characterized by smooth edges and greater radiopacity than the average fracture.

Comminuted and stellate fractures are generally obvious. Depressed fractures may be bounded in part by radiopaque margins owing to the increased density incident to the superimposition of the depressed margin on the normal bone.

Basal fractures are frequently overlooked. The technology for eliciting basal fractures should include a vertical projection of the base in addition to an anteroposterior, posteroanterior, sinistrodextral and dextrosinistral view in each case.

VERTEBRAL FRACTURES.—It is rarely possible to elicit fracture lines in the vertebra. Vertebral fractures are recognized in x-ray pathology by the deformity produced in the body of the vertebra. Crush fractures are found most commonly in the thoracic and lumbar regions. In antero-posterior view of the spine they may be entirely overlooked; so that a lateral view should be used in the effort to detect crush fractures.

Pathology involving the fifth lumbar vertebra should be expressed with caution. The fifth lumbar vertebra seems to assume various forms that may represent pathologic states although pathology is actually absent. The vertebra is normally tilted, and as it lies between the ilium wings, a lateral view cannot be obtained. The study of this vertebra should therefore be conducted stereoscopically.

FRACTURES OF EXTREMITIES.—Fractures of the long bones may be divided into two classes: those affecting the diaphysis and others affecting the epiphysis.

In the study of epiphyseal features the roentgenologist should be conversant with the age of fusion of epiphyses. The following table is taken from Holmes and Ruggles who have modeled it after that of Rotch and Morris. In certain cases the results obtained in 30,000 x-ray studies are appended in a separate column.

	Rotch and Morris Age of Appearance	Age of Fusion	Pacini Age of Fusion
Ribs: Epiphyses for head and tubercle	15	23	..
Clavicle: Small epiphysis of the ster- nal end	19	25	25
Epiphysis of acromial end	8 mos.	20	18
Humerus: Head	3	20	20
Greater tuberosity	4	20	20
Lesser tuberosity	4	20	20
(All fuse at six years and join the shaft at twenty years.)			
Capitulum	1	17	18
Internal epicondyle	5	13	13
Trochlea	10	17	17
External epicondyle	12	17	16-17
(The capitulum, trochlea and ex- ternal epicondyle join as a mass at seventeen and the internal epicondyle at eighteen years.)			
Radius: Head	5	17	20
Lower epiphysis	2	20	17-18
Ulna: Olecranon	10	17	17
Lower epiphysis	4	18	18
Upper epiphysis	..	..	18-20
Carpus (In the order of appearance):			
Magnum	1	..	..
Unciform	1-1½	..	..
Cuneiform	2-3	..	..
Semilunar	4-5	..	..
Trapezium	5	..	..
Scaphoid	5-6	..	..
Trapezoid	6-8	..	..
Pisiform	12	..	..
Metacarpals: Epiphyses	3	20	20
Phalanges: Epiphyses	3	18	20
Pelvis (Tubule and ischium unite at eight years; the acetabulum closes at sixteen years):			
Epiphyses for	..	..	25
Crest of ilium	15	20	12
Ischial tuberosity	..	..	..
Anterior inferior iliac spine	..	..	..
Tubercle of pubes	..	..	..
Femur: Head	1	19	18
Greater trochanter	4	18	18
Lesser trochanter	13	17	18
Lower epiphysis	8 mos.	20	..

	Roach and Morris Age of Appearance	Age of Fusion	Pacini Age of Fusion
Patella	2	24	20
Fibula: Upper epiphysis.....	4	24	20
Lower epiphysis.....	2	20	18
Tibia: Upper epiphysis.....	9 mos.	22	18
Lower epiphysis.....	2	18	..
Tarsus (In order of appearance):			
Calcis.....	6 mos.	..	..
Epiphysis of calcis.....	10	..	..
Astragalus.....	7 mos.	..	..
Cuboid.....	9 mos.	..	..
External cuneiform.....	1	..	..
Internal cuneiform.....	3	..	..
Middle cuneiform.....	3	..	..
Scaphoid.....	4	..	..
Metatarsals: Epiphyses.....	3-8	20	..
Phalanges: Epiphyses.....	4-7	18	20
Sesamoids of flexor hallucis brevis.....	5	..	..

Vertebrae: Ossification is from three primary centers, one for the body and one for each lateral mass. The nucleus for the body is often bilobed, with a partial plane of cleavage in the vertical or horizontal diameter. The laminae unite during the first year. Five secondary centers described in the anatomies—namely, thin plates on the upper and lower surfaces of the body and the tips of the mammillary tubercle, transverse and spinous processes—appear at the age of fifteen to twenty years and unite at twenty-five. The fifth lumbar vertebra is an exception in that it ossifies from five centers, one for the body, one on each side from which is developed the superior articular process, pedicle and transverse process, and one on each side which subsequently form the inferior articular process, lamina and spinous process.

Diaphysal Fractures.—A fracture is described as a solution of continuity of a bone. A distinction has been made between fractures and wounds of bones. Fractures may be of all varieties of which two general types are of importance to the x-ray pathologist. These are traumatic fractures and pathologic fractures. Traumatic fractures may assume any form, and depending upon the line of fracture, they may be described as oblique, longitudinal, transverse, spiral, T-shaped, V-shaped, stellate, or irregular; and any of these varieties may be complete, incomplete, greenstick, or fissured. A fracture may be uncomplicated or complicated. The complication may be inflammation, tumors, syphilis, or foreign bodies.

Fracture repair is dependent in a great measure upon the periosteum and upon the presence or absence of complications. If infection is absent there is no tissue necrosis and new bone is produced by all osteogenic structures. When comminution is extensive, new bone generates all around the broken surfaces so that the healed fracture presents a greater area than a simple non-comminuted fracture would present.

Callus formation does not appear to receive the amount of attention that it should. In children the shadow of a beginning radiopaque mass is seen to collect between the fragments of a fracture about the tenth day; in adults the callus is hyalin and radiolucent or radiopaque until it becomes infiltrated with calcium salts, usually at the end of three weeks; in old people calcium infiltration into callus does not usually take place before six weeks, so that no radiopaque callosity is visible before this time.

Calcium infiltration of the callus takes place at the portion nearest the bone and spreads from this point to the periphery of the callus mass. Between the inner boundary of the callus mass and the bone fragment a clear radiopaque stratum is observed. This is the osteogenic space. Calcification may be considered in progress so long as the osteogenic space is visualized; but when it becomes obliterated, calcification may be considered complete. When freshly deposited the calcium offers no regular arrangement in the callus; but under the stress of muscular action, the radiopaque material tends to

adjust itself in an orientation corresponding to that of bone in the immediate vicinity. As the bone markings become characteristic, roughened edges and exuberant boundaries of the callus mass are rounded off.

Non-union may result from an interposition of the soft parts between the fragment surfaces; or it may be the result of a systemic disorder that reflects osteogenic inertia, particularly in cases of syphilis, tabes and acute systemic infections, although, after close investigation, it would seem these causes of non-union have perhaps been overrated. In comminuted fractures non-union rarely occurs.

Muscle Action and Fracture.—It would seem at first entirely superfluous to discuss the topic of fractures for the reason that because of its old existence in x-ray pathology, nothing new or striking might be advanced. Yet, the most essential feature in the study of fractures is often entirely overlooked and is seldom if ever reported by the x-ray pathologist. The conception that it is desired to convey in connection with the x-ray pathology of fractures, affecting of course the long bones, is that of passiveness of the bone in contra-distinction to the activeness of the muscles involved in a fracture.

A fracture of a long bone should be regarded as representative of disturbances in the muscular balance of the surrounding parts; and the deformity incident to a fracture should be reported, not alone in terms of overriding and fragment displacement, but in terms of disturbance in muscle pull with the specific enumeration of the muscle or group of muscles responsible for the deformity.

It is ever to be remembered that long bones are dominated by muscular function; and with the disappearance for the necessity of muscular function the necessity for the bone likewise evanesces. There are numerous examples in comparative biology and anatomy of the subservience of bone to muscle.

The muscle origin represents its fixed point or basis for action and in contradistinction to the insertion of the muscle, the origin generally is nearer the spine axis of the body. Speaking generally the tension is therefore in the direction of the plane from insertion to origin; although many muscles are capable of acting in the reverse way, especially the flexors and extensors of the hip, knee, and elbow.

Muscle Rest.—Muscle is normally possessed of two properties, one of contraction, the other of relaxation. Muscles are generally paired in a manner that the stimulus which causes one set to contract will at the same time cause the alternative set to relax in the opposite direction. When a muscle is contracted or relaxed it is in an irritable state. There is a position intermediate between contraction and relaxation in which irritability is lost. The loss is due to an exact balance of the power of contraction against the power of relaxation; so that the muscle is not in a state of inaction but is in an active state in which its opposite potentialities are exactly balanced. There are two important factors connected with a muscle in this condition. The first factor is mechanical and represents the so-called "zero" position of muscle rest, described by W. C. Mackenzie. In the zero position the muscle pull being exactly neutralized, the bone in

the part will have no pressure exerted on those points of origin or insertion of the muscles at rest. This principle has been used extensively during the war in the treatment of fractures, particularly through the use of traction. The traction accomplishes the dual purpose of overcoming fragment overriding and of maintaining the fragments adequately separated in the position of election, that of muscle rest. If traction is applied in the axis of the muscle rest plane, then the bone ends need no other contrivance to keep them aligned; for in the zero position, all muscular forces being equalized in opposite directions, and therefore neutralized, there is no force to operate in producing bone displacement. The second important factor in connection with the zero position of muscle rest seems to have been overlooked and is equally as important as the first factor. In any position other than muscle rest a muscle will find itself either contracted or relaxed, or, expressed physiologically, the muscle will find itself in a state of continued irritability. Constant irritation causes muscular fatigue, which interferes with the tone of the organ as well as with the nutriment of the muscle. Since the soft parts in a fractured area are to be immobilized, it is obviously imperative that they be placed in the zero position in order to eliminate every possibility of continued irritation; and the zero position accomplishes this desideratum with the additional accomplishment of maintaining the muscle neutral as to irritability but active as to physiology, and therefore conducive to maximum nourishment and physiologic care.

In freshly sustained fractures, therefore, the x-rayist should report pathology not alone in terms of the anatomical part affected, of the variety (simple, sprain, multiple, comminuted, epiphyseal), of the line of fracture (complete, incomplete, greenstick, fissure), of the direction (oblique, longitudinal, transverse, spiral, T-shaped, V-shaped, stellate, irregular), of the degree of fragment displacement (0, 1, 2, 3), of the direction of the upper and lower fragment and of the presence or absence of overlapping; but he should take such views of the fractured part as are necessary in establishing definitely the disturbed balance of muscle group pull responsible for the deformity, with the view to guiding the surgeon in the correct alignment of the part by traction for obtaining the zero position in the correction of the injury sustained.

Fractures of the Humerus.—Fractures of the humerus are divided into those of the anatomical neck, surgical neck, greater and lesser tuberosities, and epiphyseal separations of the shaft, supracondylar, discondylar, condylar, and epicondylar. Involvement of the musculospiral nerve must always be considered in humeral fractures.

Fracture of the anatomical neck shows a varying pathology in which the head may be completely detached from the shaft and rotated about on its axis or even driven through the ruptured capsule into the axilla. The fracture is accompanied by a great extravasation of blood which invades the capsule, and, if unbroken, greatly distends it. This enormous swelling may clinically confuse the surgeon into suspecting dislocation; so that the x-ray will confirm Dugas' test in deciding definitely regarding

the presence or absence of associated discoloration.*

An injury involving the head of the humerus should be rayed at once to establish whether or not impaction is present. If impaction is visualized it should be reported to guide the surgeon in minimizing manipulation.

In those cases in which the head is impacted, or in which minimum separation has occurred, the callus arises mostly from the lower fragment; and in its proliferation there may result a thickening of neck, causing an adherence to the capsule of the formation of exostoses that extend out into the joint structure. There is a possibility that the auxiliary vessels and plexus branches may sometimes become adherent to the callous mass formed in the repair. The x-ray pathology of non-union may be that of necrosis of the head, or of an inability on the part of the metabolism to supply adequate callus.

Fractures of the surgical neck: Fractures of the surgical neck may be oblique, transverse or serrated. The bone breaks below the tuberosities to which the abductor and rotary muscles are attached, so that the head is rotated and abducted, and the shaft is drawn inward by the muscular attachments of the pectoralis (adductor), teres major (extender), and latissimus dorsi (internal rotator) while the biceps, coracobrachialis (bender), and deltoid (abductor) lift the lower fragment. This combination of muscle forces makes for shortening with displacement provided impaction is eliminated. In attempts to reduce the shortening, care must be exercised to avoid danger to the brachial vessels and nerves.

Fractures of the surgical neck of the humerus, in order to produce muscle rest must be treated in extreme abduction and rotation out.

Fractures of the Shaft: These may occur at any point in the continuity. The pathology varies, the line of fracture being oblique, transverse or dovetail. Impaction is rare. The displacement varies with the site of fracture. If the fracture occurs above the insert of the deltoid, upper third of the shaft, the upper fragment is drawn inward by the pectoralis major and the lower fragment is drawn upward and outward by the deltoid; when the fracture occurs below the insertion of the deltoid, as in the middle and lower third, the upper fragment is drawn outward, the lower fragment is drawn inward and upward and is always rotated in, in amount varying between 15 and 90 degrees. Injury to the musculospiral nerve is especially common in fracture of the middle third. In the treatment of fractures of the upper half of the humerus muscle rest is obtained by rotation out and abduction, the rotation and abduction being governed by the site of fracture; whereas, fractures of the lower half do not generally require rotation and abduction. Traction should always be made in the direction of the upper fragment; so that the x-ray report should contain a precise statement of the direction of the upper fragment.

Fractures of the Lower End: In transverse frac-

*Dugas' test consists in the surgeon placing the hand of the injured arm on the opposite shoulder and then pressing the elbow against the chest wall. If the elbow can be pressed against the chest wall, no dislocation is present; if it cannot be done, dislocation is assumed.

tures of the lower end of the humerus the lower fragment is displaced backward. A fracture of the lower end of the humerus should immediately invite an x-ray survey of the elbow, comparing especially the injured with the uninjured side.

There is nothing particularly important incident to the x-ray pathology of fractures of the lower end of the humerus other than definitely to describe the extent of solution of continuity and the presence of fragments and their location. With the forearm in extension, the external and internal condyles, joined by the intercondyloid line, should lie normally nearly level with the upper end of the olecranon. The points can be palpated clinically better than they can be traced on the x-ray plate.

(To be continued.)

APPENDICITIS, AND SOME OF THE DIFFICULTIES ATTENDING ITS DIAGNOSIS.

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THE statement frequently heard that appendicitis is a disease most easy of recognition, and that failure to correctly diagnose it shows lack of elementary surgical training, is an assertion not proved by clinical annals, nor does it accord with the results of surgical experience. It is an axiomatic saying that the correct interpretation of many affections is the accomplishment of the master, but alas! too often the skilled physician and surgeon in these cases is baffled at arriving at an incontrovertible decision.

It would seem conclusive evidence that the occurrence of many of the cardinal signs of appendicitis in themselves would be sufficient evidence to clinch a diagnosis; but the fallacy of this reasoning becomes apparent as we proceed in the consideration of the subject, and it will appear still more apparent, when we shall have reviewed the various pelvic and abdominal conditions that may simulate appendicitis, that may give rise to an appendicular infection, or that, by extension of the process by contiguity, may bring about appendicitis through some peculiar or unusual etiological factor.

It is a fact conceded by pathologists and by students of topographical anatomy, that in not a few instances contiguous structures may be the seat of, or give rise to, disease which often is not diagnosed as the seat of the disease, but which is referred to a more distant area. In support of this statement attention is directed to the close proximity of the mesoappendix and the ovary, through the interposition of a fold of peritoneum and the coexistence of appendicitis with one of a number of gynecological affections, be it the ovary, the fallopian tubes, the pelvic fascia, etc., or conversely, affections of the latter may give rise to appendical disease, or by reflex action may strongly simulate some diseased state of the vermiform appendix.

Although appendicular involvement is likely to affect any or several of the pelvic or abdominal viscera, strangely enough, the liver is the organ

probably most predisposed to infection. Why this is so, needs explanation. But the fact obtains, nevertheless, that cholecystitis, cholelithiasis, acute suppurative hepatitis, and acute suppurative perihepatitis are not infrequently brought about through infection of the appendix. Again, the results of clinical research abundantly prove that chronic gastric ulcers and chronic duodenal ulcers, may find their etiology in the presence of septic thrombi of appendical origin.

It may seem a long distance from appendicitis to the following tabulated list of affections, but the differentiation between appendicitis and each of these is often a matter of extreme difficulty. These include cholelithiasis, acute intestinal fermentation, renal calculus and retention, acute tubal infection, rupture of an intraabdominal abscess, gastric and intestinal perforation, intussusception, tuberculosis of the ileum, the twisted pedicle of a tumor.

As was intimated before, appendicitis may give rise to symptoms apparently removed from the seat of disease or from the atrium of infection, or infections elsewhere may give rise to reflex symptoms of appendicular involvement, or through continuity or contiguity of structure, pathological processes may be set up.

In illustration of some of these statements, especially relating to the pain referred to the seat of the appendix, the location of the infection being at a remoter area, we mention: atonic dilatation of the stomach, any one of the component parts of so-called splanchnoptosis, inflammation of the omentum, intestinal kinks, etc., where operations so commonly done upon the appendix quite naturally have proved so unavailing.

In locating the seat of the affection in the right iliac fossa, we must differentiate at least eight other diseases that may be found in this important region, and for easy reference we tabulate these as follows: tuberculosis of the cecum, malignant disease of the cecum, a ureteral calculus, psoas abscess, herpes zoster of the eleventh and twelfth intercostal and of the first and second lumbar nerves, typhoid appendicitis, tabes dorsalis, thrombosis of the mesenteric vessels.

It is worthy of note, in passing, that rheumatoid arthritis of the spine is not infrequently confused with cases of appendicitis—the periodic abdominal pain, simulating the suffering in recurrent appendicitis, but the temperature of appendicitis is absent and the rigidity of the right rectus muscle can be made to disappear through the application of persistent manual pressure. This error in diagnosis occurs because the surgeon focuses his attention upon the abdomen and fails to examine the patient's back. Appendicitis must be carefully differentiated from pretaxic pain.

The diagnosis of appendicitis takes on added significance because the appendix so often involves the female genitalia, or *vice versa*. Deaver believes that appendicular affections predispose to infections of the adnexa; the reverse of this opinion is held by other surgeons and by most gynecologists. Deaver believes that a long appendix coming in contact with or in close relation to the pelvic organs may infect them, while Ochsner finds that there may be, and often is, the production of ovarian cysts, the result of an appendicitis. Appendicitis

in early life and at puberty may so involve the female appendages as to eventuate in absolute sterility. Rupture of a tubal or ovarian abscess may give rise to a train of symptoms, indistinguishable from those of appendicitis.

The differentiation of cases of appendicitis in children is always surrounded by difficulty; this may arise from the child being too young to convey its thoughts, or to the lack of intelligent data obtainable from the sufferer or from its parents or care-taker, and also because of the close resemblance of appendicitis to many gastrointestinal affections of the very young. Thus, the symptoms of a gastroenteritis may so resemble an appendicular attack that often, from lack of a true history of the case, the physician is not infrequently misled in his diagnosis. Intussusception, although offering no temperature rise, may be mistaken for appendicitis. Pain in the appendicular region is often complained of in right-sided pneumonia in children; the same is true if there is diaphragmatic involvement in cases of pleurisy. The many abdominal pains complained of by children when the offending process is located elsewhere, caused Trousseau to exclaim: "Whenever an infant complains of pain in the abdomen, carefully examine his chest."

The clinical picture of chronic appendicitis is often so blurred that much confusion attends the diagnostician's attempts to lucidly interpret the meaning of the symptoms. Many of these cases are incorrectly regarded as affections of gastric origin; others diagnose it as one of several intestinal diseases; and because of loss of weight, increased urination, gastrointestinal disorders, etc., many physicians repeatedly examine the urine and are perplexed at not finding sugar as a reward for their efforts, and seek an explanation of its absence in some fault in their laboratory technique.

One thought seems worthy of emphasis. Tenderness cannot always be elicited, by the usual method of palpitation, at the exact spot where the appendix is supposed to be normally located. When there is difficulty in detecting the exact seat of the painful area, resort should be made to examination by the rectum and the vagina. In chronic cases and in those instances where the appendix comes off from the cecum posteriorly, rectal examination is of paramount importance.

As was remarked in the introduction of this brief article, "the statement frequently heard that appendicitis is a disease most easy of recognition and that failure to correctly diagnose it shows lack of elementary surgical training," is already incontrovertibly refuted in these few passing observations. For, as has just been detailed, many other affections may so resemble or mask the true condition, as to hopelessly perplex the diagnostician and the operator.

Although acute appendicitis may offer difficulties from the clinician's point of view, a clear appreciation of the chief symptoms of the malady should always be indelibly in mind, especially as regards their ordinary arrangement; for, as the late Dr. John B. Murphy remarked: "The order of symptoms is present in 98 per cent. of all cases of acute infection of the appendix. The order of the symptoms is all important in making a diagnosis. If my information were most trustworthy and I were told

that the patient suffered from nausea and vomiting, and that appendicular pain was a later symptom, I would keep in mind the *possibility* of an attack of appendicitis, although its occurrence out of the orderly arrangement of the symptoms would impress me as peculiar."

In order to have at hand a convenient chart of this orderly tabulation of the symptoms, we append the following: Pain, acute and severe, at first referred to the epigastrium, later to the appendicular region, nausea and vomiting, the vomiting occurring twice or thrice, perhaps only once, or there may be no vomiting, only nausea being evidenced; sensitiveness to pressure; elevation of temperature, always present in the acute variety, varies from 99.5° to 104° or 105° due to toxic absorption and leucocytosis.

218 SOUTH FIFTEENTH STREET.

X-RAY TREATMENT OF ACNE VULGARIS.

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AND

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By far the greater number of cases of acne vulgaris, before being referred for x-ray treatment, have been dieted, given tonics had local applications, and received various injections of vaccines. Local applications of sulphur, resorcin, bichloride, beta naphthol, lotio alba, irritant or astringent drugs, cause exfoliation, diminish excessive fat secretion, and thereby overcome the formation of comedones and the accompanying suppurative process.

Although the dose of x-ray necessary to produce effective results, if given properly, produces no ill effects, provided the treatment is not undertaken too soon after the use of any of the above drugs, at the same time it must be borne in mind that the application of any of these drugs during x-ray treatment is absolutely contraindicated in acne as well as in any condition in which x-ray therapy is indicated.

The reason for this is obvious because in order to produce uniform and permanent results it is necessary that the amount of x-ray used should be sufficient to diminish the size of the sebaceous follicles without affecting the skin and its appendages, whereas the combined effect of irritating drugs and x-ray will produce a radio-dermatitis with resultant atrophy, wrinkling of the skin and later telangiectasia. This permanent deformity may not take its appearance until six or eight months after treatment.

Technique.—In order to maintain the same position throughout the exposure the patient is placed in a prone position with a piece of lead foil, cut in the shape of a pair of spectacles, placed over the eyes and held in position by adhesive plaster, thereby protecting the eyes, eyebrows, and eyelashes. Another piece of lead is placed so as to protect the hair over the temporofrontal region. The head is then turned sidewise, having the chin as near as possible in line with the shoulders. The tube is centered over the zygoma and an exposure is given of $\frac{1}{4}$ of 1 skin unit or 1 H. of unfiltered x-ray. The same dose is given to the opposite side. If there are numerous active lesions on the forehead, center of

face, and chin, an additional $\frac{1}{8}$ of a skin unit is given to this area. This is done by having the patient face the tube and measuring the distance from the tip of the nose to the target of the tube. This additional dose to the center of the face should be given only every other treatment.

The routine dose is $\frac{1}{4}$ of a skin unit weekly to each side of the face. This should be continued for two or three weeks after new lesions have ceased to form. Usually this requires from 12 to 16 treatments. In nearly all cases it is wise to give the regular course (12 to 16 treatments) even though the lesions have disappeared after the eighth or tenth treatment. If the chest and back are involved, the dose is the same as that for the face. Three areas are exposed on the back, centering the tube on the outer edge of each scapula and on the 2d lumbar vertebra. The chest is divided into two areas, centering the tube midway between the midaxillary line and the sternum in the 4th intercostal space. Overlapping of areas exposed may be avoided by protection with lead foil.

Recurrences seldom, if ever, take place, provided dietary régime and rational constitutional measures are maintained after a full course of x-ray treatment.

THE NEW BROAD STREET HOSPITAL TECHNIQUE IN ROENTGENOGRAPHY.

A PRELIMINARY COMMUNICATION.

By WILLIAM H. DIEFFENBACH, M.D.,

A. J. BARKER SAVAGE, M.D.,

AND LOUIS FOX, M.D.

NEW YORK.

SINCE the discovery of the x-ray in 1895, there have been several epochs in the development of roentgenography following the discovery of this science.

The evolution of the Coolidge tube, which standardized exposures, a more recent combination of the duplitzed films and the double intensifying screens, presented another step in the gradual perfection of technique.

The construction of the "Bucky diaphragm," which, as is well known, eliminates the secondary rays which so frequently spoil the detail of a plate or film offered another chance for a further development of this science.

The technique in the use of the Bucky diaphragm not having been fully developed, the laboratory of the Broad Street Hospital experimented on a large scale to determine how to secure the best results with the combination of the Coolidge tube, duplitzed films, double intensifying screens, and the Bucky diaphragm.

The result of the experimentation will be shown in the illustrations to be attached to a more detailed article to be published shortly.

We believe that the technique, as we have developed it, is somewhat revolutionary. The attempts of most roentgenologists have been to use a fairly high amperage through the tube with the shortest possible exposure. We, having started to test out the Bucky diaphragm, determined to use a low milliamperage with some longer exposure, and were very much surprised to secure results which

we have never achieved before, and which, to our knowledge, have not been achieved by any other laboratory.

The detail, particularly in bone work, is so superior to the ordinary flat detail secured from the ordinary tube and technique, that a study of the films or of good electrotypes will convince the profession that a step forward has again been made in the remarkable development of x-ray technique.

Briefly, the technique, as we use it at present, consists of placing the Coolidge tube 28 to 30 inches from the upper surface of the Bucky diaphragm, using 8 milliamperage of current, $3\frac{1}{2}$ inches spark gap, and 110 volt circuit, with the following length of exposures: Hand and wrist, up to and including elbow, 2 seconds; knees and shoulders, 4; pelvis, 10 to 15; vertebrae, 10 to 15; skull 8 to 10; sinuses, 10 to 12; gall-bladder, 6; urinary tract, 10; gastrointestinal tract, 1.

We start the Bucky diaphragm a few seconds previous to the exposure and permit it to run several seconds after the exposure is over. We do not use the Bucky diaphragm in all of the cases mentioned, as we believe it to be unnecessary in gastrointestinal work and in soft tissue work. In bone work the remarkable detail and plastic effect is so superior to the ordinary methods that we desire to go on record as strongly recommending our technique in all conditions affecting the osseous system.

We should be pleased if those utilizing this technique and quoting the same would designate it as the "Broad Street Hospital Technique," for it was the resources of this Hospital which permitted the development and application of this new method of roentgenography.

Medicolegal Notes.

Concealment of Material Facts by Insured—Testimony of Medical Examiner.—In an action on a life insurance policy it was sought to defeat recovery on the ground of concealment of material facts by the insured, knowing them to be material, namely, that the insured was not in sound health when the application was made, that the insured, two years before the policy was issued, was afflicted with tuberculous trouble, and under medical advice went to and was treated at the tuberculosis hospital at Kearney. The applicant was examined by a doctor, who testified to the result and that he pronounced her a "first-class risk." The fact that the insured was an inmate of the State tuberculosis hospital for a period of 10 or 12 months was not controverted, but there was testimony in support of the plaintiff's theory that a recovery was had. The doctor's diagnosis was held to support the plaintiff's theory in respect of recovery as disclosed by his own evidence, unless he was mistaken about having made an examination, as he testified, with respect to chest expansion and chest normality, vascular lung murmur, and the like. He also testified that an examination as to pulse force and volume did not seem to be necessary. Assuming, then, that the examination was made, it was clear that his conclusion on these points was the result of his own examination, based upon professional knowledge, and not on the answers of the insured. And if after so extended a personal examination he pronounced her a "first-class risk," and if, as he further testified, there was nothing in her appearance to indicate that she was tuberculous, but was to all appearance in good health, it was held the jury was justified in relying upon his testimony. The question of concealment was one for the jury, who found for the plaintiff.—Fox v. Scandinavian Neut. Aid Assn., Nebraska Supreme Court, 178 N. W. 614.

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THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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THE LOCAL FORMATION OF ANTIBODIES.

QUITE recently Topley has undertaken some careful experimental work in order to ascertain whether any evidence could be obtained of the local formation of antibodies or of possible intermediary substances at the site of inoculation of a relatively large dose of a dead bacterial suspension. The method employed was the preparation of an extract of the connective tissue, mainly muscle, into which the suspension had been previously injected and the examination of this in respect to its power of inducing phagocytosis of the homologous bacteria, and its influence, if any, on the phagocytosis of the same bacteria in the presence of normal and of immune serum. A similar tissue extract from a part distant from the site of inoculation was examined as a control. Rabbits were used.

The bacterial suspension was prepared from a strain of the *Staphylococcus aureus*, and the same strain was used throughout, both for the inoculation and for the phagocytic experiments. The injections were invariably made into the thigh muscles of the left leg, the doses usually being 1,000,000,000 dead cocci per kilo body weight of the animal. In a few cases ten times this amount were given. In some experiments a second inoculation was made after a varying number of days, at the same site as the first. In every case a control inoculation consisting of the same volume of saline solution was made into the thigh muscles of the right leg. The extracts were prepared as follows: The animal being anesthetized, the subclavian artery was divided, a sample of blood taken and the animal then allowed to bleed to death. The abdomen was opened and a cannula inserted into the descending aorta and the animal perfused with one liter of sterile saline. When this was completed a portion of the tissues from each thigh, in the immediate vicinity of the inoculation, was removed aseptically. The tissues were finely minced at a temperature of 0° C, and next ground with sterile sand at the same temperature. The mass was then placed in sterile glass tubes and submitted to high speed centrifugalization. The rabbits were killed and the extracts prepared anywhere from one and one-half hours to nine days after. The bacterial suspension used in the phagocytic experiments was always prepared from a twenty-four hours' agar growth of the same organ-

ism employed for inoculation. Washed human leucocytes were invariably used and incubation was carried out in capillary tubes for fifteen minutes at 37° C. In every experiment the extract from the site of inoculation and the control extract were tested for the presence of opsonin and they were likewise tested in the presence of one or more specimens of serum from the animal from which they had been prepared, and occasionally against the serum of a normal rabbit.

There are certain well-known sources of error in experiments of this kind. Such tissue extracts, in a large majority of cases, have the power of binding complement, while their chemical and physical constitution is so complex that the nature and extent of their reactions with serum, quite apart from any antibodies which they might contain, is at present generally known. All the extracts studied by Topley had the power of binding complement, while the routine control test with an extract prepared from a similar tissue remote from the site of inoculation, as well as several control experiments carried out with similar extracts prepared from normal rabbits, showed no evidence of any influence on the degree of phagocytosis induced by normal or immune serum. Titration of the extracts as regards their anticomplementary power showed, in almost every case, that this was abolished by diluting them ten times with normal saline, and in many experiments observations were made on the effect of extracts, diluted to this and to higher degrees, on phagocytosis.

The entire series of experiments gave uniformly negative results. The extracts themselves never induced more than a minimal degree of phagocytosis, neither did they increase or decrease the degree of phagocytosis occurring in the presence of normal or immune serum. The extracts from the tissues at the site of inoculation of the bacterial suspension differed in no demonstrable way from those prepared from other sites in the same animals, nor from similar extracts prepared from normal animals.

Although these results are of only negative interest they form yet another instance of failure to obtain evidence of the local formation of antibodies and from this viewpoint may perhaps render us still more critical of the somewhat slender evidence on which the view that such local production does occur is based. With the exception of von Dungern's experiment, and possibly that of Römer, there is, then, no striking evidence of the production of antibodies by the tissues at the site of inoculation and uncorroborated results can hardly stand against the far greater weight of negative evidence put forward by Topley, Hektoen, and other observers.

GROUP-MEDICINE AND THE YOUNG PRACTITIONER.

MUCH has been said, and much remains to be said, about the advantages and disadvantages of group practice. No phase of the subject is of greater importance than its relation to the young practitioner. This interesting person today finds himself in an

odd position, not to say predicament. Having finished his internship, he has amassed a large bouquet of medical "flowers"; he can agree with Brown-ing's youth, that it were better to

"Strive through acts uncouth

Toward making, than repose on aught found made."

He begins to realize how relatively sheltered his life in school and hospital has been. He begins to realize that the scientific, i.e. the "reputable" institutions are not turning out what a large proportion of our mentally tardy laity seem to want. He sees enormous practices built around bluff and political sagacity. He finds some of his greatest heroes quite unknown to the wallowing public. He sees chiro-practor, osteopath, Christian Scientist, flourishing like the green bay tree. He feels that his is a voice crying in the wilderness—only it is not ethical for him to cry very loudly. Legislators, being only laymen who do their wallowing in capitol, are not likely to give ear to the voice of his complaints against quackery.

No, the "legitimate profession" seems to have decided upon a campaign of overcoming evil with good. Incidentally, it is probably the only effective way. The grade A schools are turning out men trained to function so well that their only hope is in the public waking up and beginning to discriminate—so that the quacks will undergo starvation necrosis.

There are three alternatives for the young medical graduate. He can fare forth "on his own"; he can work as an older man's assistant; or he can join a group. He who works alone may get various "jobs," remunerative or otherwise (more often otherwise), of educational value or not, while he is waiting for patients. He must accustom himself, and perhaps his wife, to the process of starving along. Many a young practitioner is coming to realize that the shortest way to self-support leads through the smaller towns and suburbs. There, though he may not rise to the dizzy heights, he will at least "arrive" more quickly. The alternative of becoming somebody's assistant allays many of those financial pangs to which young medical men are subject. If he can work along assiduously for a time, content to shine by reflected light, and eventually "fall into the old man's practice," many a bramble and boulder will be taken out of his path.

It is natural, however, that when a young man with thorough hospital training is invited to join a group, he should accept with alacrity. It offers him an opportunity to do the work for which he is best fitted, and patients and a relatively reliable financial intake are to a considerable extent assured—more so, at any rate, than if he were a separate entity.

Granting the ability of the group to get along amicably together, to arrange finances satisfactorily, to behave generously toward other groups or individuals, to refrain from charging exorbitantly, etc., group practice is in a fair way to become an excellent medium through which the public may profit by the recent advances of modern medicine, and the recent hospital graduate occupy a position of financial solvency at no cost to his self respect.

SENSITIVENESS TO BLINDING RAYS.

THE German expression *Blendungsschmerz* has no familiar equivalent in English. In its native speech it is of vague connotation, apparently applying to any painful sensation which accompanies photophobia. It is necessary that very strong light rays impinge on the retina more or less suddenly and produce transitory inability to see, accompanied by sensations of pain. There is a spastic closure of the orbicularis muscle which may stand in some definite relation with the painful sensations. The subject of *Blendungsschmerz* is considered exhaustively in an article by Siegwart in the *Schweizerischer medizinische Wochenschrift* for December 16, 1920, i, 51. Numerous experiments have been made to determine the nature of these sensations. Thus in 1901 Nagel after adapting the eyes of a normal subject to the dark chamber exposed them suddenly to strong sunlight. The subject complained of blinding pain, whereupon the experiment was repeated with atropinized eyes and the blinding pain was no longer perceived. Nagel therefore referred the pain to the iris. These experiments were repeated by Roemer with six subjects, not one of whom felt pain on the transition from darkness to strong light. Nagel sustained his own claims, and Axenfeld, who made experiments, was obliged to endorse them. Nicolai and Feilchenfeld then repeated the experiments on an extensive scale with many variations. The conclusions were that there is a phenomenon in which pain is associated with sudden contraction of the pupils in exposure to the light, this being physiological; but that there may be a pathological component in which the retina is involved along with the iris. Further study showed that mild pathological conditions may be at fault in blinding pain. Thus there are retinal hyperesthesia of neurasthenics, certain cases of nyctalopia, chronic nictinism, total color blindness, and irritable conditions of the trigeminus and optic nerves which can motivate blinding pain in seeing eyes.

Several curious facts have recently been brought out in connection with the blinding pain, but with the author we may now pass to the special field of the blind eyes. He recognizes four possible sources of pain, viz., spasm of the orbicularis, contraction of the pupil, irritability of the retina, and irritability of the trigeminus nerves. A distinction must first be made between the totally blind and the one-eyed, for in the latter the pain may be felt in the sound eye. The light used was either the noon sun or on dark days a 150 candle power lamp. The number of subjects tested was about 50, blind, nearly blind, and one-eyed. In not one case was blinding pain felt save in certain inflammations where there was a consensual pupillary reflex, the light being applied to the seeing eye. Generally speaking there is no pain if the perception of light is lost. If the retina be insensitive there is no pupillary reflex to light. The length of the light rays is not a component as shown by testing the various sections of the spectrum.

MAGENDIE'S ANTICIPATION OF THE DISCOVERY OF VITAMINES.

ACCORDING to Professor Sabrazès, writing editorially in the *Gazette hebdomadaire des sciences médicales de Bordeaux*, November 24, 1920, xli, 41, Magendie anticipated the discovery of vitamins by nearly a century. This illustrious man, whose position in the history of biological science is somewhat underrated, was the teacher and predecessor of Claude Bernard, whose eminence served to obscure the merits of the older man. Magendie found a world in which experiment had virtually been abandoned, and was compelled to blaze a new trail. It was said of him by enemies that he made "many experiments and few discoveries," but he was a sceptic and followed the advice of Descartes to doubt everything until it could be proven. He doubted all that had been taught in speculative fashion, all theories and systems. This extended to therapeutics, and so great was his nihilism that he was looked on as having no constructive ambition at all. Nevertheless he was largely responsible for the introduction of such valuable drug principles as morphine, strychnine, iodine, ipecac, etc., while in other branches of medicine he was equally a pioneer. The reference to something akin to vitamins is taken from the third edition of his textbook on physiology (1833), in the chapter on nutrition. Here he makes the statement that something more than nitrogen is necessary to sustain life, and if sugar and oil constitute the sole diet the cornea ulcerates. There is a capital difference between the white bread made from fine wheat flour and the so-called military bread made of the whole grains. The latter one could subsist on wholly, the former lacked something necessary for life. Animals fed on one kind of grain like polished rice (*viz glacé*) perished. There was a curative substance in muscle (osmazome) which could offset the state of denutrition due to living solely on white bread. Further extracts seems unnecessary, for Magendie had the essentials of the vitamin theory.

SECONDARY TUMORS OF THE BONES.

IN an address before the Academy of Medicine of Paris, on this subject, a report of which appears in *Le Bulletin Médical* for November 20, 1920, xxxiv, 55, Delbet refers to those secondary tumors which impose themselves as primary. On a previous occasion he showed that a tumor of the clavicle was a metastasis of a cancer of the stomach. The subject is less simple than it appears, for a histological diagnosis may lead to error. In some of these metastases it is difficult to find any epithelial tissue. The author once made a diagnosis of primary sarcoma of a bone—the olecranon, but it was found later to have been a cancerous metastasis from a cancer of the breast. In the secondary cancer the microscope may show myeloplaxes which do not occur in epithelioma, but are very common in primary sarcoma of bone. Study of the literature shows that so-called primary sarcoma must often have been secondary cancer. Especially when they develop in the epiphyses, there is no clinical method for differentiation. In the diaphyses it may be otherwise, for in this location sarcoma is not common while secondary epithelioma is almost always

diaphyseal. In regard to the spontaneous fracture which betrays the presence of a malignant growth, one cannot generalize sharply. The author has seen two cases of cancer which were manifested in this way. In sarcoma of the diaphyses there should be pain, disability, and tumor before fracture develops. But in some cases, at least, of secondary cancer fracture is the first symptom. When many portions of the skeleton are simultaneously attacked we do not think of multiple primary sarcoma but of multiple osseous metastases of cancer. The author once x-rayed a subject with spontaneous fracture of the humerus and made the diagnosis of osteosarcoma, performing a resection of the bone. Subsequent metastases showed that the condition was cancerous, the primary focus being apparently in the thyroid.

News of the Week.

Immunizing Against Diphtheria.—During the past few months the Department of Health of Detroit has given the Schick test to more than two thousand school children and protective treatment with toxin-antitoxin to about eight hundred. The Board of Health of Detroit furnishes the materials for diphtheria prophylaxis to physicians and gives them any assistance desired in regard to technique. The same work has been under way in New York City for some time under the direction of Dr. Abraham Zingher of the Board of Health. It is stated that some ten thousand children have already been tested and those found susceptible have been immunized.

New Typhus Cases Among Immigrants.—Five new cases of typhus fever were discovered on March 7 among the immigrants who arrived on the Italian liner *San Giusto*, which brought twenty cases of typhus fever to the Port of New York several weeks ago. On the same date a sixth case was taken from the *Kroonland*, which arrived on March 3. These cases were isolated with the other forty cases now being cared for on Swinburne Island.

Dr. G. Canby Robinson has been elected to the position of professor of medicine and dean in the Vanderbilt School of Medicine, Nashville, Tenn. He enters on his active duties there in September, 1921.

A Correction.—In the MEDICAL RECORD of February 12 in the last paragraph of the item on "Misbranding Drugs Alleged to Have No Curative Value," on page 271, it was stated that "the law does not reach one who puts inert matter or a worthless composition in the channels of trade, labeled as a cure for disease when he knows it is not." The first negative in this sentence crept in through error, for, in fact, the court held that the law was applicable in such cases.

Oregon Makes State-Wide Survey of Mental Defects.—This survey, which was authorized by the Oregon Legislature and carried out by the University of Oregon in collaboration with Dr. C. L. Carlisle of the United States Public Health Service, is the first State-wide survey which even begins to disclose the enormous drain on a State caused by mental defects. That more than 75,000 men, women, and children out of a total popula-

tion of 783,000 are dependents, delinquents, or feeble-minded, are unable either to work or fight, and are a constant drain on the finances, health, and morality of the State is the startling result brought out by the survey in Oregon. Out of a total school enrolled population of 32,500, more than 500 were found to be more or less mentally deficient. The figures yielded by the Oregon survey are considerably lower than the average shown by the draft examination, a fact that indicates, in the opinion of the Public Health Service officers, that they are certainly not higher than those that would be obtained by similar surveys in other States. Very few of the types of mental defects revealed by this survey are being cared for in institutions. The rest are widely scattered and were practically unknown until the survey was made. In submitting this report the Public Health Service emphasizes the importance of the problem presented by mental defectiveness in its relation to juvenile delinquency, to the control of venereal disease, and to the economic and industrial condition of these defective individuals.

Smallpox in Constantinople.—A cablegram under date of March 8 states that smallpox has been added to the list of diseases prevalent in that city. A sailor on the United States destroyer *Overton*, cruising in Turkish waters, has died of smallpox. The *Overton* has been isolated in the sea of Marmora.

Doctors May Prescribe Wine and Beer.—An opinion handed down by Attorney General Palmer, on March 3, holds that it is not within the power of the Internal Revenue Bureau, through regulations, to limit the number of permits which may be issued for the manufacture and sale of spirituous, vinous, or malt liquors for medicinal purposes, except that permits for retail sale are limited to reputable druggists who are pharmacists. Mr. Palmer holds further that while the Volstead act fixed at one pint the maximum amount of spirituous liquor which a physician might prescribe for any patient during ten days, no such restriction has been placed upon the use of beer and wine for medicinal purposes. It was held, however, that regulations could be formulated which would prevent a physician from prescribing at one time a large quantity of liquor, which might never be required for the purpose for which it was prescribed.

Massachusetts Lepers Moved South.—The leper colony that Massachusetts has maintained at Penikese Island, in Buzzards Bay, was evacuated on March 10, and the thirteen members started by special car for the Federal leprosarium at Carville, La. On its way the car will pick up three additional unfortunates, one at Bridgeport, Conn., and two at Richmond, Va. Some of these lepers had been members of the Penikese colony since it was established thirteen years ago.

New White House Physician to Study Public Welfare.—Dr. Charles E. Sawyer of Marion, Ohio, has been nominated by President Harding to be the White House physician, and also a brigadier general in the Medical Reserve Corps of the army. In connection with the appointment an official announcement states that "President Harding has long since been convinced that affairs re-

lating to public welfare, such as public health, education, and social justice, are so intimately related, and so vital to the nation's perpetuity, that he has decided to begin at once a careful survey of all matters pertaining to these subjects. Dr. Sawyer will be given authority to make a thorough investigation of the needs along these lines and to present the accumulated facts with such suggestions as his observations may warrant in bringing about a concrete plan of co-ordination and efficient economic organization of these affairs." Dr. Sawyer's duties are to begin immediately.

New York's Narcotic Squad Makes Record.—Dr. Carleton Simon, Special Deputy Police Commissioner, has submitted a report covering his activities for the past four months as head of the narcotic division, which shows that 1,000 arrests have been made for violation of the antinarcotic law and that 95 per cent. of those brought to trial have been convicted. During this period more than \$1,000,000 worth of drugs has been confiscated.

Mr. Arthur Macdonald of Washington, D. C., has been recommended to President Harding by numerous scientific bodies for appointment as Director of Census.

Dr. Smith Ely Jelliffe of New York has been elected to honorary membership in the Société de Médecine Mentale de Belgique at its recent reunion.

Dr. C. L. Alsberg, chief of the Bureau of Chemistry of the United States Department of Agriculture, has been appointed a director of the Food Research Institute which is to be established at Stanford University, California, according to an announcement made by the Carnegie Corporation.

Red Cross Leaders Off to Geneva Conference.—Four national officers of the American Red Cross sailed on the *Imperator* on March 12 to represent the society at the tenth international conference which opens at Geneva on March 30. These officers are: Dr. Livingston Farrand, chairman of the central committee; Dr. Albert Ross Hill, vice-chairman in charge of foreign relations; Eliot Wadsworth of Boston, and George E. Scott of Chicago.

New York University Medical College Alumni Reunion.—The alumni of New York University Medical College will hold their second annual dinner at the Hotel Biltmore, New York City, on Thursday evening, March 31, 1921. The dinner will be the occasion of class reunions. The committee in charge of arrangements for the dinner are Dr. Robert J. Wilson, Dr. Herman A. Haubold, and Dr. John A. Mandel.

Vacancies in St. Elizabeth's Hospital.—The United States Civil Service Commission announces an open competitive examination for the position of medical interne in St. Elizabeth's Hospital, Washington, D. C., and vacancies in positions requiring similar qualifications. The positions pay \$1,200 a year and maintenance. Applicants must be graduates of a reputable medical college, or senior students in such an institution. They must not have graduated previous to the year 1915 unless they have been continuously engaged in hospital, laboratory, or research work along the lines

of psychiatry or neurology since graduation. Those desiring to take the examination should apply at once for Form 1312, stating the title of the examination desired, to the United States Civil Service Commission, Washington, D. C.

New York Association for Medical Education Reorganizes.—At its annual meeting, held at the New York Academy of Medicine, March 7, 1921, this association amended its by-laws and reconstituted its board of directors to apportion the control of its affairs among the five medical schools of Greater New York, namely, Columbia University, College of Physicians and Surgeons; Cornell University Medical College; Long Island Medical College Hospital; New York Post-Graduate Medical School and Hospital, and the University and Bellevue Hospital Medical College. These five medical schools will co-operate to develop New York City as a medical teaching center. Unnecessary duplication of courses of instruction by the several medical schools will be done away with, and a higher type of graduate work will be instituted. The newly elected officers of the association are: President, Dr. Haven Emerson; secretary, Dr. Otto V. Huffman; treasurer, Dr. George W. Kosmak. The new board of directors is as follows: Columbia University, College of Physicians and Surgeons, Dr. William Darrach, Dr. Frederick Tilney, Dr. Charles N. Dowd, Dr. Walter A. Bastedo; Cornell University Medical College, Dr. Henry H. M. Lyle, Dr. John A. Hartwell, Dr. James Ewing, Dr. Walter L. Niles; Long Island College Hospital, Dr. Adam M. Miller, Dr. John Osborn Polak, Dr. Luther Fiske Warren, Dr. Emil Goetsch; New York Post-Graduate Medical School and Hospital, Dr. James F. McKernon, Dr. Arthur F. Chace, Dr. J. Bently Squier, Dr. Ludwig Kast; University and Bellevue Hospital Medical College, Dr. Samuel Brown, Dr. William H. Park, Dr. Charles A. Elsborg, Dr. Hermann M. Biggs; for the profession at large: Dr. William H. Bishop, Dr. William Francis Campbell, Dr. Lewis A. Connor, Dr. Adrian Lambert, Dr. Alexander Lambert, Dr. Emanuel Libman, Dr. James A. Miller, Dr. Eugene Pool, Dr. Thomas F. Reilly, Dr. Bernard Sachs, Dr. Thomas W. Salmon, Dr. George Gray Ward, Jr.

The Leonard Prize for Research.—The American Roentgen Ray Society announces that it will award \$1,000 to the author of the best piece of original research in the field of x-ray, radium, or radioactivity. This prize is offered with the approval of the National Research Council and commemorates the name of a martyred member of the American Roentgen Ray Society, Dr. Charles Lester Leonard. The conditions of competition may be obtained by application to any of the committee: Dr. A. W. Crane, 420 South Rose Street, Kalamazoo, Mich.; Dr. P. M. Hickey, 32 Adams Avenue, W. Detroit, Mich.; Dr. Henry K. Pancoast, University Hospital, Philadelphia, Pa.

The American Congress on Internal Medicine, at its annual meeting held at Baltimore, February 21-26, 1921, elected the following officers for the ensuing year: *President*, Dr. Sydney R. Miller, Baltimore, Md.; *First Vice-President*, Dr. Ellsworth S. Smith, St. Louis, Mo.; *Second Vice-President*, Dr. James Rae Arneill, Denver, Col.; *Secretary-General*,

Dr. Frank Smithies, Chicago, Ill.; *Treasurer*, Dr. Clement R. Jones, Pittsburgh, Pa.

Gifts and Bequests.—Among the bequests made by the will of the late Mrs. Speyer is one of \$5,000 for St. Mary's Free Hospital for Children. A fund of \$20,000 donated by Edward Hatch, Jr., to charitable purposes is distributed as follows: Dr. Louis Fischer's Infantorium for the shelter of infants from birth to one year of age, \$2,500; Columbus Hill Day Nursery, \$2,500; Placing-out Department of Nursing and Child's Hospital, \$2,500; Alice Chapin Adoption Nursery, \$2,500; the Crèche, Englewood, N. J., for the care of convalescent and homeless babies, \$2,500, and St. John's Guild for day boat excursions for sick and ailing babies during the summer months, \$5,000.

Effective War Against Typhus in Poland.—The American Red Cross has just issued a statement stating that five hospital trains of ten cars each are now being used in the battle to prevent the spread of typhus in Poland. The announcement adds that the thoroughness of the Red Cross campaign in Poland is proving exceptionally effective in limiting the spread of the disease.

Biltmore Hospital Burns.—The Biltmore Hospital, near Asheville, N. C., was destroyed by fire on March 5. The patients were all carried to safety.

Heart Beats Studied by Amplifying Apparatus.—An amplifying and transmitting apparatus was demonstrated at the Army Signal Corps Laboratories in Washington, on March 12, which increases the heart sounds many times, and by means of electrical connections transmits them so that they may be studied by a physician in another room or even hundreds of miles away. The principle involved is that employed in transmitting addresses. The device, which rests over the patient's heart, may be used in connection with any telephone wires and will function as far as the telephone wires will transmit the voice in ordinary conversation.

Obituary Notes.—Dr. GEORGE HASTING CLOSE of New York City died suddenly on March 11, at the age of forty-eight years. He was graduated from Bellevue Hospital Medical College in 1899, and was a member of the New York Academy of Medicine.

Dr. ALFRED BENNISON ATHERTON, formerly of Frederickton, N. B., and later of Toronto, died in San Diego, Cal., after a long illness, on March 7, at the age of seventy-eight years. He was a graduate of Harvard Medical School in 1866, and one of the founders of the American College of Surgeons.

REPORT OF THE PUBLIC HEALTH COMMITTEE ON TYPHUS.

THE Public Health Committee of the New York Academy of Medicine has made the following statement with regard to the typhus fever situation:

The occurrence of typhus fever in New York City is not an extraordinary event. At no time has the city been entirely free from typhus fever. It has lingered here endemically for years, appearing in the mild form called "Brill's disease." The summaries of reportable diseases in the weekly bulletin of the Health Department do not include statistics of typhus, but in the annual reports mention is made of its existence. In 1917 twenty-four cases were reported, and in 1918 thirteen cases. In connection with these cases the Health De-

partment report states that "none of those affected were recent immigrants nor had they been in contact with those who had recently arrived in this country." Among the cases also which have recently occurred, some are reported to be of local origin and not in any way connected with the cases originating on the other side.

In considering the measures for the prevention of typhus fever one should bear in mind the essential facts connected with the transmission of the disease:

(1) It is an established fact that the infective agent of typhus fever is contained in the blood of the typhus sick; (2) it is an established fact that the virus of the disease is found in the stomach and intestinal tract of lice which have fed on blood of the typhus sick; and (3) it is an established fact that a louse which has fed on the blood of an infected individual can transmit the disease to a well person through the virus contained in its excreta.

The segregation, therefore, of the sick from the healthy, and the destruction of the carrier which is known to be the louse, particularly the *Pediculus corporis*, are absolutely essential to prevent the dissemination of the disease. As typhus fever during epidemics may affect individuals in such a mild form as to escape the detection even of trained physicians, and as infected lice may be carried from districts where epidemic typhus exists and may thrive on the bodies and in the clothing of those who are naturally immune or who have become so after an attack of the disease, no other method than the destruction of all lice living on the persons and in the clothing or bedding of those who come from typhus-infected districts, will prevent the transmission of the disease. In the past this had not been recognized by quarantine authorities, who have considered it necessary to delouse only such vermin-infested individuals as arrive on ships on which typhus existed or had recently existed. It would seem essential, therefore, that disinfestation should be applied to all immigrants coming from countries where the disease is prevalent, whether arriving on typhus ships or on ships free from typhus.

It is imperative furthermore that this process should be applied at the port of embarkation, to prevent as far as possible the infestation of persons and ships. As an additional precaution, wherever feasible, it would be most desirable to reexamine during the course of the voyage all those immigrants who before embarkation went through the delousing process, and immediately to subject such as were still infested together with their clothing and effects, to a delousing process while still on board. On arrival here, those individuals on whom lice were again found, together with their clothing, bedding, and effects, should be once more subjected to cleansing and delousing.

The necessity of preembarkation measures has been recognized by the United States Public Health Service. No vessels sailing from foreign ports receive bills of health from American consuls until the passengers have been satisfactorily disinfested. That this requirement should be strictly enforced is distinctly to the advantage of the steamship companies, as an outbreak of illness among the passengers results in clearing delays and involves extra expense at American ports of disembarkation.

The sanitary authorities have always been on guard against the introduction of typhus from abroad, and particular watchfulness has been exercised since our troops began to return from Europe. The effects of the sanitary cordon established have been salutary, as the methods of control are well known, and by their diligent application typhus fever can be well held in check.

No imminent danger of the spread of typhus fever exists. Nevertheless no effort should be abated on the part of the Federal and local health authorities, each in their respective fields, to minimize the possibility of the introduction and spread of the disease.

Should the existing facilities at quarantine prove inadequate for the task, the Public Health Committee of the New York Academy of Medicine would recommend immediate equipment of additional facilities, with the possible cooperation of the navy and army sanitary departments, for ridding incoming persons and their effects of vermin in an adequate and efficient manner.

Because of the existence of the endemic type of typhus fever in this city, if for no other reason, the efforts of the City Health Department should be directed toward the elimination of pediculosis, from which a considerable portion of the city population suffers. The reports of school inspections show that every year over 200,000 children are found to be infested with lice. The weekly bulletin of the Department of Health of this city of April 5, 1919, states that it is regarded as remarkable when the graduating class at the end of the last term of public school in this city had not over 10 per cent. of its members infested with lice. This reflects the home conditions obtaining in certain sections of the city. It would seem, therefore, that no effort should be spared to rid our own population of the extensive prevalence of pediculosis.

Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, February 22, 1921.

The Milk Amendment Bill.—It is generally allowed that the milk regulations in force in this country are inadequate to insure a supply of pure milk sufficient for the proper nutrition of the infant and child population. A considerable proportion of the infants of Great Britain are not breast fed but rely for their sustenance upon cow's milk and artificial feeding of one kind or another. This being so, it seems essential in the interests of the nation, especially when as now the value of child life is so strikingly obvious, that steps should be taken to safeguard the milk as far as is possible. But up to the present time the steps taken with this end in view have been wholly inadequate. Moreover, during the last fifty years the production of milk in Great Britain has failed entirely to keep pace with the growth of population. Recently the Minister of Health has introduced a bill to secure amendments to the machinery provided by the Milk and Dairies Act of 1915. An important Milk and Dairies Act was passed in August, 1914, the operation of which was postponed to a date within one year after the war. The Act of 1915 provided no new legislation, but consolidated in one act that of 1914 and those provisions in previous acts which still remained operative. The main provisions of the Milk Amendment Bill, which now awaits its second reading, are as follows: (1) Provision for the licensing of dairymen and dairies. (2) Provision for the undertaking by sanitary authorities, with the approval of the Minister of Health, of the supply and distribution of milk, or the cleansing, storage, etc., of milk for sale by dealers. (3) An extension of the provisions of the 1913 Act in regard to the classification of milk. (4) The constitution of Milk and Dairies Committees by the local authorities who will administer the act. In the final Report of the Committee on the Production and Distribution of Milk issued some little time ago, it was stated that in the opinion of the committee the milk supply, in addition to being quite inadequate, was as a whole in a most unsatisfactory condition from the point of view of pollution and infection. The care of the milk supply in America and Great Britain was compared, greatly to the disadvantage of that of the latter country. The committee also drew attention to

the great value of properly dried milk. The following are the most important items of what is termed by the committee an enlightened milk policy: (1) To bring about the utmost possible economy in production in order that (a) consumption of milk may be increased to the desired level; (b) an adequate supply of milk may be brought within the reach of the poorest families; (2) To improve the hygienic quality of milk. (3) To increase the total supply in order to meet the extended consumption that should follow improved quality and the education of the public with regard to the nutritive properties of milk. It is now required by the amended bill that all dairies and dairymen shall be licensed. Many of those best competent to judge hold that the bill does not go nearly far enough and that the milk supply in the large British cities will remain unsatisfactory until all milk is bottled in sterilized bottles or other necessary measures are taken to safeguard it.

Determination of Sex.—Dr. W. Bateson delivered a lecture the other day on the heredity of sex. He said in part that the point he mainly wished his audience to carry away very clearly in their minds is that sex determination is a problem that can be investigated and that accurate knowledge can be and has been brought to bear on it. In all probability these determinations are made in the development of the germ cells and that having been made in essentials they are fixed. The speaker went on to say that in old days it was accepted as a fact that we could not see any deeper into the mystery of sex, and that we could not show how it came about that there were two sexes. Only five years ago it was thought that practically there was no way of predetermining sex; but facts were now being ascertained which showed that sex could be determined in certain moths and frogs by a process of hybridization. It had now been established that by means of cross-breeding in moths, we could alter the proportion of sexes by interference in the fertilization. As for color blindness Dr. Bateson said that if a man who is color-blind marries a woman who is normal their children will probably be without the defect, which will reappear in the next generation when the daughters marry. The blindness is perpetuated through the daughters and not through the sons and is far more common among women than men. It is estimated that 5 per cent. of the population are color blind.

Dr. Annie Louise McLroy.—Dr. A. L. McLroy has been appointed to the Chair of Obstetrics and Gynecology at the London School of Medicine for Women. She will also be in charge of the newly established unit in Gynecology and Obstetrics at the Royal Free Hospital, Grey's Inn Road, London. Since her student days at Glasgow she has had a varied experience in gynecological work, mainly at the Glasgow Royal Infirmary, where before the war she was senior assistant to the Muirhead Professor of Obstetrics and Gynecology and Senior Assistant Gynecological Surgeon. During the war Dr. McLroy served abroad as surgeon-in-charge of the Scottish Women's Hospital at Salonica and Belgrade. Later she acted as gynecological specialist (R. A. M. C.) at the Eighty-second General Hospital at Constantinople. The appointment affords striking evidence of the progress made by women recently in medicine and surgery. Not many years ago such an appointment would have been impossible. The position carries a salary of £2,000 a year.

The Chair of Embryology at University College, London.—The Chair of Embryology, instituted at University College, London, as one result of the Rockefeller gift, has just been filled by the appointment of Professor J. P. Hill, who gained his experience as lecturer on embryology in the University of Sydney. Since 1906 he has been Jodrell Professor of Zoology and Comparative Anatomy at University College.

International Organization and Public Health.—As mentioned in a previous letter the International Health Organization was formed as the result of a series of resolutions passed by the Assembly of the League of Nations at Geneva in December last. Dr. G. S. Buchanan, C.B., gave an address on the subject before the British Society of Medical Officers of Health on February 18, 1921. Dr. Buchanan was nominated by the Ministry of Health to be the technical adviser on this subject to the British delegation. It may be remembered that by the Covenant of the League of Nations, which forms an integral part of that treaty, the members of the League undertake to initiate measures in matters of international concern for the prevention and control of disease. The League is also empowered to take over the direction of international bureaus established by general treaties, among which is included the existing Office International d'Hygiene Publique, which was established by the Convention of Rome, 1907. The objects of the International Organization are stated as follows in the resolutions of the Assembly. As Dr. Buchanan pointed out, it will be seen that their terms are safely guarded: (1) To advise the League of Nations in matters affecting health. (2) To bring administrative health authorities in different countries into closer relationship with each other. (3) To organize means of more rapid interchange of information on matters where immediate precautions against disease may be required (*e.g.* epidemics) and to simplify methods for acting rapidly on such information where it affects more than one country. (4) To furnish a ready organization for securing or revising necessary international agreements for administrative action in matters of health and more particularly for examining those subjects which it is proposed to bring before the standing and general committees, with a view to international conventions. (5) In regard to measures for the protection of the worker against sickness, disease, and injury arising out of his employment, which fall within the province of the International Labor Organization, the International Health Organization will cooperate with and assist the International Labor Organization, it being understood that the International Labor Organization will on its side act in consultation with the International Health Organization in regard to all health matters. (6) To confer and cooperate with International Red

Cross societies and other similar societies under Article 25 of the Covenant. (7) To advise, when requested, other voluntary organizations on health matters of international concern. (8) To organize missions in connection with matters of health at the request of the League of Nations, and with the concurrence of the countries affected within the limits proposed by sub-paragraph (a) or by the International Convention of Rome (1907). Dr. Buchanan pointed out that the League of Nations will have its budget control, a certain power of withholding sanction to action proposed by the organizations, the right of sanctioning appointments of paid officers and of receiving reports, but, apart from these, the general working of the organization, the regulation of its internal affairs, and the appointment of staff is left entirely to the organization itself, in other words, to the public health men themselves. Dr. Buchanan emphasizes the fact that here is the opportunity of the public health officers and hopes that they will not only be willing to seize it (this may be taken for granted), but will find themselves in position to give necessary time and labor to insure its success and be supported in their respective countries by departments which realize that practical international action and agreement is a fundamental part of any good State public health policy.

State Insurance Funds.—The first valuation of the assets and liabilities of approved societies under the National Health Insurance Act show a surplus of £3,600,000 (\$18,000,000) or over £1 6s. (\$6.50) per insured person. That means, in effect, that the societies have a substantial sum to distribute to their members, which may take the form of increased monetary grants during illness or may be devoted to the maintenance and treatment of members in hospitals and convalescent homes, dental treatment, optical treatment, the provision of nurses in the home, and other essential medical services. Most of the larger societies are still in process of valuation, and it is anticipated that the total surplus will be between £8,000,000 and £9,000,000. The above mentioned benefits are some of the additional benefits which societies may choose as most suitable for the needs of the members. They are set out in the acts and regulations governing National Health Insurance. They cover no fewer than eighteen different forms of benefit, and the members of each society in general meetings have the right to select the type or types of additional benefits they prefer, subject to their inclusion in a scheme which is to be submitted to and approved by the Minister of Health on the corresponding authority in Scotland or Ireland. In view of the present high cost of living, it is possible that some societies will decide to devote part of their surpluses to increasing the cash benefits under the Act, but the Minister has taken the opportunity, when sending out the valuer's report, of reminding its executive that the prevention and cure of sickness is one of the main objects of the National Health Insurance Act, and of impressing upon them the desirability of adopting schemes which will improve the standard of health among their members and incidentally lessen the drain upon their sickness funds. Quite recently a regulation has been made

allowing the surplus in societies to be devoted in whole or in part to the maintenance and treatment of members in hospitals and convalescent homes, and it is anticipated, especially in view of the present financial necessities of the hospitals, that a considerable number of societies will make arrangement for the institutional treatment of their members. Although some of the largest societies, as mentioned previously, have not yet received their valuation reports, and consequently are not yet in a position to arrange a scheme of additional benefits, the Minister of Health is aware that they are contemplating making arrangements with hospitals for the treatment of their members in preference to an increase in cash benefits. Dental treatment is another additional treatment under the Act, and in view of the volume of sickness among members of approved societies which is directly attributable to dental decay, it is anticipated that quite a number of schemes of free dental treatment will be put forward by societies. Other forms of additional benefits include the service of nurses for members and medical treatment and medical attendance for the families and dependents of members.

Berlin Professor Made an Honorary Member of the British Society for the Study of Sex Psychology.—Dr. Iwan Bloch, a Berlin authority on sexual pathology and psychology, has been elected to an honorary membership of the British Society for the Study of Sex Psychology, thus forging the first link in the long sundered chain of scientific relations between England and Germany. Like many other German men of science, a Fellow of the Royal Society of Medicine before the war, Dr. Bloch is, as far as can be ascertained, the first doctor of medicine to whom the hand of friendship has been extended since peace was signed.

Visit to London of French Physician.—An official representative of the Faculty of Medicine of Paris, Dr. Monod is about to be sent to London to promote the medical entente existing between the two nations. During the course of his visit he has arranged to give a demonstration before the Fellowship of Medicine at the House of the Royal Society of Medicine, on February 23, of a new French appliance, the ultra cinema. It is stated that by means of this appliance, the movements of the heart can be observed, athletic movements and so on. However, four distinct objects are concerned in Dr. Monod's visit: (1) To offer the Fellowship of Medicine representation in the Faculty of Medicine, Paris. (2) To endeavor to arrange exchanges of professors between the two countries. (3) To insure proper exchanges of literature and of reviews by competent critics. (4) To lay the foundation of a strong Anglo-French Medical Association.

Obituary.—One of the best-known medical men in Dublin, indeed in Ireland, Dr. J. C. MacWalter, died very suddenly on the morning of February 12. Dr. MacWalter was born in America and came when young to Dublin, where he qualified as a pharmaceutical chemist. He then took up the study of medicine and in 1897 obtained the diplomas of the Royal College of Surgeons in Ireland and of the Apothecaries' Hall. However,

he was not content to rest here and in 1900 he became a Fellow of the Faculty of Physicians and Surgeons of Glasgow, and received the diploma of Public Health of the Royal Colleges of Ireland. In subsequent years he took the Degrees in Arts and Law of the National University of Ireland, the Doctorates of Medicine of Brussels and Durham, and Degrees in Arts and Medicine of Dublin University. He was called to the Irish Bar in 1907. While reading for these various degrees he was at the same time hard at work at medical practice, as well as supervising a large pharmacy with many branches. Dr. MacWalter took an active part in the public life of Dublin. He was for many years an alderman of the city and for the past year he was high sheriff. He was a member of many medical societies and a facile, interesting, and energetic writer. He was a frequent contributor to the pages of the *Medical Press and Circular*. In 1915 he applied for and received a commission in the Royal Army Medical Corps, serving in Malta, Egypt, and Salonica, and then for a time with the Air Force in England.

Dr. David Yellowless, formerly physician-superintendent of the Royal Asylum, Gartnavel, Scotland, died in Edinburgh on January 19. During the twenty-seven years that he was at the head of the Royal Asylum he was recognized as a leading authority on mental diseases. Dr. Yellowless was Lecturer on Insanity in Glasgow University. He was President of the Psychological Section of the British Medical Association, held in Glasgow in 1888, and the same year the degree of LL.D. was conferred upon him by the University of Glasgow. He was an honorary member of several foreign scientific societies. Dr. Yellowless was a very good teacher and a man of the highest integrity.

LETTER FROM GENEVA.

(From Our Own Correspondent.)

GENEVA, Feb. 25, 1921.

Life and Works of Galen.—The regular monthly lecture before the Medical Society of Geneva in January was delivered by Dr. Cumston, his subject being: "Galen: His Character and Works." The lecturer referred to the second century of our era as being one of the most glorious epochs of the conquest of Rome by the Greeks and thus the most illustrious name of all the learned of the time was that of Galen. That most of Galen's principles were excellent there was no doubt; they sum up the entire field of therapeutics which even at the present time, is based upon them. Unfortunately, Galen was not content to expose his doctrines clearly and briefly. Too fond of complicated systems and explanations, he often neglected the practical side of the new ideas emitted, and his successors—too faithful to his doctrines and still more heedless than their master—became buried in the mud of vain theories. For centuries to follow the Galen who disserts will be to physicians what Aristotle was to philosophers, and Galen's bristling and rich logic hid those practical precepts which otherwise would have hastened the progress of the medical sciences in their development. The two great names—Galen and Aristotle—were much the same in

history. During the medieval times Aristotle's authority destroyed that of Pythagoras, Epicure, and Plato; Galen's authority almost completely destroyed the remembrance of Hippocrates. Those who were to reign over the schools and give such impetus to scholasticism were the two Peripatetics—the philosopher who discovered the doctrine of the elements, the four qualities and the four humors, and the physician who, applying these to the cure of disease subjected the human organism to them. The glory of each walked hand in hand.

The Revilliod-Julliard Lectures.—Dr. Francis G. Crookshank, F.R.C.P., of London, will be the Revilliod-Julliard lecturer before the Medical Society of Geneva for this year. The title of the lectures is, "The Traditions of the British School of Medicine and Its Development." The Revilliod-Julliard lectures were founded four years ago for the purpose of perpetuating the names of Dr. Léon Revilliod and Dr. Gustave Julliard, formerly professors of clinical medicine and clinical surgery, respectively, at the Faculty of Medicine. The lecturers must be men of eminence of other countries, although well known men in the Swiss profession are not excluded. The lectures must be delivered in French and all branches of science directly pertaining to medicine or surgery are treated. This lectureship has been founded upon quite the same lines as those of the Royal College of Physicians or Royal College of Surgeons of London.

The Emperor Frederick Controversy Revived.—An interesting contribution to the history of the tragedy of the Emperor Frederick has recently appeared in the memoirs of Prof. Wilhelm von Waldeyer, the well-known anatomist. Apart from its general interest to the reading public, the book will doubtless be of some little interest to the medical world. The author was one of those consulted at the time when doubt still obtained as to whether the malady of the then Crown Prince Frederick was cancer or not. In his memoirs Prof. von Waldeyer goes minutely into the examination made by Sir Morell Mackenzie and repeats the statement which he declares was made at the time by Dr. Gerhardt, that the specimen which Sir Morell Mackenzie removed for histological examination was not from an affected part, with the result that Virchow, who made the microscopic examination, found no evidences of malignant change. Von Waldeyer gives a full account of the necropsy and the great formalities with which it was attended. He declares that the result of the autopsy settled once for all that there was an extensive malignant neoplastic formation in the throat, and therewith all legends to the contrary. Throughout the book the author supports the point of view taken by von Bergmann and Gerhardt and opposes that supported by Sir Morell Mackenzie, but the matter is treated apparently in an entirely scientific spirit and is devoid of the political prejudice that has hitherto disfigured every German treatise on the subject.

Tobacco and Infant Mortality.—Some interesting statistics, which have not been given to the medical press, have been tabulated by Grimpret

of Lille, on the mortality of infants born of mothers employed in tobacco factories. The first table is that of infants during the first year of life, breast fed, the mother remaining at home for the first fifteen days to two months and after her return to the factory after the lapse of this time, the infant being bottle-fed. Of these, the percentage of mortality was 9.67 per cent. Mortality of infants breast-fed by the mother at the factory, 11.11 per cent. Infants breast-fed for fifteen days to two months at home and then by the mother or bottle at the factory, 15.64 per cent. Infants breast-fed at home for the first fortnight to two months and this continued for fifteen days to six months after the mother's return to the factory and followed with the bottle, 24.61 per cent. Infants fed by bottle in their families or by servants, 35.65 per cent., and lastly, breast-fed infants whose mothers did not return to factory, 38.77 per cent. The largest mortality therefore is among infants whose mothers nurse them for a time at home and then return to the factory with them, where nursing is continued with either the breast or bottle, those brought up on the bottle at home by members of their family and those breast-fed at home, the mother not returning with them to work. A figure that may seem paradoxical is the percentage of deaths in infants breast-fed, the mother not returning to work. It is the highest of all, contrary to what should take place, especially if tobacco had any influence on the maternal milk. But it is clear from an examination of the statistics presented by Grimpret that tobacco does not appear to exercise the slightest influence on the maternal milk. The analyses made by Gérard likewise bear this statement out. Grimpret also shows that tobacco has no injurious action on the pregnancy, but it is evident that the mortality during the first year of life in infants born of women working in tobacco factories is fairly large and largely due to cerebral affections, especially in bottle-fed babies, but tobacco cannot be held responsible for this.

Progress of Medical Science.

Boston Medical and Surgical Journal.

March 3, 1921, cxxxiv, 9.

1. The Energy Requirements of Girls from 12 to 17 Years of Age. Francis G. Benedict and Mary F. Hendry.
2. Clinical Observation with Benedict's New Portable Respiration Apparatus. Paul Roth.
3. Sympathy in Medicine. J. M. Pottinger.
4. Cases in which Basal Metabolism Measurement Is Useful. Oliver H. Stansfield.

2. Clinical Observations with Benedict's New Portable Respiration Apparatus.—Paul Roth holds that this apparatus gives most satisfactory results in its use for the estimation of the basal metabolic rate, and of vital capacity. Its adaptability and reliability are demonstrated by a series of observations on a large number of unselected clinical cases of all types, as well as on both trained and untrained subjects. Comparisons with more elaborate methods emphasize its simplicity and practicability in clinical work.

New York Medical Journal.

March 2, 1921, cxlii, 9.

1. The Classical Endocrine Syndromes. Lewellys F. Barker.
2. The Relation of Endocrinology to Vegetative or Visceral Neurology. F. M. Pottinger.
3. An Anatomical Consideration of the Hypophysis Cerebri. Wayne J. Atwell.

4. Suggestions Regarding the Role of the Hypophysis in Graves's Disease and Myxedema. G. A. Friedman.
5. A Review of Endocrinology. Walter J. Timme.
6. The Diagnosis and Treatment of Hyperthyroidism. Emil Goetsch.
7. Hypothyroidism and Tabes Dorsalis. A Preliminary Statement. Smith Ely Jelliffe.
8. The Relationship of Psychopathology to the Endocrines. Gregory Strangell.
9. A Note on the Relation Between the Adrenals and the Thyroid. George W. Crile.
10. Does the Pituitary Secretion Influence the Development of the Prostate? Hans Lissner.
11. The Interstitial Gland: What It Is and Its Supposed Function. W. H. Morley.
12. Endocrine Gland Extracts. Their Manufacture and Use. Spencer G. Strauss.

1. The Classical Endocrine Syndromes.—Lewellys F. Barker discusses the thyroid syndromes, the parathyroid syndromes, the thymus gland syndromes, the hypophyseal syndromes, the pineal syndromes, the suprarenal syndromes, the gonadal syndromes, and the climacteric syndromes, all now fairly well established as of endocrine origin. The general practitioner who will familiarize himself with this small group of syndromes and will afterwards analyze the cases that present themselves to him for study from the viewpoint of these, will find it easier, later, to analyze the more complex cases in which more than one gland of internal secretion is markedly disturbed (multiglandular syndromes). For this reason the writer has not included in his discussion the Timme syndrome, the thyrotoxic hypophyseal syndromes, the thyrotoxic suprarenal syndromes, or the several forms of infantilism.

10. Does the Pituitary Secretion Influence the Development of the Prostate?—Hans Lissner presents the histories of five cases of preadolescent hypopituitary infantilism, two of the Fröhlich, and three of the Levi-Lorain types—all boys. Their ages are ten, fourteen, fifteen, and eighteen. Their corresponding mental ages are three, three, seven, nine and eight. Three boys showed complete absence of the prostate so far as could be determined by rectal examination. The other two revealed a very diminutive prostate. This would seem to be a new clinical observation. It would suggest that the normal development of the prostate is in part, at least, dependent on normal pituitary secretion.

Journal of the American Medical Association

March 5, 1921, lxxvi, 10.

1. Chronic Systemic Infections and Their Sources. Ernest E. Irons.
2. Test for Changes in the Protein Content of the Cerebrospinal Fluid Based on the Flocculation of Lipids. Hideo Noguchi.
3. The Necessity for Clear Thinking in Milk Modification. Lewis Webb Hill.
4. Acute Infection of the Thyroid Gland. Charles Reid Edwards.
5. Typhoid Spine. Barclay W. Moffat.
6. Studies of the Nasopharyngeal Secretions from Influenza Patients: Preliminary Report on Cultivation Experiments. Peter K. Olitsky and Frederick L. Gates.
7. Bence-Jones Proteinuria: A Report of Three Cases with Metabolic Studies. Waltham Walters.
8. Stereoscopic Roentgenography: The Visualization of Surfaces for the Better Localization of Underlying Foreign Bodies. H. D'Arcy Power.
9. A Colostomy Operation. Waters F. Burrows and Elliott C. Burrows.
10. Granuloma Inguinale. Meredith F. Campbell.
11. Dissociation of Microbic Species: A Preliminary Communication. Paul H. De Kruif.

3. The Necessity for Clear Thinking in Milk Modification.—Lewis Webb Hill considers it vital for every general practitioner to have a good working knowledge of infant feeding, embracing: (1) How to dilute or combine milk or cream in such a way as to secure any desired combination of quantities of the three food elements (fat, sugar, and protein), in the resulting mixture. (2) The pathogenesis and nature of the various digestive and nutritional disturbances of babies. (3) A knowledge of what combinations of the food elements are suitable for any particular baby, sick or well. The practitioner must have clearly fixed in his mind the elementary nature of milk; he must not look on milk as milk, but he must look on it as being made up of fat, sugar, protein, salts and water. He must realize that disturbances of digestion arise from sugar, from fat, or from protein or from improper combinations of these elements, and that, therefore, he must take into account the amounts of these that he is feed-

ing to any baby, and be able to vary each one of them at will in any mixture he offers. He must also have some numerical method of expressing these amounts. The three methods of milk modification now in general use are: (1) whole milk dilution; (2) top milk (cream) dilution, and (3) gravity cream and skimmed milk mixtures. It is not of great importance which of the modifications is used, provided the physician gives enough food in total quantity and the proper combination of the individual food elements to suit the digestion of the baby he is dealing with, and that he knows approximately the amount of each food element in the mixture, in order that he may vary these quantities at will, that he may be able to proceed in a rational manner, and that he may be able to express clearly to others, in the exact language of figures, what he has done. The modification of milk is the mechanical part of infant feeding. It is not the calculation that is difficult—any inexperienced medical student can quickly learn milk modification and calculation; the part of infant feeding that is difficult, that requires judgment and experience, that often eludes many, in spite of years of experience with many babies, is *knowing when to feed what*.

6. Studies of the Nasopharyngeal Secretions from Influenza Patients.—Oltitzky and Gates, in this preliminary report on cultivation experiments, record in brief detail these experiments and their results. From the filtered nasopharyngeal washings from early cases of uncomplicated epidemic influenza and from the lung tissues of experimental animals, they cultivated minute bodies of characteristic morphology which are strictly anaerobic, are filtrable, and withstand glycerolization for a period of months. The effects on the blood and in the lungs of rabbits and guinea-pigs injected with these bodies are similar to those produced by the filtered and unfiltered nasopharyngeal secretions from early cases of epidemic influenza.

8. Stereoscopic Roentgenography.—H. D'Arcy Power holds that most conditions requiring examination in this way can be included within the dimensions of a 3 by 4 plate, and two such plates taken under a tube, with a difference of 2½ inches from their centers, could be examined in an ordinary stereoscope. In most cases in which this is done, the area to be examined stereoscopically would be determined first by the fluoroscope, or a single exposure on a large plate. Besides giving a better basis of judgment for the position of foreign bodies, this procedure has a field in determining the direction of anal and other fistulas, and in the visualization of the eyelid for the better localization of small foreign bodies in the eye.

The Lancet.

February 12, 1921, cc, 7.

1. A Record of Seventy-six Cases of Uterine Fibroids and Chronic Metritis Treated by X-Rays. T. Watts Eden and F. Lionel Provis.
2. Operation for Removal of the Appendix in the Quiet Period. W. H. Battle.
3. Quinine Treatment of Malaria. Sir Patrick Hehir.
4. Squint, Malignancy, and Tubercle. W. C. Rivers.
5. The Incidence of Congenital Syphilis Among the Newly Born. S. M. Ross and A. F. Wright.
6. The Work of the Metropolitan Asylums Board for the Mentally Defective. The Very Rev. Canon Sprankling.

1. A Record of Seventy-six Cases of Uterine Fibroids and Chronic Metritis Treated by X-Rays.—Eden and Provis base this contribution on forty-six cases of uterine fibroid tumors and thirty cases of chronic metritis treated with x-rays during the years 1914-1920 inclusive. Three of the patients have died from independent causes since treatment, and the writers have been able to obtain reports as to the present condition of all but fourteen cases, at intervals varying from three months to six years after the treatment. Of the forty-six cases of fibroid tumor thirty were married, fifteen were single; of the thirty cases of chronic metritis twenty-five were married, five were single. Eight patients were between thirty-six and thirty-nine inclusive, the remainder from forty to fifty-six inclusive; the proportion of cases below forty was therefore small—about ten per cent. The points which bear upon the selection of cases for x-ray treatment are: (1) age of patient, (2) size of tumor (if a fibroid), (3) character of hemorrhage, (4) degree of

anemia, (5) presence of complications, such as inflammatory disease of the appendages, degeneration of a fibroid tumor, etc. The cases are epitomized, and the following conclusions drawn: 1. X-ray treatment should be regarded as the method of choice in women over thirty-eight for all uncomplicated cases of severe hemorrhage due to chronic metritis, or other conditions in which no neoplasm is present. These cases yield more readily to the treatment than do fibroid tumors. The presence of inflammatory disease of the tubes and ovaries is contraindicated. 2. Fibroids of the size not exceeding the height of the umbilicus may be treated with x-rays if the patient is over thirty-eight years old, if the hemorrhage is of the regular monthly type, and if there is no evidence of inflammatory disease of the tubes and ovaries, or of advanced degenerative changes in the tumor. If intercurrent conditions which tend to increase operative risks are present x-ray treatment should be regarded as the method of choice, in other cases the choice may usually be left to the patient.

2. Operation for the Removal of the Appendix in the Quiet Period.—W. H. Battle gives an analysis of the conditions found in the abdomen after one or more attacks of appendicitis in one thousand cases operated on by him or by a house surgeon under his supervision. At each operation the parts around were also examined, adhesions estimated and treated, and the pelvic organs examined for abnormality, displacement, or disease. The state of the appendix in the thousand cases of removal in the quiet period was: apparently normal, 7; hypertrophy, 1; obliterative inflammation, 16; catarrhal, 511; stricture, 317; after abscess, 145; tubercle, 2; carcinoma, 1. In the first four hundred cases there was one death caused by accidental infection of the peritoneum by the *Bacillus pyogenes aureus*. In the additional six hundred there was one death, the result of vomiting and giving way of sutures in a stout flabby woman of fifty-six. In this case there was a partial excision of the cecum. In only one of the series did a complete hernia develop. This occurred in a fat agricultural laborer who had much vomiting after operation. In his case the abdominal wall was successfully repaired. In two others there was a weakness of the scar, probably due to the yielding of sutures in the posterior sheath as a result of vomiting, but no bandage (or truss) is required. If the appendix has been cleanly removed at its junction with the cecum, and there is no other abnormal state of the abdominal organs which has been overlooked, the prognosis as to complete recovery is very good. The attacks of pain will cease and he may expect to resume work within a month. Where the proper precautions are observed at operation there is no likelihood of adhesions forming later, but the prognosis in those cases where adhesions had already formed as a result of previous attacks is less certain, but often these do not produce symptoms. The time lost from the working years of the individual cannot be easily calculated; several had become chronic invalids. The patient who has had an undoubted attack of appendicitis is acting wisely to get rid of the probable source of future trouble.

British Medical Journal.

February 12, 1921, I, 3137.

1. A Clinical Lecture on Muscle-Tonus, Tonic Rigidity, and Tetanus. Sir James Purves Stewart.
2. Diathermy in Diseases of the Throat and Nose. W. J. Harrison.
3. The Maternity Hospital: With Its Ante-Natal and Neonatal Departments. J. W. Brabant.
4. Treatment of Uterine Hemorrhage Not Associated with Pregnancy. James Phillips.
5. Some Deductions from the Statistics on the Prevention of Pulmonary Tuberculosis. D. H. C. Given.
6. The Relation of Temperature to the Onset of a Cardiac Irregularity. R. MacNair Wilson.
7. The Herpes-Varicella Infection. A. E. Carver.

2. Diathermy in Diseases of the Nose and Throat.—W. J. Harrison states the advantages of this method of treatment as follows: Shock is practically nil, even after extensive operations. Pain after the operation is less than after operation by knife or cautery. Temperature is only slightly if at all raised, rarely reaches 100 degrees, and drops within forty-eight hours. The dangers of metastases are much less than with cutting operations, blood vessels and lymphatics being sealed.

Risk of septic absorption is less than in any other form of operation. There is complete destruction of visible and palpable malignant disease, and probably many outlying cells are destroyed which could not otherwise be reached. Malignant cells are of lower vitality than those of healthy tissue. The operation is practically bloodless, is rapidly and easily performed, and can be easily repeated if necessary. Tumors that are otherwise inoperable can be attacked. Convalescence is rapid. In many cases which are hopeless, relief can be given to the patient. The disadvantages are as follows: Healthy and diseased tissues are destroyed, but in cutting operations this also takes place. Important vessels and nerves cannot be seen. There is danger of secondary hemorrhage when working near large blood vessels. There is a tendency to the formation of keloid when skin surfaces are involved.

4. The Treatment of Uterine Hemorrhage Not Associated with Pregnancy.—James Phillips thinks there can be little doubt that in all cases which come within this discussion, whether an obvious lesion of the uterine wall or of its lining membrane exists or not, the essential cause of the bleeding is an abnormality in the internal secretions. Some day one will learn how to regulate the functioning of these substances, but in the meantime, whenever the bleeding is so severe and so persistent as to make the patient's life a burden, the only certain means of curing her is to remove the uterus. Packing the vagina, curettage, ergot and similar drugs are most uncertain remedies and at best produce only temporary improvement. For beyond a doubt the patients who consult their doctors about bleeding of this sort as a rule never feel well; apart altogether from the hemorrhage there are symptoms, none of them perhaps very bad, but in the aggregate producing a sense of illness enough to make most women willing to risk operation in order to get rid of it, if they are not definitely discouraged by their medical attendant.

5. Some Deductions from the Statistics on the Prevention of Pulmonary Tuberculosis.—H. C. Given holds that the campaign against consumption must be directed against the air-borne diseases as a whole, and against the common cold in particular. The effect of other respiratory infections, including the common cold and zymotic diseases, in early life is to prepare the soil for the later invasions of the tubercle bacillus when otherwise resistance should be high. The remedy for all these diseases is a matter of improved housing and education in ventilation and general hygiene, yet at the same time much could be done meanwhile by the more thorough recognition and treatment of the common cold and its sequelae.

New Orleans Medical and Surgical Journal.

January, 1921, lxxiii, 7.

1. The Medical Treatment of Gall-Bladder Diseases versus Surgical. A. L. Levin.
2. Infantile Diarrhea. John Signorelli.
3. A Demonstration of the Technique Followed in the Determination of the Basal Metabolism Rate—Indirect Method Using the Benedict Portable Unit, Hamilton P. Jones.
4. Some Suggestions on the Use of Quinine in the Treatment of Malaria. O. W. Betha.
5. The Nut. T. J. Dimitry.

1. The Medical Treatment of Gall-Bladder Diseases versus Surgical.—A. L. Levin discusses the method of tapping the bile exit region in the duodenum, holding that it will solve the problem to a great extent. It is advisable in any case with a history of gall-bladder trouble, that a duodenal tap should be made from a diagnostic standpoint. If one wants to ascertain the presence of bacteria, besides the color and consistency of bile, he can follow the method outlined by Lyon. The necessary articles are sterilized, the nose is sprayed with Dobell's solution, the throat should be gargled with potassium permanganate (1 gr. to the oz.), the stomach is washed with antiseptics and then the duodenal intubation follows. The writer has modified the procedure and uses his own so-called driving-in and massage method. It is not necessary to give the patient a quantity of water to drink when the tube is introduced, for it is not the water the drives in the tube, but the muscular contractions of the stomach;

he therefore stimulates muscular contraction. Putting the patient first on his back and massaging the stomach region from the cardia towards the pylorus, the gall-bladder region is then massaged, the patient being instructed at the same time to take deep inspirations. The patient is then turned on the right side, the tube hangs over the edge of the bed, and the contents are allowed to escape. The introduction of water by the syringe retards the flow of duodenal contents and bile because it drives the current backwards. It is not always necessary to use magnesium sulphate; sodium sulphate will accomplish the same purpose. If the flow does not start shortly, the method of massage is repeated, the patient being given half a glass of hot water to drink, and instructed to take deep inspirations. The tube is introduced through the nose. The writer's tube has a velvet eye, the openings are oval and larger than in the Jutte tube, there is no metal bucket to cause irritation and the quality of the rubber is such that there is no need for a stylet. Patients who do not improve in spite of persistent treatment should be referred to the surgeon for a more radical treatment. This in itself is a point of diagnostic importance.

Long Island Medical Journal.

January, 1921, xv, 1.

1. Climate in Relation to the Treatment of Tuberculosis. Edwin P. Kolb.
2. An Address on Phthisis Pulmonalis. Albert C. Gevser.
3. A Further Consideration of Intestinal Fistula Following Appendicitis. James C. Kennedy.
3. A Further Consideration of Intestinal Fistula Following Appendicitis.—James C. Kennedy, after investigating the statistical reports of several large hospitals in Greater New York, found the mortality in appendicitis to be about sixteen per cent. The cases in which mortality was found were principally those of general peritonitis, suppurative peritonitis, and case moribund on admission. From his own late experience in hospital wards, and from inquiries made among surgeons, he finds that conditions have not materially changed since this investigation, made some time ago. In this connection the writer condemns the prolonged use of the icebag, and directs attention to intestinal fistula as one of dangerous sequelae of appendicitis. He believes that the cause most potent in the production of this particular class of fistula is neglect of the rule: "Operate as soon after the diagnosis of acute infective appendicitis is made, if the disease is progressive." In his experience early operation is not only wise conservatism and life saving, but the surest means of preventing intestinal fistula following appendicitis. The points especially emphasized, in addition to early diagnosis and early operation if the disease is progressive, are the following: In so-called fulminating and late cases study well the pathology of the caecum and the adjacent tissues about the appendical base. If bacteria have necrosed the tissues about the appendical base excise the stump and treat the rent as in gastric ulcer, placing a Mikulicz drain over the Lembert sutures, provided the patient's condition will permit the work. In obstinate fecal fistula following appendicitis, practically when producing an artificial anus, not only rendering patients helpless, but endangering their lives, resect the cecum and anastomose the small intestine laterally with the cecum. As a large proportion of fecal fistulae following appendicitis close spontaneously, unless of the dangerous variety requiring immediate attention, one should wait from three to five months for this spontaneous cure.

Morgan's Bacillus.—Besson and de Levergne have found a new bacillus in the summer diarrhoea of children which seems to be able to set up a dysenteric syndrome. It may be distinguished from the paratyphus B. in that it does not ferment mannite, but does form indol in abundance. The endotoxin is able to set up in the rabbit hemorrhagic lesions in the small intestine which appear to be identical with the alterations of Peyer's patches in human typhoid. Whatever its relations with paratyphoid bacilli the new organism is quite separate from the dysenteric microorganisms.—*La Presse Médicale.*

Book Reviews.

THE ENDOCRINES. By SAMUEL WYLLIS BANDLER, A.B., M.D., F.A.C.S., Professor of Gynecology in the New York Post-Graduate Medical School and Hospital, Philadelphia and London: W. B. Saunders Company, 1920.

THE author of this interesting book has attempted the difficult and somewhat dangerous task of making a permanent record of the knowledge thus far acquired in a rapidly progressing science. The accomplishment of such a feat requires a prescience on the part of the writer which few possess. Prophecy is risky and we dare not say whether the book before us has so far anticipated the future of endocrinology as to hold its place for a time as a reliable expositor of this new science, or whether it will, like so many articles on the subject in the periodical literature, soon be out of date. We are inclined to believe it will survive, but whether it does or not, it is a book of great present value, entertainingly written, easy to read, and full of the latest knowledge which the busy workers in endocrinology have brought to light.

The first two chapters deal with animal instincts and with the action of heredity and environment upon the character of the child. Then follows a chapter entitled, "An Introduction to the Story of the Endocrines," and this is succeeded by chapters describing in more or less detail the physiological action of the various internal secretions, the disturbances caused by changes in them, the influence of these secretions upon conduct and upon health, and the therapeutic uses of the endocrines. Not the least interesting and instructive section of the book is that on clinics and cases in the two closing chapters.

The author of this work is a gynecologist and in his application of the endocrine theories he lays particular stress upon the influence of the secretions upon the reproductive functions of woman, but their general relations are not neglected, and we know of no book in which the inquirer after endocrine knowledge can find a more satisfactory answer to his quest.

OCCUPATIONAL AFFECTIONS OF THE SKIN. Their Prevention and Treatment with an Account of the Trade Processes and Agents which Give Rise to Them. By R. PROSSER WHITE, M.D. Ed., M.R.C.S. Lond., Life Vice-President, Dermatologist, Senior Physician and Ethnethic Officer, Royal Albert Edward Infirmary, Wigan; Vice-President Association Factory Surgeons; Life Fellow London Dermatologists' Society; Member Manchester Medical and Dermatologists' Societies; Hon. Life Member St. John Ambulance Association; Associate Editor, *Journal of Industrial Hygiene*; S.M.O. and Cadet Colonel Church Lads' Brigade. Second Edition, with twenty-four plates (comprising twenty-eight figures). New York: Paul B. Hoeber.

ONLY those affections of the skin are considered that depend for their origin upon physical trauma. Certain general topics such as nomenclature, prevalence, resistance of the skin, pathology, predisposing causes, idiosyncrasy, and internal causes of toxicoderma are presented in the first chapter under the general heading of "A Circumspection." In the second chapter, called "A Conspectus," items dealing more directly with the type and character of skin eruptions are discussed, leading to a grouping based on "Agency" or occupation. As in the grouping of all medical entities, so in the grouping of dermatopathies, there are to be expected merits and demerits. The grouping on the score of agency has the merit of being inclusive, but has the demerit of permitting frequent overlapping. Doctor White describes many of the known skin eruptions, indicating the particular industry in which they are likely to be found injurious. These are grouped on the basis of agency, nine groupings being presented, including physical agents, acids, alkalies and some metal salts; the dust eruptions; industries; occupations; trades; synthetic dyes and dyeing; plant poisons; and vital agencies. Each group is considered in a separate chapter in which there is discussed for each condition under the group what phase of industry is conducive to the production of the dermatitis, factors that must be recognized to preclude its occurrence, and

a description of the pathological characteristics of the dermatitis. Occasional general indications for treatment are outlined, though the therapeutic considerations are extremely brief, and for many conditions not at all discussed. Numerous selected references are supplied, and such figures as appear are clear and entirely illustrative of the condition represented.

INNERE SEKRETION UND DEMENTIA PRÆCOX. Eine Studie von OSCAR LESSING, Dr. Med. et. phil., Arzt in Berlin. Berlin: S. Karger, 1921.

IN this brief but thoroughly conscientious work, the author admirably reviews and correlates facts of endocrinological significance with the psychic, physical, and biochemical characteristics of dementia præcox. The significance of the temporal relation between the onset of the disease and the endocrine revolution of puberty; the Abderhalden reactions in dementia præcox for endocrine proteins; the interpretations of the changes in the skin and pupil of dementia præcox on an endocrine basis; the reactions of these patients to adrenalin, atropine, pilocarpine, and the therapeutic results obtained in these cases by the use of endocrine extracts are reviewed in a most interesting fashion.

Although the author does not report any original work, the volume will prove of interest to the internist as well as to the psychiatrist, inasmuch as it goes far in establishing the fact that among the psychopathies, dementia præcox is not a disease of the brain alone, but a generalized constitutional abnormality due to endocrine imbalance which always has a profound and far reaching significance.

A LABORATORY MANUAL OF ORGANIC CHEMISTRY FOR MEDICAL STUDENTS. By MATTHEW STEEL, Ph.D., Professor of Organic Chemistry and Biological Chemistry, the Long Island College Hospital, Brooklyn, N. Y. Second edition. New York: John Wiley & Sons, Inc., 1920.

THIS manual began life as a laboratory guide and has had a successful existence. The experiments presented are comparatively few, but are carefully chosen so as to illustrate principles. As a rule definite quantities of chemicals are specified in the directions, an excellent practice. In this new edition there is added a chapter on the Colloidal State that should prove very valuable. Colloids play such an important part in medical chemistry that a working knowledge of them is essential to the physician and the subject is rarely presented adequately. The book is printed with the alternate pages blank so that the student may conveniently elaborate the notes and fill in the equations. It is an attractive book.

GEBURTSHILFELICHES VADEMECUM. Ein kurzes Lehrbuch der Geburtshilfe für Studierende und Aerzte. Von Prof. Dr. A. DÜRRSEN in Berlin. Dreizehnte bis fünfzehnte Auflage. Berlin: S. Karger, 1921.

THE first edition of this little manual appeared in 1890 and the eleventh-twelfth in 1919. In the brief preface to the present edition the author states that it in part memorializes the twenty-fifth anniversary of the publication of his original operation of vaginal cesarean section. The description of this procedure is rewritten with new illustrations. It is mentioned no less than ten times in the course of the book, in its various indications.

THERAPEUTISCHES VADEMECUM FÜR DIE KINDERPRAXIS. Von Dr. HANS KLEINSCHMIDT, Professor der Kinderheilkunde an der Universität, Hamburg. Zweite und dritte verbesserte Auflage. Berlin: S. Karger, 1920.

THIS little manual appeared originally in 1918 and the edition was exhausted within the first year. There was no occasion, therefore, for notable alterations, but the author has given the book the benefit of the criticisms as well as added material which appeared to him desirable. The earlier chapters are devoted to nutrition and its disorders, after which the various local affections are serially discussed. Infectious diseases follow metabolic and hemic affections and are followed by affections of the nervous system, this series making up about one-third of the book. There is a supplement on the preparation of food, the book comprising diseases of the newborn and nursing.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON MEDICINE.

Stated Meeting, Held November 16, 1920.

DR. CARY EGGLESTON IN THE CHAIR.

The program of the meeting was contributed by the Staff of the Presbyterian Hospital.

Chemistry and Clinical Significance of Urobilin.—Dr. L. BAUMAN made this presentation, which he summarized by stating that considerable evidence was at hand to show that urobilin was derived from bilirubin as a result of the action of the intestinal bacteria. The results of about 100 determinations of the urine and stool were submitted. It was found that urobilin was increased in pernicious anemia and in disease of the liver. Dr. Bauman showed that urobilin estimations were of value as an aid in the differential diagnosis of primary from secondary anemia.

Dr. JOSEPH C. ROPER said one question in connection with the urobilinogen and urobilin was very fascinating and that was in what form these substances occurred in the blood. He did not think anyone had reported finding them in the blood except in pernicious anemia and in a few cases of pneumonia, reported by Dr. Conner and Dr. Roper, and in those cases at autopsy a focal necrosis was found in the liver. That brought up the question as to whether the liver lesion had anything to do with the change in reabsorbed bilirubin to urobilin. If these substances got into the blood it was in a changed form, and some one was going to find out in just what form it occurred in the blood before it went to the kidney. The kidney in some measure controlled the passing of bilirubin. Up to a certain concentration of bilirubin in the blood, only urobilin appeared in the urine; above that concentration bilirubin was excreted. Possibly in some similar way the kidney had some part in the change of the colorless substance that came over in the blood to the kidney, and was converted into urobilin.

Dr. A. L. GARBAT asked Dr. Bauman if he had found difficulty in the direct examination of the bile. Would there be any advantage in examining the bile directly, especially in view of the recent work whereby it is possible to obtain larger amounts of bile by the use of magnesium sulphate? At the Lenox Hill Hospital they had treated three or four cases of pernicious anemia by cholesterol injections, but no definite improvement resulted.

Dr. BAUMAN, in closing the discussion, said there was one interesting point in connection with what Dr. Roper had said, namely, that it was rather remarkable that we had been unable to determine the presence of these substances in the blood, and after adding these substances to the blood we could not extract them. To explain this it had been assumed that they had entered into combinations with the proteins and other constituents of the blood. Bilirubin was found in the serum before it occurred in the urine, and some one recently had shown that it only appeared in the urine when it was dialyzable. It seemed that the urobilin entered into some combination with the proteins of the blood. The trouble with the examination of the bile was that we obtained only one specimen and we were interested in the twenty-four hour excretion. Another interesting point was that an increase in urobilin was found in the stools when there was not a corresponding increase in the bile.

The Relationship Between Renal Glycosuria and Diabetes.—Dr. H. RAWLE GEYELIN made this contribution, which consisted of a brief review of five cases of glycosuria, three of which showed some evidence of what was known as renal glycosuria, while the other two were pretty frank cases of this condition. The criteria quite generally accepted today of the condition known as renal glycosuria were: (1) Glycosuria without hyperglycemia; (2) glycosuria excretion almost or entirely independent of carbohydrate intake, and (3) glycosuria without symptoms of diabetes. To these criteria some observers had added a fourth, namely, absence of the development of subsequent diabetes. It was important to consider particularly the first two of these criteria,

and it seemed to him that the details and significance of these criteria could best be brought out by the details in connection with these cases. The first three cases fulfilled most of the criteria of renal glycosuria and the fourth and fifth cases fulfilled all of these criteria. The first case was that of a girl admitted to the hospital two years ago with the history that for 27 months she had had severe abdominal pain localized in the epigastrium, considerable nausea, and for the last six months before admission to the hospital attacks of vomiting. She was suspected of having gastric ulcer. It was learned that she had 0.2 per cent. sugar in the urine without any symptoms of diabetes for five weeks before coming to the hospital. Gastric ulcer was ruled out, though the gastric symptoms were not accounted for. During the past six months she had lost five pounds in weight. She had now been under observation for two years, returning to the hospital at frequent intervals. On one occasion the blood sugar rose to 122, but it had averaged 85, and sugar was not present in the urine all the time. Again sugar would be present in the urine every day for one or two weeks irrespective of diet, which apparently had no influence on the glycosuria. She was discharged from the hospital in a fair state of health; although she complained of occasional attacks of abdominal pain, they probably did not amount to much, as she was able to work eight hours a day and held her weight. The second case was rather unusual in that sugar (1.1 per cent.) had been found in the urine nine years ago. This patient was admitted to the hospital in 1917 with the diagnosis of old poliomyelitis, which occurred at the age of two years. Glycosuria had been found in the mother six months before the birth of this child. That condition still continued, there being from 1 to 5 per cent. sugar in the urine all the time. The boy developed glycosuria when six years of age, with some symptoms of diabetes, polyuria, and loss of weight (six pounds in two weeks). Though put on an antidiabetic diet, he did not during his three weeks' stay in the hospital become sugar free at any time. He had been coming back to the hospital for a number of small orthopedic operations since that time, and sometimes there was sugar in the urine and sometimes not. The blood sugar was estimated a number of times, but was never over 120, even following the ingestion of glucose. On a diet containing 350 grams of carbohydrates a day, which was all his stomach could stand, only a small trace of sugar was found in the urine, 1.1 per cent. He was in good health at the present time except for the deformities incident to his poliomyelitis. The third patient developed symptoms of diabetes 18 months ago, as evidenced by loss of weight, increased thirst, not marked, and a considerable itching of the skin, though she did not void large quantities of urine. The urine had been examined three months before because of a sinus operation and showed 1 per cent. sugar with considerable acetone and diacetic acid. At the time she came under observation the blood sugar was 108 grams and large amounts of acetone were present in the urine. In a carbohydrate-free diet with fairly large amounts of fat and protein, the glycosuria continued for three months. She weighed all her food carefully for twelve months and then went on a high carbohydrate diet. For as many as eight days she would show no sugar in the urine, and even when taking from 100 to 200 grams of glucose the blood sugar was not more than 108 grams, even when the estimation was made one-half hour after the glucose was given. In both the fourth and fifth cases the onset was without symptoms of any kind, the sugar being discovered accidentally. One of these patients came to the hospital for a mild synovitis and had lost no weight except when an attempt was made to clear up the sugar. This patient showed a constantly low blood sugar, not above 130 after the ingestion of 100 grams of glucose by mouth. The urine had been tested for the past six months and sometimes showed a faint trace of sugar and at other times as much as 1.9 per cent. This patient ate practically what she pleased and did not weigh her food. The last test for blood sugar showed 160 grams one hour after the last meal. Whether that meant that this patient was developing a true diabetes he did not know. The last patient had been under observation three years, and in his case the ingestion of 200 grams of glucose did

not increase the blood sugar. As to the distinction between these two groups, there were mild symptoms of diabetes in the first three, together with an absence of sugar in the urine for perhaps one-half the time they had been under observation. In the second group the urine was at no time free from sugar and they had no symptoms of diabetes. If we recalled our definition and criteria for renal glycosuria, namely, that the glycosuria should be without hyperglycemia, that it should be independent of carbohydrate intake, and that it should be without symptoms of diabetes, and if, as some observers insisted, the glycosuria must be fairly constant and persistent to establish the diagnosis of renal glycosuria, then the first three cases might possibly not be defined as true renal glycosuria in so far as the first criterion was concerned. As to the second criterion, that the sugar must be independent of the carbohydrate intake, that was true of all the cases. The third criterion, the absence of diabetic symptoms, was not fulfilled by the first three cases. In the second and third cases there were mild symptoms of diabetes.

Dr. NELLIS B. FOSTER said that these cases of Dr. Geyelin were of special interest to any of us who were interested in diabetes and generally interesting to all of us. It was not many years ago that glycosurias were all regarded as one complex; now there was a tendency to take out of the chaotic condition one entity after another and to define its limitations. Renal glycosuria was one of these syndromes. Acromegaly was the first to be taken out of the chaos. Dr. Geyelin had given the criteria upon which the diagnosis of renal glycosuria should be made, and there was no discussion upon that point, as there was a general consensus of opinion as to those criteria. The question was what was the change in metabolism that led to glycosuria. One usually explained it as dependent upon the amount of blood sugar. We knew that these cases of renal glycosuria could not be explained on that ground because the blood sugar was normal, and that brought up the question of the state of the sugar in the blood. Was it there simply in solution, or was there some colloidal state, or was it in combination? There were a number of these problems which would probably be solved in our time. Dr. Geyelin's cases were rather unusual in the features they showed clinically, and he was perhaps wise in not expressing a personal opinion as to whether they were all cases of renal glycosuria. In the second case the mother was diabetic and the child also had symptoms suggestive of diabetes. He thought Dr. Geyelin felt that it was questionable whether or not that case represented one of true diabetes. Presumably he was watching that case and only time would reveal its true nature. It was formerly thought that renal glycosuria was a relatively rare disease, but now the number of cases was increasing constantly, and while it was not as common as true diabetes it was not a rare disease. It was most important when glycosuria was discovered to make a differentiation between renal glycosuria and true diabetes, not only because of the prognosis, but because of the burden put on the individual with true diabetes who was forced to live a life of almost intolerable privation compared to the patient with renal glycosuria, in whom deprivation need not necessarily be arduous, and in many cases need not be of any significance whatever.

Dr. A. I. RINGER said that in any discussion of renal glycosuria renal permeability must be taken into consideration. All cases of renal glycosuria were the result of lowered permeability of the kidney for sugar. In the normal kidney with 120 milligrams of sugar in the blood none passed into the urine. In any study of a large number of patients some would be found who had glycosuria with a normal blood sugar. On the other hand he had come across cases showing no glycosuria with a blood sugar of 140, 180, and in one case even 240. At the Montefiore Home, Dr. Bauman and he had studied carbohydrate tolerance in normal individuals and it was surprising how large a number of normal individuals had a blood sugar content of 150 or 160 milligrams per 100 c.c. after sugar ingestion, without any demonstrable trace of sugar in the urine. The whole problem was not so simple as it might seem, and the factor of kidney tolerance or the sugar threshold must be considered. He could readily conceive of

a case of true diabetes with lowered kidney threshold for sugar with glycosuria and low blood sugar. The determining factor, therefore, should not be the blood sugar alone.

Dr. JACOB DINER said Dr. Foster had mentioned a very important feature which deserved emphasis. The patient as well as the disease was to be considered. It was (almost) a verdict of incurability to tell a patient he was suffering from diabetes. It was not only the privation in reference to diet that made the unfavorable impression on the patient, but especially the feeling that he was suffering from an incurable condition, so it was very desirable that we should be able to make a differential diagnosis and determine whether we were dealing with a case of true diabetes or one of renal glycosuria. Sugar in the urine was (perhaps) not as important as the other criteria in differentiating these conditions.

Dr. A. A. EPSTEIN said that he wished he could feel as confident as did Dr. Geyelin and Dr. Foster of the value of the criteria established for differentiating renal glycosuria from true diabetes. It seemed as though an effort was being made to fit cases to a prescribed standard and call them by the name of a condition which perhaps did not exist. He would consider the first three of the five cases presented by Dr. Geyelin as instances of mild diabetes. Dr. Geyelin's own supplementary remarks seemed to concede this point. He (Dr. Geyelin) further admitted that the fourth case (i. e. the first case in the second group) was possibly a case of true diabetes, so that, of the five cases presented, only one appeared to answer the conditions put down for renal diabetes. It seemed that the only basic point of difference between renal and true diabetes was that of a normal or subnormal percentile blood sugar content. This was not a sufficient criterion. As had been shown by Dr. Epstein and confirmed by Woodjatt, the blood volume in diabetics varied sometimes from hour to hour and day to day, and any determination of the blood sugar content was not a true measure of the amount of sugar circulating in the blood. Hyperglycemia as defined by Epstein and Baehr (definition apparently accepted by Joslin) was an increase in the total amount of sugar in the blood in circulation. Therefore, a simple percentile estimation did not take into consideration whether the blood volume was increased or not, and hence, whether the blood was concentrated or diluted; it thus failed to show whether or not a hyperglycemia was present. As for the other criteria, chief of which was the assertion that carbohydrate intake did not influence the sugar excretion, it might be said that there were mild cases of diabetes that behaved in the same way. Dr. Epstein cited a case of a pregnant woman who was a true diabetic and who in the later stages of the pregnancy showed no hyperglycemia. This change in the percentile sugar content was found to be due to an increase in the blood volume, which so altered the sugar concentration of the blood as to mask the hyperglycemia. Had the blood volume been disregarded in this case it might have been classed as a case of renal glycosuria.

Dr. EUGENE F. DuBois asked Dr. Geyelin if he had made any determinations of the respiratory quotient and if he had found whether the patients were drawing from their own carbohydrates a large percentage of their calories. In glycosuria a patient might derive 80 to 90 per cent. of his calories from his own carbohydrates.

Dr. GEYELIN said he had not observed any case showing a picture such as these patients presented for a longer period than Case II, which was observed for nine years. The remaining cases reported this evening and 18 others had been observed for shorter periods, but they had shown no symptoms that led him to believe they were becoming cases of true diabetes. The case with the recent high blood sugar was the only one that might be developing a true diabetes. In reply to Dr. DuBois's question as to whether he had determined the respiratory quotient, and whether the patients were drawing from their own carbohydrates a large percentage of their calories, such determination was made in Cases I and IV, and the respiratory quotients were found to be 82 and 84 respectively, showing that the patients still had the ability to oxidize carbohydrate. In reply to Dr. Epstein, if one took cases of true dia-

betes as a standard and compared these cases with them, in practically 90 per cent. of the criteria these cases did not fit in with the picture of true diabetes. He could not see how by any stretch of the imagination one could class these cases as cases of true diabetes. One had to take into consideration not only the laboratory findings but the clinical course and the symptoms. As Dr. Foster had said, we did not want to bind ourselves down to a hidebound definition. It might be that these cases would eventually develop into true diabetes.

Observations on Streptolysin.—Dr. FRANKLIN A. STEVENS presented this contribution. He said that the object in studying hemolysin production was to gain some definite knowledge concerning the much mooted question of the relation of streptolysin to the virulence of streptococci. Since the original observations of Marmorek and Schottmüller, various workers had reached contradictory opinions concerning this relationship. Some had maintained that there was no relationship and others held that the more virulent streptococci produced greater hemolysis. There were two methods by which observations might be carried out—by plate cultures and by cultures in liquid media. Plates, necessarily, on account of the number of factors which entered into their composition, gave very indefinite results. The only method by which we could definitely determine the maximum concentration of lytic substances was by the study of liquid broth cultures. It was found that the maximum concentration might be reached at different times during the growth of hemolytic streptococci. Determinations made at any set time or an average of the determinations made during the growth were unreliable. The variations which occurred might be due to inherent properties of the streptococci themselves, to environment in which they were grown, or to passing changes which had been induced by animal passages. The inherent properties might be shown on plates, according to the original classification of Schottmüller. The second type of variation, due to the presence of various substances in the media, might be well demonstrated by the action of fermentable carbohydrates, which presumably lessened the lysis production by reason of their protein sparing action. The acid produced also lessened the action of the lysis on red cells. Sera from different animals also caused variations, but these might be obviated by increasing the amount of serum in the media or by adding large amounts of peptone. Variations in the time of production might be caused by increasing the virulence of streptococci by animal passage. If mouse virulent strains were compared with avirulent strains in horse serum media, the avirulent strain grew more rapidly and the maximum streptolysin concentration was reached at an earlier time during the growth of the cultures. The concentrations reached by both strains were constant. The variations were probably due to the variations in the protein content of the media and to the avidity with which the protein was attacked.

Dr. LIBMAN said that he was very glad that Dr. Stevens had taken up the subject with accurate methods. It was one in which he had been interested for many years, since the question of hemolysis was important practically in clinical and pathological work. It was important to remember that the clear-area around the colonies did not always mean hemolysis. At times it was probably really a hemoglobinopoeia. Dr. Libman said that many years ago he had described a concentric clearing around colonies of pneumococci and streptococci. He was in the habit of calling the appearance in the plate "clearing," and not hemolysis. Dr. Stevens had drawn attention to the fact that had been commented upon by a number of observers that an organism which produced clearing on a medium might fail to produce clearing if a fermented carbohydrate was present. One reason for this was that when bacteria were grown first on carbohydrate medium, they used up the carbohydrate first produced and lost properties which they ordinarily possessed. Bacteria grown on sugar medium might lose the ability to produce pigment, odor, or proteolysis. Color production might also be interfered with, as shown by the fact that the pyocyanous bacillus, when grown on a medium containing ascitic fluid and two per cent. glucose, gave a white instead of a green growth. Apart

from this interference with the usual properties of the streptococcus, the clear area might be obscured by the presence of precipitation. Dr. Libman said it was important to know that an anhemolytic streptococcus could produce clearing in blood plates made from the blood of the patient from whom the organism had been recovered, but that one could prove that the organism was not a hemolytic streptococcus because the same organism would not produce clearing in the blood of other human beings or of animals. As a rule there was no difficulty in regard to this point, because a *Streptococcus hemolyticus* usually caused clearing as soon as the organism began to grow, whereas an anhemolytic streptococcus, that had temporarily acquired this power, usually did not produce clearing within the first twenty-four hours of the growth of the organism. It had been found in 1907 by Drs. Buerger and Ryttenberg that pneumococci could, in the human body, lose some of the characteristics that distinguished them from streptococci. Later studies had shown that hemolytic streptococci could, under certain conditions, lose the power of producing clear areas on blood plates.

Dr. STEVENS, in closing the discussion, said there were several points which he did not bring out in the original paper concerning the relationship of hemolysin to the presence of sugar in the media. Dr. Libman had just mentioned some of these. The presence of fermentable sugar in plates acted largely through the presence of the acid produced in the destruction and utilization of the carbohydrates. It inhibited the cocci and caused the rapid disintegration of the hemolysin. In addition there was a marked discoloration of the plate due to the action of the acid on the hemoglobin. It was, however, questionable whether there was any action similar to the action of living pneumococci on red cells previously described by Dr. Cole. In determining the classes of streptococci depending on the active production of hemolysin, the most reliable test was the test tube method, which was recommended by the army during the war.

The Interrelations of Precipitins, Precipitinogen, and Symptoms in Serum Disease.—Dr. GEORGE M. MACKENZIE made this contribution, based on studies carried out in collaboration with Dr. Warfield T. Longcope and Dr. Leake. He stated that two years ago one of the authors and Rackmann reported observations on the precipitin, anaphylactic antibody, and cutaneous hypersensitivity in individuals to whom serum had been administered therapeutically. The present study was undertaken to determine whether or not the disappearance of horse serum from the circulation could be brought into relation with the precipitin formation or the symptoms. By the technique described in detail in the paper, serum disease was studied in 21 patients to whom anti-pneumococcus or anti-meningococcus serum was administered either intravenously or intraspinally in amounts varying from 34 c.c. to 630 c.c. Because of complicating factors two of these patients were excluded from the analysis. Of the 19 patients remaining, varying in age from 13 to 56 years, 14 were males and 7 females. Eighteen were patients with lobar pneumonia Type 1; one was a patient with meningococcus meningitis. The results of the analysis of this series of patients showed that from the point of view of circulating precipitin, persistence of precipitinogen, and severity of symptoms they could be divided into three groups: (1) Eleven of them were distinctly of one type. These were the good precipitin formers who had severe serum disease and got rid of precipitinogen soon after the symptoms had subsided. (2) A group of four patients contrasting sharply with those of the first group. They were poor precipitin formers, had little or no serum disease, and retained the precipitinogen in the circulation for many weeks, and perhaps months. (3) Of the remaining four patients, three presented more or less distinctly intermediate forms, and the case of a single patient in whom the results seemed at variance with the observations on the other eighteen might perhaps be explained by a technical error. After a detailed analysis of these three groups of patients charts were exhibited showing the precipitin and precipitinogen curves, and attention was called to the wide variations in the reactions of individuals to the administration of foreign proteins.

Dr. HANS ZINSSER said that the lateness of the hour

would make it quite impossible for him to discuss Dr. MacKenzie's paper with the care that it deserved. The work had a theoretical importance which was considerable, owing to its apparently successful attempt to establish a direct relationship between the appearance of antibodies in the blood of horse-serum injected people, and the development and disappearance of symptoms of serum sickness. The question was involved with the important problem as to whether serum sickness could justly be included with true anaphylactic phenomena. Dr. Zinsser said that it was not necessary to go into the original theory of von Pirquet, as he assumed that everyone present was familiar with it, but that Dr. MacKenzie's experiments seemed to him to furnish very important support of this theory, and tended to confirm the anaphylactic nature of serum disease. In a general way Dr. MacKenzie's observations, he said, corresponded with his own observations in monkeys in which a similar parallelism between antibodies and the appearance of anaphylactic symptoms could be traced. It was quite impossible, however, for anyone to draw analogy between conditions in monkeys and those in man, since it was apparently easy to show antibodies in man after serum injections, whereas, in monkeys, not only were no antibodies formed in some cases, but, as he was able to show by the most delicate anaphylactic method (that was the fallopian tube method of Dale) there was practically no reaction in one monkey tested three weeks after a single injection of horse serum. The presence of antigen and antibodies simultaneously in the blood of Dr. MacKenzie's cases was in keeping with many observations made in animals, and he, personally, as he had expressed in a number of papers previously, believed that one of the fundamental principles of the mechanism in the circulation was the prevention of rapid union between the antigen and antibody in the blood by influences that he believed analogous to the action of protective colloids. It was this mechanism that Dr. Zinsser thought was a sort of emergency safety device which prevented anaphylactic injury by the sudden union of the two substances when simultaneously in the circulation, and which was responsible for the fact that it was unsatisfactory to attempt to prevent anaphylactic shock in animals by injections of anti-serum specific for the antigen. A very interesting phenomenon, he thought, was the speeding up of precipitin formation in the previously injected animals on reinjection, an observation which was entirely analogous to phenomena noticed in many animals when antigen was reinjected after previous immunization. An increased reaction capacity of the cells seemed always to follow a previous immunization with any particular antigen. Dr. Zinsser could find no explanation for one peculiarity in Dr. MacKenzie's curve, namely, the disappearance, at first, of antigen, with later its reappearance in relatively higher concentrations. The only possible explanation he could see for that was that after union there was a certain amount of dissociation under the circumstances of the experiment. Such dissociation of antigen-antibody complexes in the body was not unheard of, but in this particular combination he had never seen it. It must not be forgotten that measurements such as those of Dr. MacKenzie (and, in fact, all antigen-antibody measurements) must necessarily be quite gross, and lacking quantitative delicacy, since there was unquestionably a certain amount of union of antigen and antibody, both *in vitro* and *in vivo*, which took place without visible precipitation. This, naturally, would make it impossible to measure the quantitatively slighter reactions, except perhaps by complement fixation. In reference to the skin reactions which played a part in the testing of sensitiveness of human beings to various proteins, Dr. Zinsser thought that this phase needed a considerable amount of further study, since there were unquestionably two types of such reaction, one, the immediate reaction which occurred following intracutaneous injections, about the specificity of which he felt much uncertainty, and the other the reactions which occurred later on subcutaneous inoculation, which could be regarded as analogous to the so-called Arthus phenomenon, and this latter could be regarded as strikingly specific and of a true anaphylactic nature. There were certain other phenomena in connection with serum

sickness in man, and, in general, reaction to injection which could not be excluded from truly anaphylactic phenomena, the one which occurred to Dr. Zinsser most definitely at that time being one which was called to his attention by Dr. Teague, namely, the reaction which he and everyone else who had ever treated rabies had seen, following repeated injection of rabbit cord into people who had been bitten by rabies-suspected dogs.

Dr. REUBEN OTTENBERG said that on looking over Dr. MacKenzie's charts, it was interesting to note that in two of them the precipitinogen, namely, horse serum, was considerably smaller in amount in the patient's serum on the fifth day than on the tenth, and in one of them examined one day after the injection there was hardly any at all. This raised the interesting question of where the horse serum was during these days before it reappeared in the circulation. The failure to detect it on this case could not be attributed to some sort of balance between antigen and antibody in the patient's blood serum, because the antibody had not yet appeared. A second interesting point was the analogy between the phenomena observed by Dr. MacKenzie of the persistence of precipitinogen in the serum in those cases which formed no antibody, and the persistence of toxins in the circulating blood of such animals as were not susceptible to the toxins and formed no antitoxin for them. For example, it was well established that tetanus antitoxin circulated for an almost indefinite time in the circulation of amphibia which were not susceptible to tetanus and did not form antitoxin.

Stated Meeting, Held December 21, 1920.

DR. CARY EGGLESTON IN THE CHAIR.

This program was presented by the Cardiac Clinic of Bellevue Hospital.

The Roentgen Examination of the Heart with Special Reference to Habitus.—Drs. I. SETH HIRSCH and L. L. SHAPIRO made this contribution, in which they stated that in the Roentgen study of the heart in the light of habitus, the cardiac shadow must be studied in relation to the pulmonary fields in which it was located. The characteristics of the pulmonary fields, namely the altitude, the transverse diameter at the level of the domes, and the degree of curvature of the diaphragmatic domes, were expressions of the habitus. The classification of habitus into four major types, namely, asthenic, hyposthenic, sthenic, and hypersthenic (Mills), was practical and sufficient. Each of these habitus possessed characteristics as regards the transverse diameter, altitude, and basal curve which were peculiar to it. So, also, the changes which were produced in these factors during the respiratory phase were peculiar to the particular habitus. Measurements of the pulmonary fields showed that the altitude had its lowest value in the hypersthenic and its highest in the asthenic. The averages were as follows: Hypersthenic, 22.5; sthenic, 23; hyposthenic, 23.8; asthenic, 23.1. So, also, the transverse diameter reached its lowest value in the asthenic habitus and its highest in the hypersthenic, as follows: Asthenic, 11.6; hyposthenic, 13.2; sthenic, 14.2, and hypersthenic, 14.4. It was interesting to note that the actual measurements of the chest circumference varied in a similar manner with the roentgen measurements of the pulmonary field, the circumference reaching its lowest value in the asthenic and the highest in the hypersthenic, the average being: Asthenic, 70.2; hyposthenic, 78.7; sthenic, 86.9; hypersthenic, 93.2. There existed a distinct variation in the position of the diaphragm with the habitus and an intimate relationship between the position of the diaphragm and the position of the heart. In the hypersthenic, where the diaphragm was high, the heart lay transversely at an angle of 33°. In the sthenic type, the heart lay at an angle of 37°. In the hyposthenic type, the angle of the heart axis was 43°, and in the asthenic the angle was 48° (but might be as much as 55°). It was thus seen that so far as the axis was the expression of position, the heart varied in its site according to habitus. There also was a distinct variation of heart shape with the habitus, especially as regards the convexity of the various curves which constituted the heart silhouette and the value of the auriculoventricular and cardiovascular

lar angles. These were estimated by a new method. The classification of the various cardiac measurements in relationship to age, sex, height, and occupation were of no great practical value. In spite of the fact that these had been computed and recomputed during the last fifteen years, they had not been generally utilized. The only factors which at all played an important part in the practical estimation of the cardiac measurements were the weight, size of the pulmonic field, and value of the obliquity of the heart axis. These were expressions of habitus. On the other hand, an estimation of the values of the cardiac measurements on the basis of habitus showed a distinct association between not only the transverse measurements, but all the other measurements in relationship to habitus. Thus the maximum transverse diameter attained its lowest value in the asthenic and its highest in the hypersthenic, the averages being: Asthenic, 8.8; hyposthenic, 11.1; sthenic, 12.4; hypersthenic, 13.8. So, also, the long diameter attained its maximum value in the hypersthenic and its minimum in the asthenic, the averages being: Asthenic, 11.4; hyposthenic, 13.1; sthenic, 14.1; hypersthenic, 15.9. In studying the relationship of cardiac function to habitus, comparative observations were made as accurately as was possible with regard to the following points: First, the rate and regularity per minute of ventricular contraction; second, the sequence, force, and amplitude roughly of the pulsations of the curves of the right and particularly the left side of the heart. Though not yet prepared to state just what the variations in cardiac function according to habitus were, the writers stated that there was no doubt but that certain types of cardiac function, especially as regards cardiac muscle tone, varied exactly as gastric tone, peristalsis, and mobility varied in the gastrointestinal tract with the habitus. Measurements were made from teleroentgenograms, taken at a target screen distance of seven feet, one inch (216 centimeters), at the level of the sixth thoracic vertebra. The exposures were made in the upright position with the anterior chest wall against and parallel to the plate, taken in full inspiration, except in the asthenic type, where they were taken in complete expiration, and varied from one to three seconds duration. The following measurements were made: (1) Transverse diameter; (2) long diameter; (3) broad diameter; (4) angle of cardiac inclination; (5) width of aortic arch; (6) width of pulmonic fields; (7) length of pulmonic fields, and two new measurements, namely, (8) radius right auricle and (9) radius left ventricle. To obtain the radius of the right auricle three tangents were first drawn to the right auricular curve. Then perpendiculars, drawn from the points where these tangents touched the curve, met at a point which was approximately equidistant from any point in the curve, and a line drawn from this intersection point to any point on the curve constituted a radius. In a similar manner, by drawing tangents and perpendiculars to the left ventricular curve, its radius might be obtained. For each habitus there was a definite radius, which was an expression of the size of the chamber, and varied as the habitus varied and as the heart deviated from the normal. It was thus seen that there was distinct variation of the heart shape according to the habitus. The determination of the early changes in the cardiac outline was of extreme importance because the first indication of a thickening of the walls of the heart or the dilatation of the chambers was manifested by the changes in contour. To this end an estimation of the relative size of the heart chambers could be determined with great accuracy by the determination of the convexity of the curve which constituted the profile of the chamber. By actual measurement the writers had proven that the value of the curve varied with the habitus. These observations warranted the following conclusions: (1) The position of the heart varied with the habitus. (2) The shape of the heart varied with the habitus. (3) That habitus must be taken into consideration in estimating cardiac size. (4) That, reasoning by analogy, the cardiac function, particularly as regards musculature, might perhaps vary with the habitus. (5) That only by actual measurement of the curves of the heart could the change in contour be made out in early cases. (6) That the value of the curves varied with the habitus. (7) That the radial value of the curves of the left ven-

tricle and right auricle varied with the habitus. (8) That the radii measurements were a more accurate and valuable expression of impending or established change in the architecture of the heart chambers than the so-called standard measurements.

Digitalis and the Ambulatory Cardiac.—Dr. E. J. PELLINI presented this communication, in which he asserted that the ambulatory cardiac was a more difficult subject for study than the hospitalized cardiac. In the hospitalized case one had practically all measures always under control, while in the ambulatory case the patient was not merely the subject, but carried out his own treatment as well. The first obstacle encountered was the intelligence of the patients and their lack of appreciation of the importance of the smaller details so vital for successful treatment, but in a large number of cases they had been able to educate them to this appreciation. Another factor was that they saw the ambulatory patient only once a week at the shortest interval, which was a drawback. On the other hand, there was often difficulty in getting the patient to return at these weekly intervals, because after a few visits he was so improved that he did not feel or understand the necessity of returning as often as requested. Medication presented another hardship, in that they were not able at present to obtain a standardized preparation of digitalis from the dispensary, nor did they receive the same preparation throughout the year. Again, they had no method for the patient to measure accurately his dose of digitalis. While these factors tended to diminish the accuracy of any study of these cases, it must be borne in mind that this was also the condition that existed when the cardiac was under treatment by the average general practitioner. They felt, therefore, that the study of a group of patients under this type of treatment allowed them to make deductions, or possibly elaborate principles which might be of value. The routine followed at the Bellevue Cardiac Clinic was as follows: After the patient's history, physical examination, and diagnosis had been completed by men assigned to this work, the patient was referred to the speaker for treatment. His first interest was the patient's functional capacity, as classified by the Association of Cardiac Clinics. From this, the other data on the chart, and personal observation, he determined whether or not the patient required digitalis. If this was needed, it was prescribed, and the patient instructed as to measuring, symptoms of toxicity, and so forth, and also given directions in regard to rest, diet, hygiene, etc. The patient was requested to return weekly at first and then at longer intervals, depending on his condition. At each visit to the clinic the patient was put through a definite routine; his weight, general condition, the presence of edema, dyspnea, and cyanosis, the heart rate, and regularity, pulse deficit, and blood pressure were all observed and charted, as well as any change in his functional capacity. It was upon these observations that the effectiveness of the medication was judged. The next step was the determination for each individual case of the dose necessary to produce a digitalis equilibrium, namely, the minimum dose that would keep the patient digitalized and compensated under the existing conditions of work. In no case requiring digitalis did they allow an interval between visits of more than four weeks; in nondigitalized cases they allowed up to three months. The patient was thoroughly instructed to recognize the first symptoms of decompensation or of digitalis poisoning and at the appearance of any of these he was instructed to return to the clinic. A check was kept on the patient's attendance, and if he failed to attend he was notified by postal, and then, if not heard from, by a personal call by the Social Service. The report presented was based on the first 250 cases at the clinic, the observation ranging from three to twelve months. The majority of these cases were well advanced in years, though the same conditions might obtain in a group in which the average age was younger. Of this total of 250 cases only 46.5 per cent. required digitalis continuously, while the remaining 53.5 per cent. had never received any digitalis or in some cases only a small initial treatment until occupational or other readjustments could take place. As an index of improvement the lessening or disappearance of dyspnea and pulse deficit were the most important signs, with the amelioration of edema, cyano-

sis, and lung signs next in importance. In the cases classified as improved all these symptoms had disappeared. It was found that as age advanced there was an increasing percentage of cases requiring digitalis. The most prevalent type of disease with which they had to deal was the double mitral, namely, mitral stenosis and mitral regurgitation. The etiological factor in most of these cases was one of the rheumatic triad. This class of disease formed 28 per cent. of all the cases in the non-digitalized series, 45 per cent. in the digitalized with improvement, and 54 per cent. in the unimproved series. However, they did not feel that this had any bearing on the digitalis effect. Of the unimproved cases, 73 per cent. had fibrillations. These cases were returned to the hospital and 57 per cent. of them had died. In the non-digitalized series, 95 per cent. of the patients were at work; this was in reality 109 per cent., as the 5 per cent. not working were idle for other reasons than physical disability. In the digitalis with improvement series, 85 per cent. were working. In the non-improved series, only 18 per cent. worked, all doing light work. These cases were further classified as to those doing heavy, moderate, and light work. In ordering digitalis for the patient they did not allow him to use a dropper, but insisted upon his dropping from the bottle supplied. The lips of these bottles were fairly uniform and delivered about three drops to the minim. They started with 30 drops three times a day and varied this dose later as the requirements arose. When full digitalization occurred they began to decrease the dosage until the patient again showed the early signs of decompensation, when the dose was again increased. After several attempts with this procedure they were finally able to determine the minimum dose which would keep him digitalized, or in "digitalis equilibrium." With this dose the patient could be kept under medication indefinitely. They found that 71 per cent. of the patients received from 20 to 30 minims a day; the remaining 29 per cent. were about equally divided above and below this dosage. They had not worked out any relationship between the amount of digitalis and the body weight, nor could they find any relationship between the dosage and the type of work. Apparently the etiological factor and the anatomical diagnosis did not affect the digitalis dosage. They had further subdivided the digitalized cases with improvement into regular and fibrillation types, but were again unable to find any difference. The upper limit of digitalis dosage was 45 minims a day for an ambulatory cardiac; if no beginning improvement followed this dosage after a week's trial they felt that such a patient was a hospital case. Overdigitalization was an infrequent event at the clinic, there having been but seven such occurrences in the past twelve months. They were frequently confronted with the symptom of nausea alone, even after the first dose of digitalis, but did not feel that this was a reliable symptom of overdigitalization without other evidences. They had found that if the patient took a glass of water after each dose of digitalis this symptom did not occur. He was not in agreement with the old idea that digitalis should be stopped at regular intervals. They had had a considerable number of patients taking the dosage determined for them over periods of ten, twelve, and thirteen months without showing any signs of overdigitalization. Seven patients who received digitalis and were not benefited proved to be cases of terminal fibrillation. The value of the cardiac clinic was shown by the fact that they had been able to keep the majority of their cases compensated, at their work, and out of the hospital.

A Consideration of Occupation in Its Relation to the Adult Chronic Cardiac.—Dr. JOHN WYCKOFF read this paper, in which he said that to patients attending a public clinic the ability or inability to gain a livelihood was of paramount interest. A physician in the clinic wondered if changing a certain patient's occupation to a lighter one might not improve his condition. Again he might wonder whether a patient who seemed perfectly able to do the hardest work might not be injuring his cardiac musculature and gradually impairing his reserve by so doing. And, then, in some patient inclined to make his cardiac affection an excuse for doing little or no work, he might wonder if some occupation which called for exercise might not be of material aid

in building up the reserve which they all wished to get in their cardiacs. Questions of this nature they had been endeavoring to answer for the past eighteen months. They had noted changes in occupation and the results obtained by such changes, and while the number of cases studied was too small to be of great value, he believed it wise to take stock in this preliminary study (1) for the purpose of seeing whether even at this early date some helpful points might not be derived from such a study, and (2) to see whether this recapitulation would point out avenues of inquiry neglected thus far, which might be inaugurated without further delay. For the study they had used patients of Classes 1, 2, and 3 of the classification of the Association of Cardiac Clinics, who had been under observation for at least six months and who had attended the clinic with sufficient regularity for the observers to have a proper appreciation of their condition. The study included 152 cases that met the above requirements. The occupations were divided into three classes, depending upon the amount of effort called for, namely, heavy work, moderate work, light work. In considering the ability of the patients to carry on their occupations they had classified them as: (1) Those able to carry on normally. (2) Those able to carry on well enough to hold their positions, but who had difficulty in doing their work. (3) Those unable to carry on. Of the 152 cases, 105, or 69 per cent., were men and 47, or 31 per cent., were women. The greatest number of men were in the fourth and sixth decades, while the greatest number of women were in the fourth and fifth decades. After the fifth decade the number of women fell to nearly none, and this did not happen until ten years later in the case of men. Of the whole group, 35.5 per cent. were doing heavy work, 35 per cent. were doing moderate work, and 29.5 per cent. were doing light work. Of the group doing heavy work, 21 per cent. were able to carry on well; of the group doing moderate work, 42 per cent. were able to carry on well, and of the group doing light work, 74 per cent. were able to carry on well. It would seem that of patients having organic heart disease, 75 per cent. are able to do light work. Of the 152 patients, 38, or 25 per cent., were in Class 1 of the classification of the Association of Cardiac Clinics; 85, or 60 per cent., were in Class 2, and 29, or 19 per cent., were in Class 3. Of Class 1 patients, 94.4 per cent. were able to do heavy work, and there were none who could not do heavy work at all. Of the Class 2 patients, 16.6 per cent. were able to do heavy work; 16.6 per cent. were able to do heavy work with difficulty, and 66 per cent. were unable to do heavy work. Of the Class 3 patients, only 10 per cent. were able to do heavy work, 27 per cent. did heavy work with difficulty, and 73 per cent. were unable to do heavy work. After a further analysis of statistical data, Dr. Wyckoff concluded as follows: (1) Women with organic heart disease did proportionately heavier work than did men. This, he believed, was not because of their greater physical ability, but because of the greater difficulty women over the age of thirty had in changing or modifying their vocations. (2) They believed that patients with organic heart disease should, if they did any work, do light work for the following reasons: (a) Patients who had had one or more attacks of heart failure had little ability to carry on heavy work even for six months, but they had nearly normal ability to do light work for that period of time. (b) Heart failure manifested by inability to carry on work occurred more in patients doing heavy work and moderate work than in patients doing light work. (c) Since patients who were unable to do heavy work were frequently able to do light work, one might infer that patients doing light work remained self-supporting over a longer period of time. (d) Inasmuch as it was easier to procure a change of employment for a patient who was in good physical condition than for one who was partly incapacitated, patients who were able to carry on with heavy or moderate work even well should have the nature of their work lightened at the earliest possible moment and should not wait until signs of distress manifested themselves. (3) Patients with auricular fibrillation must be kept digitalized, otherwise but few of them could work. (4) Patients with auricular fibrillation who when digitalized were unable to do light work had a poor prognosis.

Dr. L. T. LE WARD said this symposium had been of

a great deal of interest to him, since he had at one time been interested in hearts from the pathological standpoint and later from the standpoint of the roentgenologist. He then illustrated by means of lantern slides his conception of estimating the size of a heart and showing a great deal of the pathology that occurred. One of the most important points in connection with the estimation of the size of the heart was the question of the influence of respiration on the size and position of the heart. If one saw the same individual in the two extreme phases of inspiration and expiration it would be found that there was much the same difference as between the two types of habitus. If there was such a difference in the size of the heart in the two phases of respiration, how was one going to compare the results? To his mind one could control these two factors by two electrical devices. One of these devices recorded the time of exposure of the cardiac cycle. Professor Bardeen had done much to stimulate careful measurements of the heart and had devised a method of recording what he thought were the systolic and diastolic phases which had been substantiated by Professor Eyster. A spark was made to pass from the x-ray machine and was recorded on the electrocardiogram when the exposure was made. The first record was made at the beginning of the respiratory curve, and there was a record at the time of inspiration and of expiration. The method of estimating the size of the heart described by Dr. Hirsch was new and very elaborate and probably as accurate as any other method. It furnished another method of ascertaining the size of the heart, provided one had control of the phases of respiration and of heart action. Dr. Le Wald stated that he believed the usual measurements, transverse diameter, etc., were relatively accurate, and as accurate as Bardeen's method. There was no absolutely accurate method that could be entirely relied upon at the present time. One could approach this by taking a series of exposures at a two meter distance and then getting the average. The average of six or seven exposures would give a fairly definite and accurate measurement. Among the slides which Dr. Le Wald showed was one which he said he regarded as the hypoplastic heart. We should pay more attention to small hearts than we ordinarily did. Another slide showed one of the largest hearts Dr. Le Wald had ever seen. Then passing on to the point brought out in the paper that a cardiac lesion was no contraindication to a certain amount of effort, it was necessary to study these hearts fluoroscopically, because, as shown by the slides, a heart might look very much hypertrophied from the anterior viewpoint, while from the side view one could see that it resolved itself into two shadows—a heart shadow and an enormously dilated aorta. Another slide showed a calcified pericardium. This was observed in the course of an examination of a woman with carcinoma of the pylorus. He had given it as his opinion that this condition was not sufficient reason why this woman should be denied any possible benefit from a radical operation, and she went through the operation successfully.

Dr. HAROLD E. B. PARDEE said he was much interested in the roentgenographic work on the heart, but did not feel competent to criticize it. He did not think that at present any information from the x-ray was of much help, but he thought this new lead might turn out to be of value. The digitalis paper had interested him particularly because he was doing work of that type at the night cardiac clinic of the New York Hospital and had recently published data on what they had found. He had found the same variation in the figures of daily average dosage as Dr. Pellini. He had found the amounts of digitalis very much the same, ranging from 15 to 30 minims a day over very long periods. It was a very important point in treating ambulatory cases that one could not be guided by the minims but by the results. One must keep giving enough digitalis to get the effect on the heart. An important point was to avoid poisoning. One could not give digitalis by measure, but had to watch the symptoms, the heart, and the circulation, and must give enough to produce results without knowing beforehand just how much would be needed. It was a great help to know approximately how much one was giving. They had adopted a measure of giving out a bottle containing the mixture and then telling the patient to bring back the bottle to see how much he had taken.

In private practice he gave tablets and then had the patient tell just how many tablets were left. Dr. Pellini mentioned pulse deficit as one of the signs by which one could judge improvement. It seemed to him that the relation of heart rate to pulse rate afforded a better means of judging. The pulse deficit was the result of heart rate and pulse rate, the result of subtracting the one from the other. The objection to the use of the pulse deficit was that in digitalis poisoning extrasystoles were produced and the pulse deficit included these extrasystoles. The thing we wanted to know was the relation of heart rate to pulse rate and why it was such. Another point that might be mentioned was sudden death from digitalis. While this did not happen today as frequently as it did in the past, Dr. Pardee said he had seen patients given too large doses of digitalis and they had shown extrasystoles, and the giving of digitalis had been continued, the result being a sudden death. The effect of auricular fibrillation on the patient's ability to perform work was very clearly brought out in the paper of Dr. Wyckoff. It did not have much effect, in Dr. Pardee's opinion, and Dr. Wyckoff had showed this. Professor Eyster had published some work on the effect of irregular rate of the heart on blood pressure, and had shown that with experimental auricular fibrillation the blood pressure fell. With a slight irregularity due to extrasystoles—an irregularity comparable to the clinical auricular fibrillation properly slowed by digitalis—there was no fall in the blood pressure.

Dr. MARCUS A. ROTHSCHILD congratulated the physicians in charge of the clinic at Bellevue for their efficiency in research and for the careful manner in which their preliminary observations were presented. He felt that the section should appreciate the value of receiving the results of such preliminary observations. The work of Drs. Hirsch and Shapiro on status was extremely interesting and when further developed should prove of value. However, he agreed with Dr. Le Wald that the x-ray photographs of the size of the heart had not proven of great value, but fluoroscopy, especially in reference to the contour, was of great service. The observations of Dr. Pellini were in accord with the observations made at the cardiac clinic at Mt. Sinai. The relationship of occupation to the adult cardiac was the problem which he had been especially asked to discuss. He felt he knew less about this phase of the subject because of his intense interest in it. He regretted that Dr. Wyckoff had not told the section some of the difficulties in placing these people in occupations. The social service worker had investigated 140 cases attending the clinic, 72 being women engaged in household work—occupations which could not be changed. As Dr. Wyckoff has pointed out, these women were doing heavy work. He wondered if this had anything to do with the fact that in Dr. Wyckoff's chart no woman over 50 was engaged even in moderate work, presumably because they had all died before reaching that age. The 68 remaining cases attending the clinic were males, only one of whom was engaged in heavy work. In endeavors to change the occupation of these cardiacs they had met with very little success, the patients claiming that the change in occupation would mean a decrease in income, which they could not afford. From the standpoint of the employer, while they had had a small amount of cooperation, the results had been disappointing. Many employers said they would rather give a person who was not able-bodied and capable of working full time, a thousand dollars than employ him, because such a person was disorganizing to the industry. It must be remembered that the ability of a cardiac patient to carry on in any occupation for one year was no absolute test of the fact that the occupation was not harmful. He had seen a case of aortic insufficiency do front-line trench duty for approximately one year before manifesting all the symptoms of cardiac failure. It appeared that a more comprehensive plan would have to be developed in relationship to the adult cardiac. It was possible that certain groups of cardiacs might have to be placed in special organizations or factories, as had been done with patients with tuberculosis. At present there was a big gap in the proper handling of all cardiac cases. We had the hospitals for the handling of the acute cases and a limited number of convalescent homes for the aftercare. It appeared essential that there be developed

special hospitals whose function should be intermediate between the acute hospital and the convalescent home. The papers of the evening showed the value of accurate work and especially the value of an accurate follow-up system in solving some of the questions in regard to the care of the adult cardiacs.

Dr. ALEXANDER LAMBERT said one thing he thought the study in the clinics had shown was the fact that one must learn to gauge the work a cardiac patient could perform by making some estimate of the functional capacity of the heart. One could divide the work into heavy, moderate, and light, and then there would be an indefinite something which enabled one to tell what the individual cardiac patient could do. As to murmurs, it did not make so much difference whether there was a loud murmur or a light murmur; the important thing was the power of the heart to dilate and recover and to keep the body supplied with blood and the blood with oxygen in an even, straight line—in a well balanced way—when at work and at rest. The question of function was an element in the study of the heart in which the dispensary offered advantages over the hospital. MacKenzie was perfectly right when he said there was more to be learned about the heart in the dispensary than in the hospital. The hospital was valuable in teaching what could be done in the reconstruction of a broken down heart, and the practical value of this or that remedy or method of treatment. The hospital had taught the value of treatment in syphilitic hearts and had taught the hopelessness of some comparatively slight injuries to the heart, but in the dispensary one gauged the amount of work a heart could do and this was most valuable. While Dr. Hirsch was reading his paper it had been interesting to see where it would lead. He thought Dr. Hirsch had reached the place where he said: "These are the facts. What are we going to do with them?" What conclusions are we to draw from the lines and curves we have found? What relation do they have to disease as we find it and to the morbidity of cardiac disease? What do they show of the power of the heart to accommodate itself to exertion?

Dr. SAMUEL A. BROWN emphasized the fact that we were treating in the hospitals many cardiac cases that could be treated just as well or better in the dispensary. This was an important matter from the standpoint of hospital administration, and should lead to a weeding out of these cases. A second point to be emphasized was that the sooner we came to forget valvular lesions and study muscular efficiency and functional ability of the heart the better would be the treatment and the better the prognosis in these cases. In years gone by every cardiac patient received digitalis just because he was a cardiac case, but this had been changed by the study of the action of the normal heart musculature and the effects of fatigue and exhaustion and by a careful estimation of the functional capacity of the heart. More attention to these factors would result in fewer disappointments in the treatment of these cases and more intelligent prognosis.

Dr. HIRSCH, in closing, said that the point he had desired to make had apparently not been fully appreciated. He was pleading for a consideration of the thoracic viscera from the viewpoint of their relationship to the habitus of the individual. The first question, therefore, in the study of the heart was did it conform morphologically to that habitus? If it did not, then in what way and why did it not correspond? Considered from this viewpoint, such conditions as "drop heart," "hypoplasia of the heart," and "horizontal heart" were but normal variations. According to such a classification, the case of hypoplasia shown by Dr. Le Wald would fall in the classification of the heart of the asthenic. Before the classification of the gastrointestinal tract according to habitus it was thought that a stomach below the interspinous line was posited. We now knew that such a stomach was perfectly normal for a particular habitus. The so-called standard measurements had never been enthusiastically adopted clinically because they were of no practical value on account of their apparent variability. Thus an individual fifty-eight inches high might, according to Groedel's tables, have a transverse measurement practically the same as one seventy inches high. According to Clayton and Merrill's tables, a man weighing 110 pounds might have a transverse diameter of 10.7, while one weighing 175

pounds might have a total transverse diameter of 11.0. But the standard heart measurements, taken in connection with the habitus, appeared to be more practical. The figures were analyzed according to weight, angle of inclination, and size of pulmonic fields (for these factors were the expression of habitus). Yet, even when considered from this viewpoint, the measurements did not give any certain indication of beginning changes in the heart walls or in the capacity of the heart chambers. It was for this reason that the study of the curves for the determination of such early morphological changes was taken up.

Dr. WYCKOFF, in closing, said that Dr. Rothschild had wondered whether all the women in this series over 50 were dead. He had thought of that point and supposed none of them had survived. With reference to the question of placing these patients in suitable occupations, they had had a tremendous amount of difficulty. He had not gone into this phase of the question in the paper because in the twenty minutes allotted to the reading of the paper there were many points that could not be touched upon. The data in the chart did not include everything. In the Class 2 cases in the clinic they were unable to place possibly 60 per cent. of the cases. During the past year they had had a large clinic and with the shortage of labor it was easily possible to place many patients, but during the coming year they were going to have a very difficult time. One reason they had been able to place so many of their patients was because of the great efficiency of their social service worker, who was very persistent. Dr. Wyckoff cited specific instances illustrating the difficulties encountered in placing patients in suitable employment.

Dr. PELLINI, in closing, said he was interested in hearing Dr. Pardee say that he had the same figures for dosage and that he also found that digitalis could be administered over long periods without producing symptoms of overdigitalization. With reference to the disappearance of the pulse deficit as a sign of improvement, due consideration had been given to extrasystoles. The pulse deficit was only one of the factors considered in determining improvement, but it gave a good deal of information.

Books Received.

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PRACTICAL PSYCHOLOGY AND PSYCHIATRY. By C. B. BURR, M.D. 269 pages with illustrations. Published by F. A. Davis Company, Philadelphia.

VITAMINES. By BENJAMIN HARROW, Ph.D. 219 pages. Published by E. P. Dutton & Company, New York.

AMERICAN RED CROSS WORK AMONG THE FRENCH PEOPLE. By FISHER AMES, JR. 178 pages with illustrations. Published by the Macmillan Company, New York.

DER GYNÄKOLOGISCHE OPERATIONSKURSUS. Von Prof. Dr. WILHELM LIEFMANN. 488 pages, with illustrations. Verlag von August Hirschwald, Berlin.

THE ENDOCRINES. By SAMUEL WYLLIS BANDLER, M.D. 486 pages. Published by W. B. Saunders Company, Philadelphia.

PRACTICAL TUBERCULOSIS. By HERBERT F. GAMMONS, M.D. 158 pages with illustrations. Published by C. V. Mosby Company, St. Louis.

THE CROONIAN LECTURES ON THE PSYCHOLOGY OF THE SPECIAL SENSES AND THEIR FUNCTIONAL DISORDERS. By ARTHUR F. HURST, M.D. 123 pages with illustrations. Published by Oxford University Press, American Branch, New York.

SURGICAL ASPECTS OF DYSENTERY. By ZACHARY COPE, M.D. 157 pages with illustrations. Published by Oxford University Press, American Branch, New York.

THE LOGIC OF THE UNCONSCIOUS MIND. By M. K. BRADBY. 316 pages. Published by Oxford University Press, American Branch, New York.

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MYELOCYTIC VARIATIONS IN LEUKEMIC BLOOD DURING TREATMENT.

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IN the classification of leukemia, two forms are recognized: the myelocytic or myeloid and the lymphoid. Numerous cases not fitting into either group are spoken of as "atypical" or "transitional" forms. Numerous such cases have been reported as stomatitis or hemophilia and the myeloblastic nature of the disease was discovered only at autopsy.

The nature of the disease is unknown—Banti, Warthen, and others regard the disease as related to sarcoma and myeloma. The acute cases resemble clinically an infectious process. Much blood culture work has been done during the past few years but no organism has yet been isolated.

Bennet¹ in 1845 recorded a case of suppurative of the blood with enlargement of the spleen and liver which he called leucocythemia. He was followed one month later by Virchow who described a like case calling it leukemia. In 1870 Neumann demonstrated the part played by the bone marrow. Myelogenous leukemia was first described in 1896 by Von der Weg.² Billings and Capps³ presented nine cases from the literature of 1903. Wolfer⁴ in 1910 brought the total up to twenty. Since then the report of cases has become more rapid especially since the beginning of more successful therapy.

The treatment has been surgical, x-ray, benzol, and radium. The surgical treatment has always been "a tragic story" with a mortality of 85 to 93 per cent. Splenectomy by Warren⁵ in forty-three cases gave five recoveries in various types of leukemia. Griffin⁶ of the Mayo clinic reported twenty cases of splenectomy for myeloid leukemia, in which nine were fatal within one year. In the others the disease followed its usual course. The age did not affect the mortality. The improvement following operation was variable, usually the patient was more comfortable. Griffin⁶ suggested that this may have been psychic and says operation is only justified in chronic cases. The blood picture was unchanged. There seemed to be a compensatory reaction and an abnormal functional hyperplasia in the long bones.

X-ray treatment was taken up in the treatment of leukemia with its use in carcinomata. The spleen and long bones, *i. e.* the tissues from which the abnormal blood cells were produced, were the

points of application. The success of x-ray in this respect has been variable. Some observers found temporary falls in the white blood count after x-ray applications, but in general little effect upon the ultimate course of the disease. Others found reduction in the size of the spleen after its use, but after some checking of the process with temporary relief of symptoms, the cases terminated fatally. An occasional case has given very remarkable results, the patient living and well for two or three years with occasional doses of x-ray after the initial course.

Benzol has been used as a treatment for the leukemias since Koranyi⁷ in 1912. His clinical use of benzol was prompted by an accidental run of three cases at the Johns Hopkins Hospital in 1909. Three young girls working in crude benzol presented evidences of a grave aplastic anemia and a striking leucopenia. Snelling⁸ demonstrated experimentally the powerful leukotoxic action of benzol. Koranyi⁷ used the drug clinically with no ill effects and some success. Kiralyfi⁹ reported seven cases under successful benzol treatment, *i. e.* clinical symptoms disappeared and the blood picture returned to normal in from three weeks to five months. Stien¹⁰ reported one case after six weeks and another after two months. Billings¹¹ gave five cases suggesting further use of the drug.

Following this, many workers adopted benzol therapy. Klein¹² reported twenty-two cases with fair results suggesting, as Rösler¹³ did, that the time of observation should be much lengthened for definite reliable conclusions. Watchel in 1913 produced albuminuria on the third day in one, but treated two other cases successfully, as to decreasing the leucocyte count but pointed out that the myelocytes were still present.

Koranyi in 1913, one year after his first paper, reported two cases failing, in one the drug was not tolerated, in the other benzol had no effect, nor did the x-ray or thorium. Quadroni and Buzzano¹⁴ reported little benefit in four cases. Klemperer and Hirschfeld¹⁵ first determined the toxicity and harmful effects of the drug in 1913. Jespersen's¹⁶ case showed an immediate fall to normal in white blood count, but without treatment recurrence was very rapid, the patient dying twenty-two days later. Neumann¹⁷ had a case thirty-six days on benzol and cleared up all symptoms but upon suspension of treatment a very rapid remission occurred with diarrhea, epistaxis, stomatitis, rhinitis, and fever. He questioned the part benzol had in bringing on such an acute exacerbation. Jenkins and Meyer¹⁸ brought out the lack of uniformity on the action of benzol and again suggested long and careful observation in its use before definite trustworthy conclu-

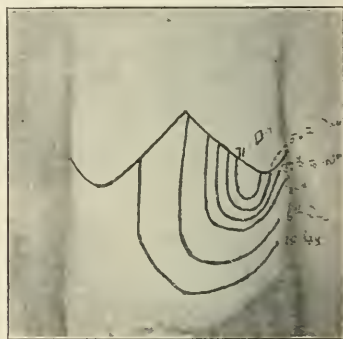
sions were drawn. In certain of their cases it failed to reduce the count to normal, in some the size of the spleen was unchanged, in others the white blood count underwent very sudden changes, both increase and decrease. Muhlman¹⁰ at autopsy after benzol found liver necrosis in the lymphatic type. Neumann¹¹ gives the same findings in the myeloid form. Pappenheim¹² produced this same liver necrosis experimentally in rabbits and clinically reported gastro-intestinal irritation and renal injury from the use of benzol. The dosage heretofore was suggested by Koranyi¹ beginning with 0.5 gm. three times a day and gradually increasing until toxic signs appeared.

The x-ray alone has been found ineffectual as was stated above but when benzol and the x-ray were used conjointly, the action of benzol was seemingly augmented. Smith⁷ in 1914 presented a case of myeloid type treated on benzol alone. He reported flare-ups only when the patient was home on visits and suggested much rest in bed necessary for successful therapy. He found that the myelocytes persisted in the blood picture although the count was normal and the spleen was reduced to normal size. Sappinton and Pearson¹³ found that, with combined x-ray and benzol therapy in myeloid leukemia, the white blood count remained low with a slight relative mononuclear increase, the spleen stationary and the patient well during two years' observation. Smith⁷ in 1915 concluded from his cases that benzol alone is a symptomatic treatment and is inhibitory to the production of white blood cells. During the last few years the combined treatment of x-ray and benzol has been used with variable success, certain cases respond to one or the other, an occasional acute form to neither. In one case of a farmer, the chronic form was treated by the combined method until the spleen was reduced and the count about the usual 20,000. The symptoms disappeared and the patient was subjectively well and working. With a short period of treatment every six or twelve months, the patient's life was prolonged for six years. Yacquez and Yacod¹⁴ reported in 1918 three cases of myeloid leukemia on doses of forty to one hundred drops of benzol a day, the first twelve days of each month, running from two to six months with beneficial results, after the x-ray had failed to affect either of the cases. In contradistinction Griffin⁶ published a series of thirty cases treated with a dosage of fifty to one hundred milligrams, exposing the spleen once a week, twenty-four to thirty-six hours total, with beneficial results. His average results were a decrease of leucocytes, an absolute and relative fall of myelocytes, an absolute fall in polymorphonuclears, the percentage remaining constant, and a fall in absolute count of small lymphocytes. Suffice it to say since cases vary themselves, that the x-ray and benzol or their various combinations, whichever proves effective, is the desired treatment. The treatment should be compromised and fitted to the individual case.

Renon, Degrais, and Tournemelle¹⁵ in 1914 reported twelve cases, in eight of which the x-ray had failed, and which were benefited by radium. Pinch¹⁶ in 1915 noted excellent results in one case. Von Noorden and Falta¹⁷ in 1911 found no favorable results. Thorium and mesothorium have been found to have similar effects as radium. Here too the re-

ports are variable. Certain cases showed remissions, with Falta, Kriser and Zehner.¹⁸ Kaufmann¹⁹ reported reduction in the size of the spleen and subsidence of symptoms, the blood picture approaching normal over a course of one and a half years. Ordway and Gerhan²⁰ reported in 1920 results in one case where all myelocytes disappeared from the blood after three doses of radium, after benzol had given toxic effects and x-ray had given no improvement. Three months later a fatal acute exacerbation occurred. Radium, while active in reducing the white count, is uncertain in dosage, not well controlled and difficult to procure.

In this case an attempt was made to determine the extent and nature of the action of benzol and the x-ray, separately and combined, upon the blood picture in a rather severe case of chronic myeloid leukemia. The changes were followed in not only the red and white cells but also in the types of white cells and moreover in the various types of myelocytes. The relative changes and the absolute changes with the complete differential estimates are shown in Tables I and II and the curves plotted (Charts I, II and III).



CASE.—C. P., white male, 45 years old, single. Family history negative except mother died with dropsy. Past history: Usual childhood diseases, no sequelae. Patient was a laborer doing heavy work, was strong and healthy (except recurrent gonorrheal infection in youth), until September, 1917, when he was ill four weeks with typhoid fever. In July, 1918, he began to notice palpitation of the heart, occasional swelling of the feet and ankles, and shortness of breath especially after climbing stairs. At about the same time he began gradually to develop a slight loss of weight and strength, loss of sexual power and priapism, giddy sensations, tinnitus, and vertigo. In January, 1919, his abdomen began to enlarge and with this came constipation, a feeling of pressure after eating, shortness of breath, and increased frequency of urination. By April, 1919, the symptoms had progressively become worse and the hair had begun to fall until, on July 15, 1919, alopecia was complete. The patient was now quite weak, complaining of very poor appetite, unsteadiness in gait with dizziness and tinnitus; shortness of breath, severe constipation, slight fever, bloody stools, and epistaxis. Beginning July 19, 1919, the patient says he was treated for three weeks without improvement for liver trouble. He was admitted to City Hospital August 22, 1919. Examination showed a white male poorly nourished, of moderate development. Pale and weak in appearance, temperature 99°, pulse 80, respiration 20. The skin was dry, cool, with purpuric blotches over forearm, face, scalp, and back. The glands were generally enlarged, firm, discrete, and not

tender. There was complete alopecia. A right nasal pterygium extended just over the corneal edge, the sclera was pale. The middle left turbinate was hypertrophic, causing partial obstruction. The teeth were fair, but the gums bled easily, the mucous membrane being quite pale. Impacted cerumen was found in the right ear, tympanic membranes were pale. Neck showed no abnormal pulsations, no abnormal findings in lungs except a slight edema at bases. Temporals tortuous and thickened, radials slightly thickened.

in flanks, fluid wave elicited. Tenderness over spleen but no crepitus, pulsations, or murmur. Rectal examination showed the sphincter rather spastic, slight hemorrhoids, prostate quite tender, enlarged, thickened laterally, rather firm in consistency. The gait showed a broad base, Romberg's symptom positive, superficial and deep reflexes normal.

Laboratory: Urine showed a faint trace of albumin and a few pus cells on the first two days in hospital, none afterwards. Admission stool showed occult blood, no microscopic blood. Blood specimens taken once a week for three weeks were persistently negative as to Wassermann, Widal, tuberculous complement fixation, and blood culture. The blood showed hemoglobin 50 per cent red cells 1,500,000, white cells 960,000, polymorphus 32 per cent, small lymphocytes 11 per cent, myelocytes 57 per cent, of which 50 per cent were neutrophilic, 4 per cent eosinophilic, and 3 per cent basophilic.

The patient was immediately put upon benzol and x-ray therapy combined, later on September 11 upon x-ray alone, and October 15 on benzol alone, as too great a reduction of white count was undesirable. The patient left the hospital November 4 against our advice and was requested to report every week for observation, but failed to report until January 10, 1920. He then re-entered hospital complaining of constipation, sore throat, and small amount of urine. Physical examination revealed briefly the following: Scalp was covered with fine thin brown hair with several scattered denuded or crusted areas and pigmented scars, all about 1 cm. in diameter. Left pupil a trifle larger than right, both regular and reacting promptly to light and accommodation. Membrane of the right ear congested along the long handle of the malleus, little retraction right or left, color not abnormal, hearing slightly impaired. Glands showed no enlargement. Lungs were clear, outline of cardiac dullness, 10.5 cm. to the left in the fifth intercostal space, no accentuation, a soft systolic murmur at the third space to the left. Abdomen was tympanitic, distended, and enlarged; spleen 6 cm. to left of midline and 6 cm. below the costal margin; liver palpable, 3 to 4 cm. below the costal margin and slightly tender. Reflexes were negative. Left testicle slightly larger than the right, no tenderness, otherwise negative. Sexual power had returned during the previous treatment but had waned during the past month; the patient had married since previous discharge. The patient was given combined

TABLE I.—NUMBER OF CELLS PER CUBIC MILLIMETER.

Date	Polymorphonuclear	Small Mononuclear	Myelocytes
9/22/19	259,200	57,600	600,000
9/23/19	268,800	92,400	463,600
9/26/19	279,680	91,200	238,120
9/30/19	273,000	36,000	179,000
9/31/19	288,520	43,520	130,560
9/1/19	245,850	38,000	147,700
9/4/19	232,200	78,000	77,400
9/6/19	224,600	104,000	58,200
9/7/19	247,800	85,000	46,200
9/11/19	207,060	78,540	35,700
9/14/19	144,380	49,000	33,880
9/16/19	89,670	29,400	11,760
9/19/19	93,600	26,400	45,600
9/21/19	122,800	42,900	40,050
9/25/19	187,440	54,720	36,480
9/27/19	75,400	18,560	17,600
9/30/19	71,680	15,680	19,040
10/3/19	80,900	13,690	11,900
10/7/19	82,800	14,400	13,200
10/12/19	38,080	9,520	7,280
10/15/19	23,740	2,700	1,812
10/18/19	19,760	1,820	1,820
10/20/19	25,000	1,600	1,600
10/24/19	18,760	2,680	1,950
10/28/19	20,700	2,700	1,800
11/3/19	22,218	3,000	2,100

Cardiac dullness extended 11 cm. from the midsternum in the fifth intercostal space. Systolic blowing murmur over base not transmitted, aortic second sound roughened and impure, some accentuation of pulmonic second. Abdomen, pot-bellied, distended, rising 8 cm. above the level of the costal margin. Panniculus medium, liver extended from the fourth intercostal space to 3 cm. below the costal margin, tender to palpation. Spleen very much enlarged, extending 4 cm. to the right of the median line and downward to the level of the anterior superior spine of the ilium. Shifting dullness

TABLE II.—RED WHITE AND DIFFERENTIAL COUNTS.

Date	W B.C.	R.B.C. Million.	Hg. Percent.	200 cells counted Polymorphonuclear Leucocytes				Lymphocytes		Myelocytes	Total Neutrophilic	Eosinophilic.	Basophilic.	Treatment.	Gta.
				Neutrophilic.	Eosinophilic.	Small Mono.	Large Mono. Transitional.								
Aug. 22	960,000	1.5	50.55	27%	3 5%	6%	0			62.5	52.5	8.5	1.5	Fowler Benzol	30
23	840,000			32	3	11	0			54	44.5	3.5	1.6	Fowler Benzol	30
26	608,000	1.73	60	46	3	15	0			39	33	2	4	Benzol	30
30	560,000			49	3	10	6			32	26	2	1	X-ray	36
31	544,000	4*		53	4	8	11			24	22	.5	1.5	Benzol	45
Sept. 1	476,000	2.8*	60	52	1	8	8			21	27	3	1	Benzol	60
4	430,000			54	0	18	10			18	16	1	1	Benzol	60
6	416,000	3.0*	65	54	1	25	6			14	12	0	2	Benzol	99
7	420,000			59	0	20	10			11	11	0	0	Benzol	99
11	357,200	4*		58	0	22	10			10	10	0	0	X-ray	
14	300,800	3.0	65	48	2	16	12			22	20	2	0	Alone	
16	147,200	3.3		61	2.5	20	10.5			8	7	1	0		
19	240,000	3.75	70	64	2	11	3			19	18	0	1		
21	267,000			64	2	16	3			13	13.5	1.5	0		
25	304,000			61	1	18	8			12	12	0	0	X-ray	
27	176,000		70	65	0	16	9			10	7	1	2		
30	112,000	3.9		64	2	14	3			17	13	3	1		
Oct. 3	119,000		70	68	0	11	11			10	9	1	0		
7	120,000			69	2	12	6			11	11	0	0		
12	56,000			68	1	17	1			13	13	0	0	X-ray	
15	30,200		75	74	4	9	7			6	6	0	0	Benzol	99
18	26,000			76	7	8	7			7	7	0	0	Benzol	99
20	32,000	4.4		80	0	5	10			5	5	0	0	Benzol	99
22	27,800			79	0									Benzol	99
24	26,800			79	0	10	13			7.5	5.5	0	2	Benzol	99
28	27,000	4.6	75	80.5	0	10	2.5			7	7	0	0	Benzol	99
Nov. 3	30,000	4.6	75	80	0	10	7			7	7	0	0	Benzol	99

*Nucleated red cells.

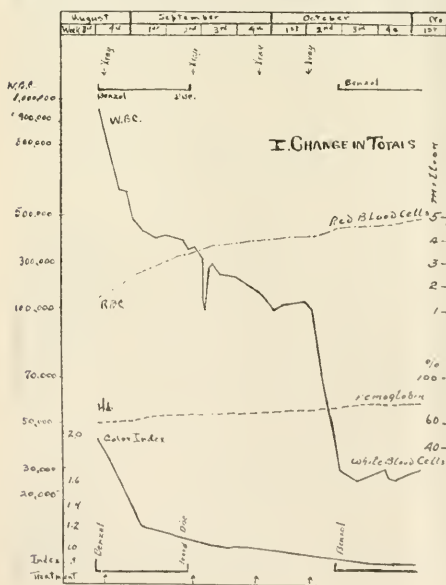
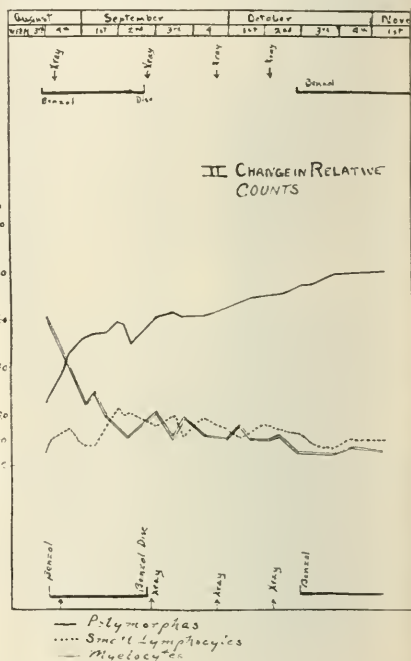
TABLE III.—X-RAY DOSAGES.

Date	Exposure	Spark	Milliamp.	Time	Distance	Filter
8/26	Ant. spleen (umb. and ensiform)	9 in.	5	6 min.	17 in.	Alu. 3 mm.
9/12	Ant. spleen	9 in.	5	6 min.	17 in.	Alu. 3 mm.
9/28	Ant. spleen	9 in.	5	6 min.	17 in.	Alu. 3 mm.
10/9	Post. spleen	9 in.	5	6 min.	11 in.	Alu. 3 mm.
10/9	Ant. spleen	9 in.	5	6 min.	11 in.	Alu. 3 mm.
10/18	Right thigh	9 in.	5	9 min.	12 in.	Alu. 3 mm.
10/18	Left thigh	9 in.	5	11 min.	12 in.	None

x-ray and benzol, and improved readily, the white count being reduced from 137,000 to 40,000, when, again being free from symptoms, he insisted on leaving the hospital and the city February 14, 1920.

White counts were made by the same observer and counting apparatus, usually every second day, red counts and hemoglobin once a week. Differentials were made about every fourth day; in every count at least two hundred cells were counted and the treatment varied as shown in Tables I and II. The spleen was carefully outlined each week, the changes being as shown in the accompanying illustration. We wish to thank Dr. L. R. Sante, roentgenologist who furnished Table III, for his kind and helpful interest and cooperation.

From the accompanying charts it would seem that the x-rays and benzol together produced a rapid permanent fall in the white count while the x-rays alone produced an immediate rapid fall with a subsequent rise in the first instance to the same count as before exposure and in the second trial a decrease with a subsequent rise to about one-third the count preceding exposure. Next an attempt was made to give two x-ray exposures, the second timed just before this subsequent rise, with the result of a more or less continuous fall in the count. Since a third x-ray exposure would be dangerous, the subsequent rise was counteracted by resumption of benzol, which seemed to hold the count steady. Arsenic and



iron were given during the first week with an increase of hemoglobin and some increase of red cells. The color index returned to normal as the blood constituents approached normal limits. The red count and hemoglobin were not markedly affected by either benzol or x-ray but increased steadily as the patient's condition improved. The differential count showed a more or less continuous relative increase of polymorphonuclear leucocytes with a corresponding fall of myelocytes. The relative lymphocytic count after a slight initial increase remained more or less stationary.

The x-rays seemed to destroy polymorphonuclear leucocytes or to slow up their production, but relatively had no such effect upon the red cells or their production. After x-ray exposures the blood smear showed numerous disintegrating white cells. Since the spleen was exposed they were seemingly destroyed within the spleen, hence producing a relative decrease in the circulating blood. Myelocytes showed a tendency to give way to an increase of large mononuclear cells whose nuclei in turn became lobulated, elongated, and horseshoe-shaped with a relative increase in polymorphonuclears. After the x-rays the myelocytes were still persistent in the

blood picture and in the various neutrophilic, basophilic, and eosinophilic forms, the eosinophilic persisting longer than the basophilic. Polymorphic eosinophiles persisted until late in the course, until only neutrophilic myelocytes were present. After the first two weeks eosinophiles were found only occasionally. The x-rays in every trial produced a decrease in the absolute number of small lymphocytes but had no constant effect upon the relative count. Myelocytes were not so affected, relatively they were decreased by the x-ray with no constant effect upon the absolute. Benzol, on the other hand, caused a steady fall in the absolute count but did not affect the relative myelocytic count. Polymorphonuclears were destroyed constantly and rapidly by each dose of the x-rays. The absolute count was affected more markedly than the relative. Benzol gave a slighter

x-rays. The x-rays had less effect on reducing the myelocytes than the lymphocytes and leucocytes.

Summary.—1. Benzol does not affect the negative Wassermann reaction.

2. Repeated blood culture showed no growth.

3. Combined benzol and x-ray treatment adapted to a particular case and constantly checked by white cell and differential blood counts, gave at least a temporary and complete relief from symptoms and a satisfactory decrease in abnormal blood cells, the differential count approaching normal limits.

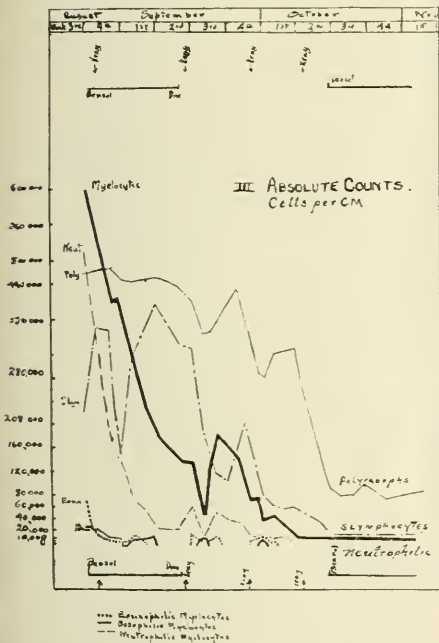
4. Periodic treatment continued at three to six month intervals can keep the patient free from symptoms and definitely prolong life in the chronic form.

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GRAND AVENUE AND SIDNEY STREET.

Fatal Cerebrospinal Meningitis from the *Micrococcus Catarrhalis*.—Lemaire and two others report two cases of this affection which were due to the above-mentioned organism. The patients were nurslings. Despite the use of an autovaccine death ensued. The occurrence in such young children of meningitis due to germs of low virulence is pronounced common.—*Le Bulletin Médical*.



absolute decrease of polymorphonuclears than the x-rays and a more constant and rapid increase relatively. Basophilic myelocytes disappeared readily under benzol only to reappear temporarily after each dose of x-rays. As the blood picture approached normal limits, the basophilic myelocytes were reduced under benzol, reappearing when benzol was discontinued and again present following x-ray administration; on resumption of benzol they again disappeared. In variation of the myelocytes, the eosinophilic count conformed generally with the neutrophilic change, but increased or appeared with each administration of the x-ray. Neutrophilic myelocytes showed a gradual steady fall under benzol with a corresponding increase in polymorphonuclear leucocytes relatively. On discontinuing benzol a distinct and marked absolute increase occurred but was controlled with repeated doses of

THE BORDET-GENGOU REACTION IN AORTIC LESIONS.*

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THERE is at present little doubt that a relationship exists between aortitis and syphilis, particularly for the last fourteen years, that is to say since the time that search for the fixation complement in the blood has found its clinical applications. Moricaud (*Contribution à l'étude de la réaction de Wassermann chez les aortiques*, Thesis, Paris, 1914) published a very interesting study on the subject, showing the great importance accorded by this writer to the part played by syphilis in aortitis. He brings forward the results of his researches, preceded by a very complete history of the subject, which I will briefly sum up.

Already in the XVI century, Ambroise Paré suspected the luetic etiology of aortitis, while later, Fernel and some other clinicians likewise considered syphilis as a frequent cause of aortitis. On the other hand, at the beginning of the XIX century, Scarpa denied any relation between syphilis and aneurysm, while on the contrary, Nélaton, Broca and Ricord affirmed that there was. In about 1860, Aitken, of England, found syphilis seventeen times out of a total of twenty-four cases of aneurysm. In 1897, Fournier and Etienne, likewise Laveran and Dujardin-Baumetz very frequently noted this affection in the antecedents of patients with aneurysm. Out of a total of 3728 autopsies, Gron found a history of syphilis in 41 per cent. of subjects with aortic ectasis.

But it is only in reality since 1900 that observers began to pay attention to "syphilitic aortic insufficiency." Deguy, in his thesis, and Huchard, in his treatise on diseases of the heart and aorta, refer to the frequent coexistence of lesions of the aorta and nervous disturbances related to syphilis. At the Société Médicale des Hôpitaux de Paris, in 1901, Babinski went so far as to say that "when in a patient aortic insufficiency is found along with a lymphocytosis in the cerebrospinal fluid and a positive Argyll-Robertson symptom, this is sufficient for affirming the existence of syphilis." This viewpoint has been confirmed by Vaquez, in 1902, and in 1908, by the late Prof. Debove.

From this time, which corresponds with the discovery of the Bordet-Gengou reaction, statistics of cardiac lesions in syphilitics have multiplied and in his thesis published in 1912, Bricout gives a very complete study of the subject and a summary of all the publications that had appeared to that year. Also, in 1912, Ledermann and Delsoulier published large statistics.

Then, in 1914, came Moricaud's monograph. His researches were carried out on thirty-four cases with the hereditary and personal antecedents carefully recorded. A minute examination of the nervous system was also carried out in each case, as well as radiographic studies. There were ten cases of aortic aneurysm, seven of whom present a positive fixation reaction of the blood, the remaining three being negative. Of four cases of aortic insufficiency, two gave a positive reaction, and two a

negative one. There were six cases of aortic stenosis, three with a positive and three with a negative Wassermann. Three cases of aortitis, one of which with a positive and two with a negative Wassermann. Finally, under the heading of multiple lesions, Moricaud comprises eight cases, four having a positive and four a negative Wassermann. This observer remarks that syphilis was unknown to the patient in eleven cases out of seventeen in which Wassermann was positive and that in the fourteen cases of negative Wassermann syphilis could be suspected in two cases of aortic aneurysm, in one of aortic insufficiency and one of aortitis.

Moricaud concludes that "the part played by syphilis in the production of lesions of the aorta is becoming more and more evident," and in his way of thinking the Bordet-Gengou reaction is of the greatest interest, since it permits "in a large number of cases the detection of a latent syphilis." However, he adds that "when a Wassermann is negative, it should not be concluded that syphilis is absent in the antecedents of aortic patients, because in many cases unquestionable syphilitic aortic lesions may not give a positive reaction."

I am unaware that any other paper on this subject has been published since 1914. Prof. Bard being very interested in this subject has had the Bordet-Gengou reaction made in the majority of cases of aortic lesions under treatment in his service and he requested me to collect and publish the results so far obtained.

The cases reported in brief below were carefully studied clinically and an attempt has been made to ascertain if in all cases of aortitis syphilis must necessarily be regarded as the cause even when no clinical sign of the disease existed, and if this be not the case to determine the factors which might explain the positive character of the reaction in a certain number of subjects with aortic lesions. The results of my studies, with a few words on the clinical history of each case, will now be given.

GROUP I.

CASE I. Female, divorced, aet. 63 years, aortitis, aortic and mitral insufficiency, old syphilis. Married at twenty-five. Husband alcoholic. Six living children, four miscarriages. Diastolic murmur at base, systolic at apex. Pulsation of abdominal aorta. Pupil reacts weakly to light. Tremor of fingers. Wassermann —.

Autopsy. Fibrous aortitis. Slight valvular endocarditis of aorta.

CASE II. Male, aet. 42 years. Aortitis, aortic aneurysm. Married at twenty-seven. Wife had miscarriage before her marriage and was said to be syphilitic. Some months after the marriage the patient presented secondary accidents without ever having noticed a primary sore. Wife had two miscarriages, no living children. Patient divorced and married again at the age of thirty-one. Second wife had two living children, one dying from meningitis. Also one miscarriage.

The second heart sound was clanging. Oliver's sign present; patellar reflexes brisk. Radioscopy: left-sided ampullar dilatation of aorta. Wassermann +.

Autopsy. Syphilitic aorta. Aortic aneurysm.

CASE III. Male, aet. 54 years. Specific aortitis with a double murmur. Patient's wife has been in insane hospital for eighteen years. One healthy daughter. Syphilis thirteen years ago. Polyarticular rheumatism. Double murmur at cardiac base. Pulsatile expansion. The aorta can be perceived in the suprasternal fossa. Pulsation of carotids. Confused psychism. Instant restlessness. Myotic pupils, reaction almost nil. Tremor of tongue and fingers. Wassermann—in cerebrospinal fluid.

*From the Medical Clinic of the University of Geneva.

GROUP II.

CASE IV. Female, aet. 57 years. Aortitis, slight aortic insufficiency, cerebral syphilis. Married at thirty-one. Husband in good health. One child who died from meningitis at the age of thirteen. Six miscarriages. Systolic and diastolic murmur at base. Unequal pupils, reflexes normal. Mediocere psychism. Epileptic paroxysms.

Lumbar puncture = albumin, 0.10 per cent; globulin, 0. Figured elements, 2.4 per cubic millimeter. Blood and cerebrospinal Wassermann +.

Autopsy. Very marked patches of aortitis throughout the aorta.

CASE V. Female, aet. 47 years. Specific aortitis. Married at seventeen. Husband neuropathic. One child who died at thirteen months from convulsions. Aortic symptoms. Few peripheral symptoms; tracings show that penetration is difficult. Right radial pulsates more strongly than the left. Tremor of tongue and eyelids. Wassermann +.

CASE VI. Female, aet. 67 years. Generalized arteriosclerosis; aortic insufficiency. Father died of apoplexy. Husband died with paralysis. Nine children, six of whom are dead; three were born at seven and a half months. No rheumatism. Double aortic murmur. Carotids greatly dilated with very strong beats. Radials synchronous. Tremor of legs and hands. Wassermann +.

Autopsy. General arteriosclerosis. Aortic valves thickened and indurated. Cylindrical aneurysm of ascending aorta.

CASE VII. Male, aet. 59 years. Double aortic lesion. Two healthy children. No rheumatism; no venereal infection. Double aortic murmur distinct at base. Duroziez's sign present. Weak reflexes. Wassermann +. Radioscopy: enlarged aorta, the arch extends high up.

Autopsy. Fibrous aortitis. Aneurysm of aorta. Old aortic and mitral endocarditis.

CASE VIII. Female, aet. 65 years. Aortitis with double aortic lesion and mitral insufficiency. Married at twenty-eight. Husband died of heart disease. One miscarriage. Mild muscular rheumatism. Double aortic murmur. Pulsatile expansion. Indistinct peripheral symptoms. Nervous system normal. Wassermann +.

Autopsy. Sclerosis of aorta. Dilatation and degeneration of the heart.

CASE IX. Male, aet. 62 years. Diffuse aortitis. Double aortic lesion. Married at eighteen. Wife had seven children and three miscarriages. Cause of wife's death unknown. Remarried; second wife had two children and two miscarriages. Denies syphilis. Double aortic souffle. Duroziez's sign present. Pulsation of carotids. Tremor of eyelids. Wassermann +.

CASE X. Male, aet. 64 years. Unmarried. Specific aortitis; aortic insufficiency with mild regurgitation. Denies all venereal contagion. Double aortic souffle; Duroziez's sign indistinct. Pigmentary spots on right flank (syphilides). Pupils unequal. Reflexes decreased. Romberg's sign present. Wassermann +. Cerebrospinal fluid under high tension; traces of albumin.

Autopsy. Fibrous aortitis with a little sclerosis. Slight chronic endocarditis of the aortic valves.

CASE XI. Female, aet. 50 years. Specific aortitis. Aortic regurgitation and insufficiency. Mother died in insane hospital with an apoplectic seizure. Married at eighteen; no children, no miscarriage. Double aortic souffle. Corrigan's sign. Left radial pulse precedes the right. Duroziez's sign. Pulsation of carotids and abdominal aorta. Increased patellar reflexes. Commencement of Babinski's sign. Wassermann +.

Autopsy. Fibrous aortitis. Sacciform aneurysm of beginning of aorta projecting into and perforating the esophagus.

CASE XII. Male, widower, aet. 63 years. Specific aortic insufficiency. Parents unknown. Married at thirty-three. Three children who all died very young in convulsions. No venereal infection. Second sound whistling and scrappy. Pulsatile expansion. Patient very nervous. Patellar reflexes absent, Achilles reflex increased. Wassermann +.

CASE XIII. Male, aet. 64 years. Specific aortitis. Aortic insufficiency and regurgitation. Married at twenty-seven. Four children, two died between the ages of one and two years. Wife died of pulmonary TB. Remarried at sixty-one; no children. Denies

syphilis. Double aortic souffle. Slight pulsatile expansion when lying on left side. Duroziez's sign present. Myosis. Weak pupil reaction to light. Patellar reflexes smart. Radioscopy: dilatation of aorta *en masse*. Wassermann +.

CASE XIV. Female, aet. 33 years. Specific aortitis. Married at twenty-three. Husband in good health. No children, no miscarriage. Denies venereal infection. Second sound accentuated. Tremor of eyelids. Sharp patellar reflexes. Wassermann +.

CASE XV. Male, aet. 47 years. Specific aortitis? Remains of hemiplegia and aphasia. Married at twenty-nine. Seven healthy children. Wife had one miscarriage (twins). Ictus three years ago, with hemiplegia and aphasia. Denies venereal infection. Arteries hard. High tension. Pulse stronger on right than left side. Second sound ringing at base. Reflexes increased. No Babinski even on diseased side. Wassermann +.

CASE XVI. Male, aet. 72 years. Aortitis. Married at twenty-three. Wife died after a miscarriage (second one). Four living children. Remarried at forty. Four children and two miscarriages by second wife. Divorced and remarried for the third time at sixty-six. Third wife had no children or miscarriages. Pulsatile expansion when lying on left side. Pulsation of carotids. Pulse tense, arteries hard. Very nervous. Wassermann +.

CASE XVII. Female, aet. 47 years. Specific aortitis; pleurisy. Married at twenty-two. Husband died at forty in insane hospital. Two children died in early life, two miscarriages. No rheumatism. Double souffle at base. Capillary and venous pulse. Weak pupil reaction to light. Wassermann +.

CASE XVIII. Male, aet. 69 years, unmarried. Specific aortitis; aortic insufficiency. No rheumatism. No venereal disease. Double souffle over aortic foci. Second sound more marked. Bounding pulse (Corrigan). Capillary pulse. Patellar reflexes absent. Myosis. Pupil reaction to light abolished, weak to accommodation. Wassermann +.

CASE XIX. Female, aet. 55 years. Aortitis with aortic insufficiency and regurgitation. One illegitimate child at twenty. Had three love affairs. Finally married at fifty, no children or miscarriages. Denies venereal infection. Double souffle at the base, more marked at systolic. Commencement of Duroziez's sign in the femoral artery. Nervous system normal. Radioscopy: ectasis of aorta. Wassermann +.

CASE XX. Female, unmarried, aet. 30 years. Aortitis and multiple arteritides. Two healthy children. No miscarriage. Pulsations of abdominal aorta can be detected. Nervous system normal. Wassermann +.

CASE XXI. Male, aet. 72 years. Aortitis. Aneurysm of the aortic arch? Married three times. Two daughters by first wife, one of whom died of meningitis. The second and third wives had neither children nor miscarriages. Pulse tense, more marked on left. Subclavian can be felt with each systole. Second sound accentuated at the base. Nervous system normal. Radioscopy: aorta covered by a shadow extending beyond it on the left. Wassermann +.

CASE XXII. Female, aet. 53 years. Chronic aortitis (specific?). Father alcoholic; one brother died of meningitis while a sister is affected with delirium of persecution. Married at twenty-five. Seven children, no miscarriage. Systolic souffle at the base. Patellar reflexes slightly increased. Radioscopy: broad aorta. Wassermann +.

CASE XXIII. Male, aet. 63 years. Abdominal aortitis; arteriosclerosis. Married at thirty. Seven children, six of whom died from diseases whose nature was unknown. Gonorrhea but not syphilis. Clang of second sound very marked at the base. Epigastric pulsation. Arteries hard; temporals sinuous. Nervous system normal. Wassermann +.

CASE XXIV. Male, aet. 48 years. Chronic aortitis, aortic insufficiency. Wife has had one child and one miscarriage. Diastolic souffle at base extending into the vessels of the neck. Second sound clapping. Substernal aortic dullness. Nothing noted in the nervous system. Wassermann +.

CASE XXV. Female, aet. 50 years. Aortitis, myocarditis. Rheumatism at seventeen. Married at twenty-two, was divorced six years later. One healthy

daughter; another daughter died at the age of thirteen "after taking cold." Irregularity in the intensity of the pulses. The aorta beats in the suprasternal fossa. Tachycardia. At the base there is perhaps a double soufflé partially concealed by the tachycardia. Nervous system normal. Wassermann —.

Autopsy. Recurrent aortic and mitral valvular endocarditis. Dilatation of the heart.

CASE XXVI. Male, aet. 57 years. Aortitis; aneurysm of the aorta. Second sound somewhat sharp and on the back can be heard down to the sacrum. The abdominal aorta can be seen to pulsate. Tremor of eyelids and tongue. Radiography: the aorta, especially the arch, is enormous and pulsating. Wassermann —.

Autopsy. Aneurysm of the aortic arch with perforation into the esophagus. Sclerosis of the aorta and arteries.

CASE XXVII. Female, aet. 67 years. Aortitis; general arteriosclerosis; right hemiplegia; aphasia; multiple foci of cerebral softening. Married at twenty-seven. Husband died at fifty-four from apoplexy. Two children; no miscarriages. Second sound hard. The aorta can be felt in the suprasternal fossa and in the abdomen. Femorals large and hard. Phenomena of high blood pressure. Pupils unequal. Reflexes increased. Babinski's sign on right. Wassermann —.

CASE XXVIII. Male, aet. 47 years. Double aortic lesion. Alcoholic. No children. Denies venereal infection. Inequality of the radials. Recurrent pulse on both sides. Systolic soufflé at base and a slight diastolic one. Duroziez's sign present. Capillary pulse. Nervous system normal. Wassermann —.

Autopsy. Aortic valves rigid, immovable, covered with calcareous deposits filling the valvulo-aortic sinuses.

CASE XXIX. Female, aet. 71 years. Aortitis from atheroma. One healthy daughter. Rough soufflé at base extending everywhere, even to the back. Radioscopy: Aortic shadow broad and high up. Wassermann —.

CASE XXX. Male, aet. 58 years. Aortic heart. Has had acute articular rheumatism. Two children. Clapping second sound. Pulsatile expansion. Duroziez's sign present. High blood pressure—19 with Riva-Rocci. Nervous system normal. Wassermann —.

Autopsy. Aortic endocarditis, with slight adhesions of the valves.

CASE XXXI. Male, aet. 43 years. Aortitis; aortic regurgitation. Married at twenty. Wife died from a tumor in neck. One son in good health. No rheumatism. Mesosystolic soufflé above the aortic focus. Nervous system normal. Wassermann —.

Autopsy. Old calcified endocarditis of sigmoid valves. CASE XXXII. Male, aet. 66 years. Specific (?) aortitis; aortic insufficiency and regurgitation. Double aortic soufflé. Pulsatile expansion. Pulsation of aorta can be felt in the suprasternal fossa. Pulsating carotids. Duroziez's sign present. Nervous system normal. Wassermann —.

Autopsy. Aneurysm of aorta. Cardiac dilatation.

CASE XXXIII. Male, aet. 41 years. Aortitis; aortic insufficiency. Married at twenty-eight, afterwards divorced. Two healthy children. No rheumatism or syphilis. Cardiac shock diffuse. Second sound doubled and whistling. Venous pulse. Tremor of fingers and tongue. Wassermann —.

CASE XXXIV. Female, aet. 51 years. Specific (?) aortitis. Twice married. Two children by first husband, no miscarriage. No rheumatism. Radioscopy: Pulsating dilated aorta. Double soufflé at the base. Bounding carotids. Duroziez's sign present. Nervous system normal. Wassermann —.

Autopsy. Fibrous aortitis. Chronic aortic endocarditis.

CASE XXXV. Female, 44 years. Aortitis, arteriosclerosis, angina pectoris. Father died at forty-seven from apoplexy. Rheumatism. Arteries hard. Pulse can be felt better on left than right side. Sharp second sound at base. Reflexes almost absent. Paroxysm of angina pectoris. Wassermann —.

CASE XXXVI. Female, aet. 58 years. Specific (?) aortitis. Father died from apoplexy. Married at twenty-eight. One child, died at the age of twenty-eight days, cause unknown. Double soufflé over aortic foci. Second sound accentuated. Intense carotid

shock. Aortic pulsation at the level of sternal fourth. Wassermann —.

Autopsy. Syphilitic aortitis with aneurysm.

GROUP III.

CASE XXXVII. Male, aet. 69 years. Aneurysm of aorta. Married at twenty-seven. Two healthy living children; two others died in early life, cause unknown. Wife had two miscarriages. Denies syphilis. Sharp second sound. Radial arteries unequal, hard. Pulsation of subclavians which are enlarged and raised, especially on the right. Reflexes very sharp. Wassermann —.

Autopsy. Fusiform aneurysm of thoracic aorta. Fibrous aortitis.

CASE XXXVIII. Female, aet. 66 years. Anomaly or arterial aneurysm. Husband alcoholic. Three children. Systolic soufflé at base, extending to left clavicle, axilla and back. Venous pulse. Extreme myosis. Absence of pupil reaction. Patellar reflexes weak. Wassermann —.

CASE XXXIX. Male, aet. 52 years. Aneurysm of aorta. No children. No rheumatism; denies venereal infection. Sharp second sound. Base of heart enlarged (percussion). Nervous system normal. Wassermann —.

Autopsy. Aortitis. Arteriosclerosis. Sacciform aortic aneurysm.

GROUP IV.

CASE XL. Female, aet. 74 years. Atheroma; mitral insufficiency. Systolic soufflé at apex. Indefinite shock with hard diastolic vibration in mid-cardiac area. Sharp second sound. Hypertension and hard pulse (Riva-Rocci, 18.5). Nervous system normal. Wassermann —.

CASE XLI. Female, aet. 65 years. Arterial sclerosis. Seven children; three died in early life; one miscarriage. Second sound slightly sharp. Pulsatile expansion. Rather high tension. Aorta perceptible in epigastrium. Nervous system normal. Wassermann —.

CASE XLII. Female, aet. 51 years. Multiple syphilitic arteritides. Married at twenty-three. Two healthy children, three miscarriages. Divorced and remarried at thirty-six; had no more pregnancies. Rheumatism at forty. Sharp second sound. Pulsation of aorta in suprasternal fossa. High blood-pressure. Unequal radial arteries. Tremor of tongue and fingers. Reflexes sharp. Clonus of right foot. Wassermann in blood +; cerebrospinal fluid Wassermann —.

CASE XLIII. Female, aet. 89 years. Atheroma. Myocarditis. Husband died of old age. Two healthy girls, five sons who died between the ages of 6 and 38 years, the youngest in convulsions. Irregular arrhythmia. Hard sounds, especially marked over base. Nervous system normal. Wassermann —.

Autopsy. Cardiac hypertrophy. Traces of old aortic endocarditis. Fibrous aortitis and arteriosclerosis.

CASE XLIV. Female, aet. 72 years. Arteriosclerosis. Arteries indurated. Nervous system normal. Wassermann —.

CASE XLV. Male, aet. 72 years. Atheroma. Multiple aneurysms. Prolonged shock of heart. Sharp second sound. Radials small, femorals large. Pupils unequal, parietic. Patellar reflexes exaggerated. Babinski's sign on left side. Peculiar psychism. Wassermann —.

CASE XLVI. Female, aet. 60 years. Single. Arteriosclerosis, alcoholism, epileptiform seizures. Arteries indurated. Heart sound clear. Patellar and Achilles reflexes almost nil. Restless. Cerebrospinal fluid slightly cloudy. Wassermann —.

These forty-six cases have, for clearness, been divided into four groups. The first comprises the aortic cases in which syphilis was known to exist, the second, those in which the patients denied venereal infection. The third group is composed of cases of aneurysm, while the fourth comprises patients presenting various aortic lesions—arteritis, atheroma, arteriosclerosis.

Group I: Aortitis in syphilitics = three cases.

Wassermann + in two cases.

Wassermann — in one case.

Group II: Aortitis in subjects unaware of any syphilitic infection = thirty-three cases.

Wassermann + in twenty-one cases.

Wassermann — in twelve cases.

Group III: Aneurysm of aorta, syphilis denied = three cases.

Wassermann + in all three.

Group IV: Atheromatous lesions of aorta, syphilis denied = seven cases.

Wassermann + in three cases.

Wassermann — in four cases.

Briefly stated, out of forty-six subjects with disease of the aorta, only three admitted syphilitic infection, all others—forty-three in number—denied it or at least did not suspect having it.

Of these forty-three patients, twenty-seven gave a positive Wassermann. It is true that in going into the antecedents of these twenty-seven subjects, twenty are clinically suspicious since they presented nervous disturbances, polymortality of their children, absence of offspring, miscarriages, etc. Eliminating these twenty cases (74.07 per cent.) seven others nevertheless remain (25.92 per cent.) who gave no suspicion of syphilis, yet in spite of this fact fixation of the complement in the blood was positive.

The patients of Group I need not be discussed, since they were known to have syphilis, but if we take up Group II, consisting of thirty-three patients who denied any venereal affection, we find that there were twenty-one presenting a positive Wassermann. Of these twenty-one there were fifteen who offered in their clinical history nervous phenomena or psychic symptoms and in which syphilis was confirmed by autopsy. Nothing could be found in the remaining six, either in their antecedent or clinical condition, which could lead one to admit this etiological factor. It is to be noted that of these six patients (cases XIX-XXIV) three were males and three females and that all excepting one (case XX) were over forty years of age. And lastly, in the majority, besides their signs of aortitis, the radials and temporals were hard and tortuous.

The third group comprises three cases of aneurysm with a positive Wassermann in all. Two of the patients denied syphilis (cases XXXVII and XXXIX), but the absence of offspring in one (case XXXIX) and death of the children in early life in the other (case XXXVII) is sufficient to admit that there was luetic infection. As to the third case (case XXXVIII) the existence of syphilis is not stated, but the absence of reaction of the pupils and weak patellar reflexes are noted.

In the fourth group three patients out of seven gave a positive Wassermann in the blood. One patient (case XL), however, gave nothing in the clinical history that might lead to the suspicion of syphilis. As to two others, one (case XLI) lost three children in early life (one at the age of two months from convulsions), the other (case XLII) had three miscarriages and presented disturbances of the nervous system.

It would be assuming too much to oppose the general idea that almost all aortitides are due to syphilis. Nevertheless, I am convinced that not a few aortic lesions, regarded until now as specific

simply because the fixation sero-reaction is positive, are not in reality the result of syphilis. This applies especially to atheromatous lesions in elderly subjects even when the Wassermann is positive. I am more than positive that we should not place undue confidence in sero-reaction in these circumstances, because as Prof. Bard maintains, aortitis and atheromatous patches are perfectly susceptible in themselves, of creating antibodies capable of fixing the complement, since this cannot be regarded as a specific reaction.

THE DIAGNOSIS OF INTRATHORACIC NEOPLASMS.*

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AND

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DURING the past five years thirty-three cases of primary malignant neoplasms of the bronchi, lungs, and pleura have been admitted to the Montefiore Hospital. This appears to be a larger number than any other hospital has reported within such a comparatively short period, and we were at first inclined to attribute it to our diligence in looking for this class of cases. The fact that of the thirty-three cases admitted, only four were diagnosed correctly before admission to the Montefiore Hospital appeared to speak in favor of such a view. But further inquiry points altogether in another direction.

There appears to have occurred an increase in the absolute, as well as the relative, number of cases of primary malignant neoplasms of the lungs. This increase has, however, been noted mainly by pathologists while making autopsies; most cases had been otherwise diagnosed during life. Statistics published from the various pathological laboratories in Europe are to this effect, and in this city, Dr. Douglas Symmers informs us that in the twelve years previous to July 19, 1919, he encountered five examples of primary malignant neoplasm of the lungs in the Pathological Laboratory of Bellevue Hospital, and from July 19, 1919, to December 20, 1920, he saw eight cases.

Of the thirty-three cases that have been observed at the Montefiore Hospital during the past five years, complete autopsies have been obtained in sixteen, and in three surgical autopsies. It is worthy of mention that in all but one the diagnosis was made during the life of the patients, while in only one case was the diagnosis of the disease found at the autopsy to be an error. It is our conviction that the cases on which this communication is based were diagnosed during life of the patients because we relied mainly on purely clinical methods, on the history, symptomatology, course, and physical signs, while other diagnostic and laboratory methods, such as cytology of excretions and exudates, and radiography, were invariably considered as of merely confirmatory importance.

Nearly all our patients, before admission to the Montefiore were in other hospitals or clinics, where

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efforts at making a diagnosis had been made. The result was that the thirty-three patients were referred to us with the following diagnoses: Cancer of the lung, 4; pulmonary tuberculosis, 13; pleurisy with effusion or empyema, 7; chronic pneumonia, 2; cardiac disease, 2; neurosthenia, 1; abscess of the lung, 2. Despite this variety of diagnoses on admission, in two-thirds of the number of cases we either diagnosed tumor of the lung at the first examination of the patients, or at least suspected it. The purpose of this communication is mainly to show how we are led to make this diagnosis; the details of these cases will be given in a later communication.

It seems that malignant growths of the lung are so often missed because it is considered an exceedingly rare disease, and is never thought of when an atypical case of some more common pulmonary disease is examined. The fact that the onset is insidious, with cough, expectoration, pain in the chest, dyspnea fever, hemoptysis, and that the physical signs are usually those of a localized airless area of lung tissue, is responsible for the large number that are mistaken for pulmonary tuberculosis. In 50 per cent. of cases pleural effusions, serous, sanguineous, or purulent, occur; and for this reason, a large proportion are treated as pleurisy. In the later stages, when the tumor disintegrates, cavities are formed in the lungs, and fetid sputum is expectorated, thus abscess or gangrene of the lung is simulated. However, a careful scrutiny has shown that nearly all cases have certain characteristic traits which betray the presence of a new growth in the chest, provided it is always borne in mind that this disease is a possibility in all aberrant chronic pulmonary conditions in persons of the cancer age.

Nearly all patients with malignant growths in the chest cough and expectorate sputum which is not unlike that brought out by tuberculosis patients. Of course, no tubercle bacilli are found on repeated examinations. But in about one-half the number, hemoptysis was an early symptom. At first the blood is scanty, though the streaky sputum of phthisis is rare. Usually the sputum is thoroughly mixed with blood, and it thus presents the appearance of raspberry juice or current jelly. In the later stages, when disintegration of the tumor takes place, there may be copious and uncontrollable pulmonary hemorrhages; one of our patients succumbed to such a hemorrhage.

But there are two early symptoms which are hardly ever seen in early phthisis, namely, dyspnea, and pain in the chest. *It is important to think of a pulmonary neoplasm when a patient in the cancer age, showing no symptoms of cardiac, renal, or arterial disease, begins to cough, and is short winded.* In the advanced stages of tuberculosis severe dyspnea is at times encountered, but then the history and physical signs show extensive destruction of lung tissue, a pleural effusion, or a pneumothorax. The dyspnea in cancer is due to the plugging of a large bronchus from within or from without; when a primary bronchus is thus obstructed by the growth, or the trachea is pressed upon, the dyspnea may be severe, agonizing. Sudden death from asphyxia has thus occurred in two of our cases. Other pressure phenomena seen in

lung tumors include pressure against the large veins, especially the superior vena cava, when the tumor extends into the glands of the mediastinum along the lymphatics. The result may be edema of the upper part of the chest, neck, and face. In some cases the tumor extends into the right ventricle, or is pressing against it, producing intense dyspnea, cyanosis, edema of the entire body, etc. Pressure against the esophagus may result in difficulties in deglutition; in two of our cases it led to inanition. We have had cases in which the dyspnea was paroxysmal, owing to pressure which was more or less relieved on moving the body in certain directions. Stridor is very rare; we encountered it only in three of the thirty-three cases.

Pain, next to dyspnea, is a constant symptom; it was present more or less in thirty-one out of our thirty-three cases. It is usually felt in the lower part of the chest, in the axillary region, and in the shoulder, radiating to the arm, forearm, even to the finger tips. It is frequently misinterpreted and ascribed to pleurisy or intercostal neuralgia. However, the acute onset, friction sound, etc., of acute pleurisy are absent. In pleurisy with effusion, the pain is ameliorated, or disappears after an effusion takes place, while in tumor it remains after an effusion occurs, or may even become more pronounced. *In patients who have passed middle age, pain in the chest, with or without a pleural effusion, is suggestive, and requires careful investigation.*

In attempts at differentiation from pulmonary tuberculosis we are at times baffled because of fever which occurs in the majority of cancer cases very early, and in many even night-sweats have been noted. The fever may be mild, running up to over 100° Fahr. in the afternoon and normal during the morning. It may be high in the later stages, 103° to 104° Fahr., continuous, remittent, or intermittent. This in patients with cough, profuse expectoration, hemoptysis, etc., showing signs of a localized lesion in the chest, exquisitely simulates advanced pulmonary tuberculosis. It is for this reason that so many cases were sent in to us with that diagnosis. But in that vast majority of cases physical exploration of the chest decides the diagnostic problem.

Enlargement of the superficial glands is a late symptom, and when this is found the tumor in the lung is, as a rule, quite extensive. These glands are usually found on the neck, between the heads of the sternomastoid, and require careful palpation to be elicited as small hard nodules, freely movable. When at a later stage the glands are very large and visible on inspection, the axillary glands are also found enlarged. Only in rare and far advanced cases are the inguinal glands enlarged, indicating extensive metastasis. Enlargement of the superficial veins of the chest and shoulder is seen only in cases in which metastasis has occurred into the mediastinal glands, and this is uncommon.

The diagnosis is made by physical exploration of the chest and, in our experience, it has been more often decisive than any other diagnostic method. In many cases a small tumor nodule is more easily and much earlier discerned by percussion and auscultation than by radiography. We have mainly relied on the flat note elicited by percussion over the site of the tumor, and the flat area is, as a rule,

much more extensive than the size of the growth, because it obstructs a bronchus, thus cuts off the air supply of the lung supplied by that tube. This flatness is found in the upper lobe of the lung, or runs across the chest—is suspended—or is elicited over the lower lobe of the lung, according to the location of the tumor and the bronchus it obstructs. In a few cases, when the tumor does not obstruct a bronchus, it may be found by percussion, which shows a flat area extending a few inches away from the border of the sternum anteriorly, or from the spine posteriorly. At times we found flatness anteriorly, while posteriorly the note was normal or even hyperresonant.

Flatness in the lower parts of the chest commonly denotes pleural effusion, or a thick pleura; in the upper lobe it simulates a tuberculous lesion. But tuberculous lesions of the upper lobe emit a dull note, never a flat one. This is always to be borne in mind.

Auscultation will show feeble, or complete absence of breath sounds when a bronchus is obstructed. It is noteworthy that this may be found in cases with very small growths, provided a large or medium sized bronchus is obstructed, which is true of a very large proportion of cases. In cases in which the growth is in the region of the upper lobe the absence of breath sounds shows that we are probably not dealing with a tuberculous lesion in which the note is never flat, and there are nearly always audible some altered breath sounds, bronchovesicular, bronchial, or cavernous. In cases with flatness running across the middle of the chest, or involving the lower half of the chest, absence of breath sounds points to pleural effusion, either interlobar or general. The absence of adventitious sounds shows that in upper lobe cases we are not dealing with tuberculosis, while in middle and lower lobe cases it again points to pleural effusion. The same is true of the vocal fremitus, which is feeble, or more commonly absent over the affected area. However, the history of the case is usually sufficient to rule out pleural effusion: the acute onset is lacking and the persistence or aggravation of the pain in the chest, despite the evidences of fluid, points to a tumor.

In many cases the growth does not completely compress a bronchus, but only narrows it, and air is still permitted to pass through the narrowed tube. Here we get bronchial, or even amphoric breath sounds, which has been called by some writers *cornage*. When heard near the border of the sternum, or in the interscapular space, especially its upper half, in a patient in whom the note over the upper lobe of the lung is flat on percussion, and no adventitious sounds are audible, it is characteristic of tumor of the lung. It simulates a cavity, but the flatness and the absence of adventitious sounds point to a tumor.

Many lung tumors break down, and the patients expectorate large masses of sputum, have profuse hemorrhages, run high fever, sweat, etc. In these cases signs not unlike those of tuberculous cavities are elicited on physical examination, and, in fact, most of them are treated for tuberculosis. However, of the 15 cases of this type that have been sent in to the Montefiore Hospital as tuberculous, nearly all were differentiated within a few days

after admission. We have relied on the following diagnostic criteria: The history of the cases, the fetid sputum lacking in tubercle bacilli, the freedom of the opposite lung from signs of pathological changes, the flatness of the percussion note, etc., all point in the direction of a tumor. In doubtful cases the induction of an artificial pneumothorax and the taking of a radiogram may clear up the diagnosis, as has been described elsewhere. (See *Journ. Amer. Med. Assn.*, 1921, lxxvi, p. 581.)

With the appearance of pleural effusion, which occurs in over 50 per cent. of cases, things change and the difficulties in diagnosis multiply. Signs of the effusion are easily detected and a favorable prognosis is given. If exploratory puncture reveals pus, an operation is resorted to and the surgeon wonders why, after weeks of careful draining, there seems to be no tendency for the lung to expand and the wound to heal.

Experience with a comparatively large number of these cases has taught us that effusions secondary to pulmonary neoplasms have certain characteristics which betray the new growth. It seems that in these cases the fluid accumulates very rapidly and completely fills the chest. Inflammatory effusions, on the other hand, fill only part of the chest and rarely reach above the fourth or third rib. For this reason, in inflammatory effusion percussion shows a lower zone of flatness above which the resonance is slightly tympanic—Skodaic. When there is a tumor behind the effusion, or when the growth originates in the upper lobe of the lung, a flat note is elicited all over the affected side of the chest, from above the clavicle to the lower margin of the thoracic wall. *It is important to think of a lung tumor when one side of the chest is flat and offers the characteristic resistance to the pleximeter finger from the clavicle to the base.* Likewise, absence of breath sounds over one entire side of the chest, excepting cornage mentioned above, if not due to a pneumothorax, which is excluded by percussion, is almost invariably due to a tumor of the lung or pleura with an effusion.

In cases presenting these signs careful investigation will usually reveal other symptoms and signs confirmatory of the pathological process in the lungs—enlarged glands will be found on the neck, the mediastinum will be found displaced, though in shrinking tumors of the pleura it may be drawn toward the affected side; pain in the chest will be complained of, which cannot be accounted for by the more common clinical conditions.

In attempting differentiation from more common diseases of the lungs and pleura, the following points have proven of value: Enlarged glands of the neck may be due to cancer of the lung, tuberculosis, or Hodgkin's disease. Hodgkin's is differentiated along the usual lines of diagnosis of this disease. But tuberculous glands have one characteristic which, if borne in mind, will spare many errors: *Patients with enlarged tuberculous glands on the neck hardly ever have signs of active disease in the lungs, while when the glands are malignant we find signs of extensive changes in the lungs.* Dense consolidation of lung tissue, revealing itself by flatness, absence of breath sounds, etc., is an indication that the enlarged glands on the neck are malignant, and not tuberculous.

Many cases have been admitted with symptoms and signs of abscess or gangrene of the lung, and the signs elicited by physical examination apparently confirmed these diagnoses. However, abscess and gangrene of the lung are almost invariably preceded by some acute inflammatory disease of the lung, especially pneumonia, or by the aspiration of a foreign body. They have a history of sudden onset with a definite symptomatology. When the fever, cough, and expectoration of fetid sputum are due to a disintegrating cancer of the lung, a history of an insidious onset will be obtained. We have found it expedient to suspect all cases of "abscess of the lung" in persons of the cancer age of malignant disease of the lung, and to delve carefully into the history, symptomatology, and course of the disease, while the physical signs usually clinch the diagnosis.

We have made use of nearly all the laboratory aids in diagnosis, and found them in a few instances confirmatory of the clinical findings, but in most cases they prove either of no value or altogether misleading.

In three cases cancer cells were found in the sputum. But only when the tumor disintegrates, and parts are expectorated will these cells make their appearance in the sputum, and this is rather late for a diagnosis. Routine clinical methods prove decisive much earlier, as we have shown.

Moreover, cells not unlike those of malignant tumors may be found in the sputum expectorated by patients suffering from any disease of the bronchi, lungs, or throat. The large number and variety of epithelial cells which are derived from the epithelial linings of the mouth, nose, throat, and bronchi, and some, even, from the esophagus, may deceive the most competent pathologist. In fact, in most cases in which we have sent the sputum to the pathologist for intensive study of its cytology, his report has invariably been rather guarded, which did not permit absolute reliance, such as is given in a report of the finding of a specific organism.

Likewise, examination of the pleural exudate has been of but little value. It is very frequently sanguineous. Of 21 effusions, 4 were sanguineous. This is not a very high proportion, and when we consider that it is sanguineous at times in tuberculous effusions, its diagnostic significance wanes. However, in persons over 35 with a history of an insidious onset and pain in the chest, dyspnea, etc., it is suggestive. It may be purulent: in 5 of our cases it was so. Examination of the sediment of the fluid obtained by exploratory puncture has also given us but little help in diagnosis. Hardening the sediment and cutting and staining it have been attempted in several cases. But a comparison of findings with those obtained in tuberculous pleuritis hardly shows any difference. In two cases the cytology was suggestive of cancer cells, but it was never conclusive.

Of greater utility has been found radiography in lung tumors, but in many cases it proves misleading or negative. In the vast majority of cases it could not be considered of final value. A small tumor may altogether escape registration on the plate. In 2 cases of extrathoracic cancer, physical exploration of the chest revealed physical signs

strongly suggestive of metastatic deposits in the lungs. The radiographic plate taken at that time showed nothing to lead one to suspect a tumor in the indicated area. But about 4 weeks later, when the tumor had grown, it was discovered on the plate. It is thus clear that a small tumor, provided it impinges on a bronchus, or grows within it, may be discovered by careful physical examination much earlier than the x-rays will clearly reveal it.

Moderate sized and large tumors appear clearly on the plate as homogeneous shadows, sharply defined. In some cases there is no line of demarcation, and then it may be easily mistaken for other pulmonary lesions. Now and then an interlobar effusion will exquisitely simulate a tumor of the lung. Likewise, miliary carcinomatosis cannot be differentiated from miliary tuberculosis on the plate. When fluid appears, and it does in over 50 per cent. of cases, it covers up the tumor and the radiographer can only report an effusion. This, in fact, is the source of a large proportion of errors in diagnosis. It appears, however, that when the shadow cast by the fluid fills the entire half of the chest, radiographers are justified in suspecting a tumor of the lung or pleura. But, after all, only the history and physical signs have proved decisive in our cases. Nearly all our cases of this sort went to the radiographer with the suggestion that we consider the possibility, or that we are convinced that there is a lung tumor.

We have resorted to the following procedures: Withdrawing the fluid and immediately taking a radiogram will show a tumor which is otherwise obscured by the fluid. Of late we withdraw the fluid and produce a pneumothorax, then a radiogram will show the tumor clearly and unequivocally.

NEW AND SIMPLE TESTS FOR ALKALINE CARBONATES IN URINE.

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For detecting the presence of alkaline carbonates in urine we have relied in the past, first, upon litmus paper, which shows that the urine is alkaline; second, upon effervescence of the urine when acids are added to it; third, upon the fuming which takes place, if ammonium carbonate is present, when a rod moistened with hydrochloric acid is held close to the urine, and, fourth, upon microscopic identification of certain crystals, as when triple phosphate or calcium carbonate is present in the urinary sediment. We have also been advised to dry the litmus paper, which has been turned blue, and to observe whether the blue color is permanent (fixed alkali) or whether it disappears (volatile alkali).

The writer has no wish to make adverse criticism of any of these older tests. The general practitioner can use now one, now another of them according as they are available, but most of them have been discarded by the writer himself, since the new tests, described in this article, have been discovered and perfected by him. These new tests do away with much that is inconvenient or disagreeable, and enable the physician to make bedside examinations of the urine without danger of soiling either hands or clothing.

The cleanest thing the practitioner can use for

urine testing is the ordinary medicine dropper. The new tests are so devised that they can be performed readily by the aid of this cheap and simple instrument.

To discover whether the urine contains alkaline carbonates: By means of a medicine dropper fill a small test tube half full of the urine to be examined and, using another medicine dropper or, preferably, a drop bottle, add to it a few drops (five are enough) of the writer's acid mercurous nitrate solution. Do not shake the tube, but see that the five drops lie on the upper stratum of the urine, holding the test tube by the closed end with the left hand. If alkaline carbonates are present in quantity sufficient to be of clinical significance, a dark precipitate will immediately be seen in the upper stratum of urine. If they are absent or only in traces, a white precipitate is seen. The dark precipitate in case of carbonates is likely to darken still more on standing.

The mercury solution is made by dissolving one gram of "mercury nitrate, mercurous," Merck, in 100 c.c. of distilled water. (Water decomposes mercurous nitrate into an acid nitrate, which goes into solution, and a basic nitrate which remains undissolved). Shake well and let stand for some hours; then decant or filter. In order to become familiar with the workings of the test, dissolve half a teaspoonful of sodium carbonate in a glass of water or normal urine and test this solution with the mercury reagent. Dilute the soda solution with different volumes of water and make the test upon the various dilutions, observing the color of the various precipitates.

The mercury solution also precipitates soluble sulphides, but these are not of common occurrence in the urine. The dark precipitate obtained, if it is not affected by adding 50 per cent. acetic acid (10 drops or more), is due to sulphides. If, however, the acetic acid turns the dark precipitate brown or gray, and it immediately settles, carbonates and not sulphides are present in the urine.

Certain drugs, especially when used intravenously, may interfere with the reaction one way or another; hence, care should be taken to test the urine at periods when no intravenous work has recently been done upon the patient.

The mercury solution keeps well, though a slight sediment gradually forms. It may be well to test it from time to time with dilutions of a sodium carbonate solution and, if it appears to deteriorate, to make up a fresh solution. Repeated weighings are not necessary, when fresh solutions are made, except for the sake of economy. The physician, having once become familiar with the volume of the crystals weighing a gram, can use enough of the salt each time to satisfy himself that plenty of the reagent is being added to the 100 c.c. of water.

The mercury test shows carbonates in the urine but does not differentiate them one from another. The urine may contain sodium carbonate or ammonium carbonate or, if sodium bicarbonate is taken by the patient, this substance may be present. Sodium phosphate taken by the patient does not appear to give a dark precipitate with the mercury reagent.

In order to differentiate ammonium carbonate from other carbonates, the mercury test, when posi-

tive, in the case of urine having an odor of ammonia, is sufficient. Indeed, the odor of ammonia alone, without the mercury test, suffices. But the writer finds that considerable ammonium carbonate may be present in urine before an ammonia odor sufficient to attract attention can be discovered, at least by the writer's olfactory sense, which is fairly acute. Inasmuch as ammonium carbonate is, on the one hand, pathological when occurring in freshly voided urine, and, on the other hand, troublesome chemically when occurring in urine after it has been voided, the physician should know whether this substance, in amount clinically significant, is present.

To detect ammonium carbonate in urine the writer uses Nessler's solution, which can be made either according to the formula described in the sixth edition of Hawk's Physiological Chemistry (Nessler-Winkler solution) or by means of the older formula described in Sutton's Volumetric Analysis, sixth edition.

The Nessler-Winkler solution is easier to make. It contains 10 grams of mercuric iodide, 5 grams of potassium iodide, and 20 grams of sodium of potassium hydroxide per 100 c.c. of water. The general practitioner can make it himself as follows: Procure an ounce of mercuric iodide (red iodide of mercury) and divide it into three equal portions; procure an ounce of potassium iodide and divide it into six equal portions; procure four ounces of sodium hydroxide, sticks, and divide them into six equal portions. Shake up one portion of the red iodide in two fluid ounces of distilled water, until it is well mixed; then add one portion of the potassium iodide and shake well until it is dissolved; finally dissolve two portions of the sodium hydroxide in an ounce of water and cool well; after it has cooled, pour it gradually into the mixture containing the iodides, and stir well. The mixture becomes clear and of light yellow color. It should measure about 3.33 ounces (100 c.c.). If it falls short, add more water. A flocculent precipitate soon forms, which should be allowed to settle, the supernatant liquid being poured off for use. If the physician has a centrifugal machine, the precipitate can be removed by centrifugation, the supernatant liquid being poured off for use in testing. The unused portions of the chemicals can be kept for another occasion or made up into solution according as is required.

The old formula for Nessler's solution contains 1.7 grams of mercuric chloride, 3.5 grams of potassium iodide, and 20 per cent. solution of sodium hydroxide sufficient to bring the solutions of chloride and iodide up to 100 c.c. Dissolve the mercuric chloride in 30 c.c. of water, warming to aid solution. Dissolve the iodide separately in about 10 c.c. of water. Add the cooled mercury solution, drop by drop, to the iodide solution until a precipitate forms which does not clear on shaking. Then dilute the mixture with 20 per cent. sodium hydroxide solution until it measures 100 c.c. Finally add what is left of the mercury solution until a permanent precipitate forms. Let settle and decant or centrifuge.

Whichever solution is made should be kept in a tightly stoppered bottle.

To make the test for ammonium carbonate take

up 1 to 3 c.c. of the reagent with a clean medicine dropper, or with a clean pipette as, for example, that used for delivering urine in the Doremus hypobromite test, and place it in a small test tube or 5 c.c. graduate. Then, using another clean medicine dropper, add to it, without shaking, from 2 to 5 drops of the urine to be tested. If ammonium carbonate is present, a red precipitate forms, which floats for a time on the surface of the mixture. If no ammonium carbonate is present, a yellow precipitate forms which soon darkens on standing. Urines containing sodium carbonate or bicarbonate are negative to this test when performed as above. If the urine contains much ammonium carbonate, one drop of it will show a marked red precipitate. The red precipitate can be plainly seen by looking into the tube from above.

To determine the quantity of ammonium carbonate, approximately, after its presence has been shown by the above test, proceed as follows: Pour into five clean glasses, beakers, or graduates 30, 60, 120, 240, and 480 c.c. of water, respectively, that is to say, 1, 2, 4, 8, and 16 fluid ounces. To each one of these add 1 c.c. of the urine in question, for which purpose the pipette used with the Doremus ureometer is convenient. Mix well, preferably by pouring back and forth into other clean glass vessels. Provide five small test tubes or 5-c.c. graduates and into each one pour 2 to 3 c.c. of the reagent. Then, using clean medicine droppers, float 2 or 3 c.c. of each of the mixtures on each of the reagent quantities in the test tubes. Urine containing a large amount of ammonium carbonate will show a marked red cloud at and above the juncture of the two fluids, even when diluted as much as 1 to 240 or possibly 1 to 480.

For clinical purposes, therefore, the amount of ammonium carbonate found from time to time may be designated by the figures 1, 2, 3, 4, or 5, according as the red cloud is present or absent on testing the dilutions. It goes without saying that absolute cleanliness is a desideratum in making these determinations, owing to the delicacy of the test.

(To float a dilution on the chemical solution hold the test tube containing the chemical almost horizontally and deliver the dilution from a medicine dropper or pipette as slowly as possible. Since urine of high specific gravity tends to darken quickly, if a small amount only of ammonium carbonate is present in it, it is well, in cases of doubt, to dilute the urine with one or two volumes of water and to repeat the qualitative test. If this is now plainly positive, then proceed with the quantitative test, as above described.)

By means of these tests, used as described, the degree of decomposition of the urine, taking place in the bladder, may be inferred from the amount of ammonium carbonate found, as in the case of prostatics. If ammoniacal decomposition has also taken place in the pelvis of the kidney, a quick and ready test is provided for urine withdrawn by means of urethral catheterization, since only small quantities of urine are needed for such a test. In the case of patients unable for any reason to void more than a few drops of urine the test is particularly useful, since not more than five or ten drops of urine may be required.

Lastly, for determining whether the urine has

become stale from exposure to the air, as in a warm room, the test is particularly valuable. Ammonium carbonate in urine interferes with acidity determination, with urobilin detection, with the volumetric quantitative determinations of uric acid and phosphoric acid, and nullifies to a great extent the value of microscopical examination of the sediment. Especially is ammonium carbonate in urine likely to cause fallacious analytical conclusions where the ratio of urea to ammonia is determined, as in the toxemias of pregnancy. Urines which in small quantities (one-five drops) produce a copious red precipitate with the Nessler reagent are, as a rule, not fit for analysis, in the sense that the results of such an analysis are not necessarily conclusive and may even be misleading.

To differentiate sodium bicarbonate in urine from sodium carbonate is, as a rule, of no great importance, since the patient usually knows whether he has been taking sodium bicarbonate or not. The writer has noticed that when the Nessler-Winkler reagent is used, five drops of urine containing sodium bicarbonate added to 3 c.c. of the reagent produces a yellow which quickly turns darker, while in the case of sodium carbonate the change may be slower and not so marked.

If ammonium carbonate has been excluded, and if in 10 c.c. of a urine a red color is produced when one or two drops of phenolphthalein indicator are added, sodium carbonate rather than bicarbonate is likely to be the alkali, and such urine will also turn red litmus blue. If, however, the urine turns red litmus blue and does not redden when to 10 c.c. of it are added one or two drops of the phenolphthalein, but requires addition of decinormal sodium hydroxide to produce the red, then sodium bicarbonate is likely to be the alkali.

The writer directs attention to the peculiar action of sodium bicarbonate with his acid mercurous nitrate reagent: if an aqueous solution of the bicarbonate be made and tested, it will be found that a dark precipitate may not occur, but a light-colored one, somewhat yellowish in hue. On the other hand, sodium bicarbonate dissolved in urine yields a dark precipitate when tested with the mercury reagent, just as do the other alkaline carbonates in urine. If the patient is taking potassium iodide, a dark precipitate may occur when the urine is tested with the mercury reagent.

In general, therefore, when these new tests are used it is advisable to suspend administration of alkalies for the time being, in order to be certain of results obtained. Alkalies not sufficiently purified may contain ammonium compounds yielding positive reactions with Nessler's solution.

The writer's experiments show that litmus paper cannot be depended upon as a negative test for ammonium carbonate, since urine containing an appreciable amount of this carbonate may perceptibly redden blue litmus paper. On the other hand, the fact that urine is neutral or alkaline to litmus does not indicate, necessarily, that ammonium carbonate or any carbonate is present.

The changes in the urine, which lead to the formation of ammonium carbonate, are such as are likely to result in the disappearance of important constituents of the sediment, as, for example, red blood corpuscles or tube casts, especially when but

few were originally present. Hence it becomes important for the clinician to become aware of the presence of ammonium carbonate in urine, to be able to form an opinion as to the quantity of it, and to differentiate it from other carbonates.

To do this quickly and accurately, without the use of acids, without causing production of foam or odor, without need of heating, without the use of any kind of papers, and without danger of soiling hands or clothing has been the desideratum for which the writer has striven in devising the new tests, above described, which require for performance quantities of urine in no case exceeding 5 c.c., and, for detecting ammonium carbonate, only a few drops.

Summary.—1. The presence of alkaline carbonates in the urine is inferred when a dark precipitate forms after addition of a few drops of a 1 per cent. solution of mercurous nitrate to a few cubic centimeters of the urine.

2. The presence of ammonium carbonate in urine is shown when a red precipitate forms after addition of a few drops of urine to a few cubic centimeters of Nessler's solution.

3. In the absence of ammonium carbonate a positive reaction with mercurous nitrate points to the presence of sodium carbonate or bicarbonate, the latter being inferred when the patient presents the history of having taken "soda bicarb." or baking soda recently.

4. Rarely a positive reaction with mercurous nitrate is due to soluble sulphides, in which case acetic acid (50 per cent.) does not change the color of the precipitate.

5. Drugs taken by the patient, especially iodides and intravenous medicaments, may lead to erroneous conclusions when the mercurous nitrate test is employed; hence, knowledge of what the patient is taking should always be had by the physician employing the test.

25 EAST WASHINGTON STREET.

THE ETIOLOGY OF MULTIPLE SCLEROSIS

(SPIROCHÆTOSIS ARGENTINENSIS).*

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As the researches of the last years have shown, an always increasing number of diseases are found to be caused by spirochetes of different kinds; and in many cases it has become evident that the spirochetes attack by preference the central nervous system, which is involved in the disease much more than, from mere clinical observation, formerly could have been supposed. In the same sense it seems now that multiple sclerosis belongs to this most important group of nervous diseases produced by spirochetes.

Multiple sclerosis (sclérose en plaques), since the middle of the last century, has been the object of many and intense studies, and all the details of the clinical symptoms are very well known, as well as the anatomical and histopathological features.

Though the symptoms may vary in the single cases in wide range, according to the different seat of the lesions in the brain and spinal cord, still there

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are several classical signs of the disease which generally allow one to make an exact diagnosis even at an early stage. For that reason it has been possible to show that the affection is by no means rare, but is relatively often discovered by neurologists.

Hitherto very little was known as to the origin of the disease. Often it had been supposed that the causes must be sought in psychic, climatic, or poisonous influences and lesions. Repeatedly a possible connection with syphilis has been considered, which in fact can produce very similar symptoms; but the modern diagnosis of syphilis as by the Wassermann and other tests, did not support that view. On the other hand it has become lately more and more probable that some relation to previous acute infectious diseases often exists.

In 1917 Kuhn and Steiner (*Mediz. Klinik*, 1917, N. 18), reported, that they had succeeded in finding some spirochetes in connection with multiple sclerosis, which were different from the *Spirochæta pallida*, and resembled mostly the spirochete of Weil's disease, being perhaps still more delicate organisms than the leptospira. They made their observations in four cases, three of which were quite fresh, while in the fourth the disease had existed for two years, but showed symptoms of recent exacerbation. They injected blood and serum of these cases into guinea pigs and rabbits and found that the animals developed a disease which was fatal and could be transferred by inoculation to other animals. In the blood from the liver of the animals, two guinea pigs and three rabbits, they found spirochetes which were always lying in the interior of blood vessels, never in the tissues. It was not possible to find the spirochetes directly in the human organs.

In 1918 Siemerling found, by the darkfield, some similar spirochetes in the brain of a man who had died from multiple sclerosis (*Berliner Klin. Wochenschr.* 1918, N. 12). Also by observations of Simons it was confirmed (*Neurol Centralblatt*, 1918, N. 4), that rabbits could be successfully inoculated by the serum of a case which suffered from fresh inflammatory symptoms of multiple sclerosis. Formerly Bullock had reported successful inoculations of rabbits.

In 1919 Marinesco (*Rev. neurol*, 1919, p. 481), infected six guinea-pigs by intracerebral injection of 3 c.c. of serum from two cases, and was able to show by the darkfield the presence of a great number of living and motile spirochetes in the cerebrospinal fluid of the animals, which he had taken by puncture of the fourth ventricle. The animals had presented difficulties of locomotion almost similar to paralysis, three or four days after infection; later the paralysis and general symptoms were followed by the death of the animals.

Kuhn and Steiner have continued their researches under great difficulties and have recently published another paper (*Zeitschr. f. Hyg. u. Infekt. Krkh.* xc, p. 417), in which they report on new successful inoculations of animals, in which they could find the spirochetes. They report their observations with all reserve and have not yet decided to claim definitely that their spirochete must be the cause of human sclerosis, which they think is not yet proved beyond all doubt, as long as the postulates of Koch have not been entirely fulfilled. They made their first observations on the spirochetes in

Strassbourg, which was founded by the Romans as a settlement under the name of Argentoratum; for that reason they gave to their spirochete the name of *Spirochæta argentinensis*.

In fact there are no very important objections which could still be made to the opinion, that the spirochete is really the causative agent of the disease. The idea that spirochetes penetrated into the blood of the animals after death may be excluded because they were seen in the blood of living animals by darkfield and in stained preparations, and likewise by silver impregnation in the liver taken from animals and fixed immediately after killing them. It is true, that spirochetes can be found in rabbits and guinea-pigs, but those that are described till now are quite different in their shape from these spirochetes. They are either non-pathogenous parasites in the blood, or they are found as cause of local spirochetal affections of the tissues, whereas the *Spirochæta argentinensis* is a pathogenic organism, living exclusively in the blood. We must agree with the authors if they say that it would be extremely curious indeed if one spirochete were found at the same time with experimental animals of two different races as causes of a fatal disease without their bearing any connection with the inoculation.

Kuhn and Steiner have made further experimental inoculations in a series of cases. Because not each inoculation can be expected to be successful, they recommended the use in every case of at least five guinea-pigs and five rabbits for the experiments. Likewise the success of inoculation will depend very much on using only quite fresh cases or cases not too much advanced, which show some acute symptoms. Even in those cases a positive result is not always sure. Of course there is some difficulty in having such cases for experimenting, as patients with those early symptoms very often do not come to the medical observation. Anyway it is useful to have early cases, especially such as show some pathological findings in the liquor.

The inoculation of animals was made by injecting blood or cerebrospinal fluid, as much as possible, into the vitreous body of the eye after discharging the aqueous humor.

In the new series of experiments researches were made on nine cases. In six cases, which were early, the inoculations were positive. Of 69 animals they used, 12 were infected, six guinea-pigs and six rabbits, showing a fatal disease with symptoms of paralysis. In one guinea-pig and in one rabbit it was possible to find spirochetes in the blood vessels of the liver by the method of silver impregnation.

From all the 13 cases which have been tested hitherto, in six old cases there were found no spirochetes; they were found in one old case with recent symptoms. From six early cases spirochetes were found in four cases.

Finally a monkey had been inoculated intraperitoneally with serum of a case of multiple sclerosis in March, 1917. In February, 1918, the monkey showed temporary symptoms of paralysis, which soon passed. In June, 1918, the symptoms of paralysis were again manifest in the lower extremities and remained so till death. The monkey did not use his legs for walking nor when he was held by the neck. When lifting up the animal his legs were flexed in the hip and knee joints. The toes were

completely paralyzed and the monkey was unable to climb. The reflexes of the inferior extremities were vivid. The monkey was killed in July, 1918. The dissection showed no pathological findings in the internal organs. In the brain there were macroscopically seen some circumscribed gray spots in the white medullar substance, of an irregular, round or oval shape, sometimes irradiating or confluent. Microscopically it could be stated that these spots were centers of degeneration of medullar sheaths. These foci of degeneration were often rich in granular cells filled with lipid substances. In the foci was seen a very intense proliferation of neuroglia cells. The axis cylinders, on the contrary, were very little affected; the resistance of the cylinders being evidently the reason for the long duration of the disease. Such degenerative foci were hitherto only found in the white medullar substance of the cerebral hemispheres, where they were disposed quite irregularly, in some places more frequent than in others. The histopathological lesions in the brain of the monkey inoculated with serum of multiple sclerosis are identical with the lesions in human cases. A detailed report on the histopathology will be published in *Zeitschrift für die gesamte Neurologie und Psychiatrie*. Spirochetes have hitherto not been found in the monkey.

From the reports published there is almost no doubt that multiple sclerosis is a well defined disease *per se* and not only a mere symptom of different other non-specific affections of the nervous system. Though perhaps at this moment we cannot yet form a definite idea of the whole pathogenesis of the disease, still it seems clear from the pathological findings that we have to deal with an inflammatory process produced by spirochetes and localized to the central nervous system, especially in the surrounding of the small venous blood vessels, which are the exclusive seat of the spirochetes. The inflammation gives origin to the proliferation of the glia cells, which is secondarily followed by degeneration of the nervous fibers. Besides the nervous parenchym also the pia mater and the connective tissue depending on it may present some signs of residuary inflammatory processes, giving thus, perhaps, some hints as to the way by which the spirochetes may have originally entered.

There is no evidence that the disease has appeared like other acute infectious diseases in epidemics or endemics, neither are there any experiences, that the disease is directly transmissible from man to man, though occasionally several members of one family can be attacked. From these facts, in my opinion, perhaps it might be concluded that we have to consider multiple sclerosis not so much as an original acute infectious disease, but rather as a late consecutive inflammatory state of spirochetal infection, which may have originated years before, perhaps without severe symptoms, but which has remained latent in the body all the time, till at least it became manifest with clinical symptoms in the central nervous system.

We know that it is a characteristic peculiarity of most spirochetal diseases, that they have an especial tendency to progress in the central nervous system, as is so well known from syphilis, relapsing fever, Weil's disease, rat-bite fever and others. The reason may be the want of sufficient anti-body

production, which must be almost a rule in all spirochetal diseases, as is proved by the frequent occurrence of incomplete cure after the first attack and of relapses in most of them, and which is also the reason that especially the nervous system is almost without any protection against the invasion of the spirochetal germs.

It is very suggestive to quote, as another example, the general paralysis, and to consider as possible that multiple sclerosis in quite the same way as paralysis is only the late manifestation of a spirochetal or leptospiral infection, which may have taken place long ago and which we do not yet exactly know in all its details. As I have mentioned, good observers have remarked the fact that clinically there is often found in the history of cases some connection with previous acute disease, generally called typhoid. Considering the form of the spirochetes it might be justified to think especially of an infection like Weil's disease, of which we know that an invasion of the central nervous system by leptospira has taken place in almost 100 per cent., as could be shown in the liquor. It would be very curious if in the liquor, in which the protective powers of the body are so little developed, such a highly virulent organism as leptospira should pass and disappear spontaneously in all the cases without settling and making any pathological lesions and consecutive symptoms in the most sensitive tissues, and, on the contrary, it would in no way be surprising, if in a certain percentage of cases at least the leptospira might keep persistent and give origin to late manifestations in the nervous system quite in the same way as *Spirochæta pallida* does in syphilis. I may mention here that also in other parenchymatous organs it could not be excluded, if not the leptospira of Weil's disease may be able to produce late anatomical lesions, as for instance cirrhotic processes in the liver, also similar to *Spirochæta pallida*. If there should be found such relations between the spirochetes of Weil's disease and chronic sclerotic processes of parenchymatous organs, we can easily understand how this fact could so long escape medical observation if we only remember how difficult it has been in such a common disease as general paralysis to discover the etiological connection with syphilis that in most countries has affected more than 10 per cent. of the whole population so that the observations could almost be made by everybody, whereas Weil's disease, on the contrary, is very infrequent and can be easily overlooked.

Also in countries where yellow fever is or has been endemic it would be very important to make researches on the question, if not the same or similar sclerotic affections of the central nervous system may be found at late sequelæ of an infection with *Leptospira icteroides*. We have known very little of diseases consequent upon yellow fever, especially of nervous sequelæ of the infection. It has not even been stated whether invasion of the liquor by spirochetes occurred, though I should consider this very probable, not only from the parallel with Weil's disease, but also from clinical and anatomical experience.

We know practically nothing at present, of how multiple sclerosis spreads, how the germs leave the sick body, how they penetrate into the newly infected body and develop and spread there. Cer-

tainly it is not probable, that the spirochetes pass the body on their way to the central nervous system without producing pathological lesions and symptoms, which may be the true source of infection. This has to be found out before it will be possible to propose any measures to prevent the spread of the disease. On the other hand, there is much hope, if the sclerosis is definitely proved to be of spirochetal origin, that the treatment will greatly profit from the fact, as it will be possible to attack the germ with spirocheticidal medicaments. It may be interesting from this point of view, that just the medical experience of the last years had brought forth the fact that in the treatment of sclerosis the injection of arsenical compounds proved superior to any other medications, which generally had given only temporary and symptomatic effects and were not able to stop the progress of the disease which hitherto seemed so hopeless in its prognosis.

PAUPERIZING THE PUBLIC.

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MUCH is being said about "social medicine," "State medicine," and the caring of the health of the public by the State, without direct expense to that public. Viewed from the side-lines, we get an idea that all this is a something which will furnish jobs for a favored few and, like all things with which jobs are connected, this may be a something which may result disastrously for all concerned.

Why give medical treatment, or surgical, for that matter, to the public without direct expense to them? Why not give them their groceries, their clothing, their shoes, or furnish them with pianos or talking machines at the expense of the State? The latter would be just as logical, and perhaps all of us could live in palaces and enjoy all the luxuries of life, were they furnished us by the State.

Do those who propose the altruistic things have any idea that the public will be any better treated, medically or surgically, if the State instead of the individual pays the bills? Do they have any idea that the doctor with a job and working upon a salary paid by the State, will be a better doctor than he who receives his stipend from the individual? In so far as we have ever noticed, it has seemed to us that when one gets a public job and becomes well intrenched therein, he eventually loses his efficiency, for he does not have to use much other than his patronage to his superiors to hold that job. Efficiency usually counts for but little in connection with the holding of things of that sort.

This "State medicine," "social medicine," or whatever it may be called, is not going to be a good thing for the public, for it is going to place the whole public in the pauper class. It is going to force the individual to accept such doctor or doctors as the State may offer and he is to have no choice in the matter as to who or who shall not be his physician. It is going to make a sort of nincompoop of the man who otherwise might give a display of some sort of a working mind. A mind sufficiently well balanced to allow him to form some conclusions as to who might be the better doctor.

But being a pauper, in the eyes of the State, the individual is not going to be allowed to form any conclusions, whatsoever, but *must* accept the services of the physician assigned to his particular "panel," or whatever else the particular section of the country may be termed.

Nor is pauperizing the public going to be of any particular benefit to the medical profession. There will be no incentive to work toward a greater efficiency, for once installed in a job, and having sufficient "pull" to hold it, why should the doctor worry about a trifle like efficiency. If he be a political favorite, and these jobs will undoubtedly be political, no matter whether or not he be efficient, the job will be his as long as he may care to retain it. And the pauperized public will suffer because of such a condition, for it will not be given attention by men of true efficiency.

Anything worth having is worth paying for, and efficient medical or surgical attention is surely worth having. It is true that, under the workings of "social medicine" or "State medicine," the public really does pay for what it may get, but that is not realized at the time services are rendered by the panel doctor. Not being paid for, such services are very liable not to be appreciated—sometimes they may not be such as to be worthy of any appreciation, for they are very liable to be of rather poor quality, as are many other things meted out to the public by its servants. And one might say "servants" advisedly.

Medicine is becoming more and more of a machine, a machine under the manipulation of a favored few who happen to be in power. This machine is, without a doubt, to blame for the suggested "State medicine," or "social medicine," for such a thing will add just one more cog to that machine and make those handling it still more powerful. Even today there is but little of democracy or true Americanism in the medicine of this country. The profession, as a whole, has but little to say of its condition, and if "state medicine" comes in vogue and the people become pauperized thereby, we may expect to be further hidden under the bushel, as a whole, with but a favored few in the limelight. We will be but hidden parts of a gigantic machine and with no incentive or opportunity to allow the shining of any individual light. We may even become known by number and have to punch the time clock. For it will be of interest to the favored few, who would tell us what to do, that our identity, as individuals, be lost.

While the pauperized public may visit the doctors more frequently than would be the case were each call for such services to be paid for, still we are of the idea that that public would not be served as well as at present, for it is a well-known fact that any doctor working under contract and upon a stated salary or other income does not, as a rule, give his patients that attention usually received from physicians in private practice—physicians who must give value received, else they fail to hold their patrons. And a panel physician will be a "contract doctor" to every intent and purpose and, providing he possesses sufficient pull, the matter of giving value received will not necessarily count, to any very great extent. No matter if he be brilliant, his income will be no greater, so why

any particular brilliancy? "State medicine," to our mind, will make a lot of plodders in the medical profession—men who just get by, for what else will be needed? The breeding of Oslers, Mitchells, Mayos, Mackenzies, and men of that type will cease, for what need will there be of any such sort? Everybody will have a job and something of an income and there will be no incentive to become great, or even near-great. And anyway, paupers do not usually look for services from the great men of any profession.

We have often wondered what is the excuse for "State medicine," anyway. Primarily, it was something "made in Germany," and there it was soon found to be almost if not quite an absolute failure. A little later England took it up, and now wishes it had not. Other countries have given it a trial, with the usual results. So why America? Most Americans can pay for good medical services, and but few of them really enjoy being pauperized. Of course, as has already been said, "State medicine" will strengthen the medical machine, perhaps, but further than that we cannot see any earthly excuse for it—not in America. The real American has always been independent, both in thought and action. Let him remain so, and let him judge for himself whom he will employ as his doctor. Don't try pauperizing him if he is in position to pay for his medical services, as he does for the other necessities of life. For if you do you are going to give him the idea that the individual doctor cannot stand upon his own feet, but must have the support of the State.

A CONCEPT OF X-RAY PATHOLOGY.

IX.—FRACTURES.

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(Concluded.)

Fracture of the Forearm Structures.—Fracture of the olecranon process is not exceptionally common. The plane of fracture may run transversely or obliquely across the olecranon. The plane is generally straight but may occasionally be irregular. Little or no separation of fragments may be observed, or the fragments may be widely separated, the proximate fragment being pulled up by the triceps muscle. Two or three days after the fracture is obtained, the bursa over the olecranon process may become the seat of swelling, and difficulty clinically manifested in differentiating between fracture or traumatic bursitis. X-ray pathology has demonstrated that a great many olecranon injuries are really fractures without fragment separation.

Fracture of the Coronoid Process: These are considered rare, there being relatively few references to coronoid process fracture in the literature. There is a tendency in the coronoid process for the fragments to wander into the joint. The x-ray is the only sure diagnosis in these cases.

Fractures of the Head and Neck of the Radius: The x-ray has shown these fractures to be commoner than has previously been thought. Injuries to the radial head interfere with the rotation of

the forearm, making supination or flexion and extension of the elbow especially difficult. It is not impossible for the radial nerve to become involved in the callus that may form, or radial nerve injury may be sustained at the time of the primary injury.

Fractures of the Shaft and Lower End: Fracture of the lower end of the radius is perhaps the most frequent type of radial pathology. Colles' fracture ranks next in frequency to fracture of the clavicle. In a great many cases the ulna styloid is also torn off. The displacement of fragments in a fracture may assume a variety of forms. Communion is not uncommon. Impaction may be seen. The deformity may be of the so-called "fork" type, or it may assume many forms. Fractures of the shaft of the ulna may occur in a transverse or oblique plane or they may be comminuted. The tendency to displacement is not exaggerated; although frequently, owing to the pull of the pronator quadratus muscle, the lower fragment may be drawn over toward the radius. The fracture frequently accomplishes dislocations of the head of the radius and is not recognized because of the more severe injury; so that in fractures of the ulna or in dislocations of the radial head an x-ray should be taken of both regions, the ulna fracture being scrutinized for the possibility of a complicating radial head dislocation, and vice versa, radial head dislocation should be scrutinized for the possibility of ulna fracture. Precise diagnosis is imperative for guiding in the treatment. The radial nerve is sometimes involved in fractures of the ulna shaft.

Barton's fracture consists in the breaking off of the posterior tip of the articular end of the radius at the wrist. For purposes of x-ray pathology, a fracture at the wrist that is completely transverse, the line of fracture not being directed toward the wrist joint, may be called a Colles's fracture; whereas, a fracture whose direction is not transverse, the line beginning at the side of the bone and curving, meets the joint space, may be described as a Barton's fracture. Barton's fracture must clinically be differentiated from injuries of the scaphoid and semilunar bones. The differentiation is effected by means of the x-ray.

Fractures of the Shaft of the Radius: In this, the fracture may assume many planes; but it is commonly transverse or oblique and is rarely comminuted. Displacements vary from those of a transverse fracture, where there may be little more than an angular change in the axis of the radius at the site of the fracture, the bone ends holding opposition; or, in transverse fractures with displacement, or oblique or comminuted fracture, angularity forward and inward with a moderate degree of overriding. It should be remembered that rotation may occur between the two fragments with very little evidence of angularity in the x-ray. This is especially true in those fractures that occur above the insertion of the pronator teres when the biceps tends to supinate the upper fragment and draw it forward. Fracture of the middle third, or just above the attachment of the pronator quadratus, may be followed by pulling of the upper fragment into outward rotation and abduction, the pronator quadratus muscle at the same time drawing the

upper ends of the lower fragment toward the ulna. Careful x-ray examination and diagnostic interpretation should be conducted in the case of fractures of the radius and ulna for the reason that, while these fractures are not dangerous to life, they are the most dangerous as regards loss of function. It seems to be generally decided that the best means for the treatment of these fractures is that with the hand in full supination; and the x-ray guide should frequently be used to make certain that callus proliferation should in no way interfere with the desired end.

Fractures of the Carpal Bones.—The navicular bone, or carpal scaphoid, is an important structure for the x-ray pathologist by reason of the fact that the controversy, championed primarily by Dwight, as to whether or not a bone is fractured or congenitally bipartite, still arises in visualizing traumatic pathology involving this structure. The question of bone variations leading to the "law of multiple variations" has already been discussed. According to Dwight, the scaphoid consists essentially of two parts, the radial and an ulnar part, and sometimes may present certain accessory ones, namely, an external and central radial bone. It would seem that if the opposing surfaces of a bipartite scaphoid are roughened, that the lesion presents primarily a fracture; at least, this is the contention advanced in those textbooks discussing the problem; but, as Dwight shows, the scaphoid, by reason of its anatomical position and function in the wrist, is so located as to make for maximum friction between the two surfaces of a dividing bone. So that even congenital subdivision of the navicular might well be accompanied by roughened approximating surfaces. A method for the determination of whether a bone is congenitally bipartite or traumatically fractured is that of photographically enlarging an x-ray picture of the divided bone according to the method outlined for the teeth under the discussion of odontopathy. The purpose of the enlargement is to show the trabecular orientation. If the orientation is differently planned in both sections of the divided bone, the x-ray inference would be that the bone had arisen from separate centers of ossification and is therefore congenitally subdivided; but if the orientation tends to continuity and is ruptured by the line of fracture, the inference would be that the subdivision results from trauma rather than from a congenital cause. When the navicular is fractured other than in its center, at right angles to the long axis, a diagnosis of fracture is usually more readily made. X-ray examination is important in trauma, sustained in the region of the wrist to differentiate a Barton's fracture from a fracture of the scaphoid.

Fracture of the semilunar is difficult to distinguish by any evidence other than x-ray. Congenital division of the semilunar does occur, when it is divided into a ventral and dorsal half; but since these halves are superimposed in a postero-anterior view of the wrist, the x-ray pathology is not confusing on this score. Fractures of the remaining carpi are not common, and if they occur may readily be diagnosed.

Fractures of the metacarpal bones are common and generally present little difficulty in their recognition.

Fractures of the phalanges are also readily recognized.

Fractures of the Femur.—Fractures of the head of the femur, relatively uncommon, are sometimes difficult to recognize by reason of their smallness and further by reason of the fact that generally they are crush fractures, the separated fragments remaining impacted in the head of the femur. Careful x-ray examination will reveal their presence.

Fractures of the neck of the femur may involve any part, but generally are to be found either near the head or near the trochanters at the base. If the separation is complete, and the fracture is near the head, the angle of the axis of the head is changed relative to its position on the femoral shaft, and is directed upward and forward. These fractures have been classed as intracapsular. Fractures at the base of the neck into the trochanter are classed as extracapsular. The displacement of the head in extracapsular fractures is similar to that occasioned in intracapsular fractures, but is generally more marked in both planes of displacement, upward and forward; and since treatment consists in aligning the remaining femoral shaft in the axis of the head, in order to obtain muscle rest, it is important that careful x-ray control be given in obtaining extreme abduction and inclined plane.

Fractures of the shaft of the femur may be of all types, the pathology depending upon the part of the shaft involved, upon the normal curve of the bone and upon the muscle balance at the point of fracture. In the middle third it is common to find a transverse fracture; whereas, in the upper third extreme obliquity is the rule. Displacement is greater than in fracture of any other bone owing to the tremendously powerful muscles concerned. In transverse fractures, where separation is complete, overriding manifests practically at once, the lower fragment being drawn upward and behind the upper one and the angularity existing is directed outward and forward. The lower fragment generally rotates outward, being turned by the weight of the foot and leg. In fractures of the upper third, the proximal part is pulled forward and outward by the muscles attached at the trochanters, the glutei and psoas, while the flexors and adductors draw the lower fragment inward and up against the upper fragment.

The knee joint, in cases of shaft fracture of the femur, sometimes develops signs conducive to investigation. There may be an effusion into the joint and later, in many more than half of all cases, a tendency to stiffness is to be observed. While a chronic periarthritic change involves the knee joint, it is difficult definitely to elicit any x-ray pathology.

Supra- and Inter-condyloid Fractures: These are generally associated, the plane of fracture being transverse or oblique and at any height above the condyle. When oblique from behind downward and forward, separation may be great, the upper fragment being driven down toward the knee, the lower fragment riding upward and downward owing to the pull of the gastrocnemius.

Condyle and Epicondyle: Either condyle may separate, the size of the fragment detached being more or less small or large, depending upon the bulk of the condyle separated. The displacement is usu-

ally backward and upward, or it may be lateral and upward. The lateral ligaments retain their hold above unless they are ruptured. The crucial ligaments may be injured at the same time. In lateral displacements, the knee appears wider. There is always effusion of blood into the joint cavity, sometimes to the point where fracture is not suspected at all, until the x-ray examination is made, or until the knee swelling has subsided and a more careful clinical examination can be conducted.

Fractures of the Patella.—Transverse or oblique fractures occur most frequently. The line of fracture may be straight or it may be step-like or curved. In longitudinal fractures complete separation of the fragments is not the rule; but should complete separation be found, one fragment is usually laterally dislocated outwardly, owing to the pull by the vastus externus insertion. The amount of displacement of fragments is dependent entirely upon the degree of concomitant fracture of the fibrous aponeurotic investment of the bone, the drawing of the lateral ligaments, and the synovial membrane of the knee joint. It should be remembered that the patella is the one bone of the body subject to refracture more often than any other sesamoid.

Fractures of the Tibia and Fibula.—The head of the tibia presents the articular surfaces turned slightly upward and separated by the two tubercles of the tibial spine. Between the two tubercles is a groove which continues in both directions and broadens into the intercondylar fossa. In the wider and anterior fossa are attached the anterior crucial ligaments and the anterior edges of the lunate cartilages; whereas, in the posterior fossa, which inclines down and backward, the cartilages are attached to their respective sides of the spine and the posterior crucial ligament is joined to the rounded surface posteriorly. X-ray pathology in ruptures of the crucial ligament is unsatisfactory. The pathology of semilunar cartilages has elsewhere been discussed.

The anterior tubercle may partly or completely separate; a condition called Schlatter's disease. The condition cannot occur after the age of seventeen. Separation after ossification is more extensive, involves a larger fragment of bone and is accompanied by greater displacement.

Fractures of the upper end of the tibia alone, or of the tibia and fibula together, may sometimes present severe comminution or the line of fracture may assume a most varied direction. Transverse fractures are exceptional; oblique are common and involve usually the knee joint or separate one tuberosity from the head. When the displacement is minimum, impaction is the rule. In fractures of this region the popliteal vessels and tibial arteries are subject to dangerous injury. The joint invariably suffers an effusion or hemorrhage. The swelling incident to the effusion is a marked characteristic and may attain such proportion as to obscure the clinical identity of a fracture, which may be mistaken for dislocation.

Separation of the upper epiphysis is uncommon owing, says Hutchinson, to the strong ligament and tendon protection acting as powerful retainers of the epiphysis to the shaft.

Fractures of the shaft tend to run toward the

concave side of the tibial flexion. In children, fracture of the tibial shaft alone is more common than in adults, when the tibial and fibula shafts are usually conjointly fractured. It is in this bone that spiral fractures are particularly common. External rotation of the mobile peripheral part of the leg is more common than internal rotation, so that spiral fractures of the right leg are left handed; and, contrariwise, spiral fractures of the left leg are right handed. To this rule there are exceptions. Shaft fractures may assure all varieties of displacements. As a rule, excess callus is rare in the healing of leg fractures.

The lower epiphysis separates more often than the upper. In the separation of epiphysis, the danger to thwart growth is great; but while this is of clinical importance, it is beyond control of the roentgenologist.

Pott's fracture is quickly recognized by its x-ray pathology and offers little comment. Fractures of the fibula alone are rare unless at the lower end.

Fractures of the tarsals are not uncommon, the calcaneus being most frequently affected. There may be compression fractures of any of the bones. Variations of the tarsal bones should always be held in mind, particularly the os trigonum and the divided pedal scaphoid. The os trigonum is the external posterior process of the astragalus. Very rarely this separate bone may be found divided.

A most interesting variation in the pedal scaphoid is that described by Pacini. It was found twice at dissection, once in the collection of plates examined at the Army Medical Museum (easily 10,000 ankles) and again in a marine who chanced for dispensary treatment and x-ray observation during the course of writing these articles.

The pedal scaphoid varies greatly in its size and in its shape. Its tuberosity may not be identical with the tibiale externum. The tibiale externum is commonly designated a sesmoid in the tendon of the tibialis posticus, but Dwight insists that it is a true part of the skeleton. It is to be observed that all the variations in additional bones involving the pedal scaphoid are described as affecting the scaphoid on its anterior convex surface between the internal and middle cuneiforms. Sections of tibial scaphoids have, in 8 per cent. of two hundred and fifty cases, indicated the possibility of an additional center, involving the posterior surface of the scaphoid at the facet articulating with the astragalus. In the four cases above described a triangular wedge was distinguished isolated at the posterior superior portion. This separate bone may be mistaken for fracture. It is placed in a position where it receives much friction so that the frayed edges of the bone, while they would suggest a traumatic separation, are really the result of prolonged irritation, incident to the mechanical imperfection of a divided tibial scaphoid. In one of the cases studied by x-ray control, the tibial scaphoid remained frayed in its contour for seven years.

CONFUSING ARTEFACTS.—There are radiopacities and radioparities that appear in the normal plate that may make for error in interpretation. Partly to avoid this it is a wise expedient always to ray the corresponding part for comparison in any given roentgenological study. Linear striations are threefold. The first are those incident to epiphyseal

lines, appearing as definite breaks in the continuity of the bone. The x-rayist should ever be on the guard against such misinterpretation by familiarizing himself with the table of epiphyseal ossification. If a muscle bundle crosses a bone there may be a sharp black line possibly confused for a fracture. This mistake has been made in the case of a transverse process of the lumbar vertebra crossed by the superimposed belly of the psoas muscle, giving an appearance that simulated a fracture through the transverse process. Another possibility of error is that in mistaking the course of a blood vessel in the skull for fracture line. Familiarity with the internal and x-ray anatomy of the skull will make for elimination of this error.

The roughening of bone edges, particularly in the region of the attachment of tendons, is sometimes erroneously diagnosed periostitis. The roughening should be reported with the cautious advice that its location is such as to preclude the possibility of great pathological significance. Intestine which is meteoric and superimposed on a bone, particularly the ilium, may render the underlying bone structure so radioparent as to give the appearance of a perforated osteomyelitis. This error is rare but it has nevertheless occurred. Warts and fibromata, metallic salts, and defective plates may be other sources of confusion.

Medicolegal Notes.

Jury's Finding as to Method of Treatment Not Decisive.—In an action against a surgeon for malpractice in the alleged improper treatment of a hernia the evidence showed that the defendant used an injection method. Several doctors of unquestioned repute and experience testified that this method is obsolete, that it was not a proper treatment and that the plaintiff's injuries were due to its administration. Several doctors for the defendant testified that the treatment was a recognized or proper one, but not much used at present. Under such state of the evidence it was held a jury question whether the defendant was negligent in the plaintiff's treatment. A finding by the jury that the method used was proper or improper did not decide defendant did not use a method ordinarily used by surgeons of good standing, without a finding whether the any issuable fact.—*Stenkowiczki v. Lytle*, Wisconsin Supreme Court, 177 N. W. 848.

Expert Testimony as to Proper Method of Treating Drug Addicts Admissible.—During the progress of a trial of a duly registered physician for violation of the Harrison Anti-Narcotic Act, the government tendered as witnesses three physicians of the district to testify as experts as to the proper method recognized by the medical profession for the treatment of narcotic addicts. The defendant objected to such expert testimony on the ground that expert testimony was inadmissible, and that the facts only as to what the defendant did in the practice of his profession in the treatment of addicts under the indictment were admissible. The defendant was charged with illegally dispensing the drugs; his claim was that the drugs were dispensed in the course of his practice as a physician. The Circuit Court of Appeals, Fifth Circuit, held that it was material and proper for the jury to be informed of the method recognized by the medical profession for the treatment of drug addicts, and this method could only have been detailed by men skilled in medicine; otherwise, any physician could dispense the forbidden drugs in any quantity to persons not his patients, and thus defeat the purposes of the act. The issue being whether the drug was dispensed in the legitimate course of the defendant's practice as a physician, the evidence was held admissible on that issue.—*Reeves v. United States*, 263 Fed. 690.

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DEFENCE AGAINST ADVERSE LEGISLATION.

WE live in strenuous times and it is as true now of the medical profession as of the nation that its liberty can be preserved only at the cost of eternal vigilance. In the good old days of a former generation physicians had few harassments apart from their professional duties and were able to devote themselves to the care of their patients without lay molestation. Those who longed for a ruction had to get up a dispute among themselves over the code of ethics or some other academic subject, for the State respected medicine and left its votaries to rule themselves. But one evil day some restless and altruistic spirits among us conceived the idea that the public needed protection from irregular practitioners. The public was doing very well and as a rule those who really needed medical care had nought enough to distinguish the true physician from the faddist and the quack, and everybody was content. But these medical reformers would not have it so, and to protect those who were in no need of protection they persuaded the legislators to pass medical license laws. Then the trouble began. The politicians awoke, or were awakened, to the fact that here was virgin soil to work—and they worked it. Turn about was fair play, and if the doctors were so eager to interfere with the liberty of the public to choose its own healers, the public might become interested in limiting the amount of liberty the doctors should be permitted to enjoy. So the law makers got busy and first stretched out a sheltering arm over all sorts of healers who formerly had to work in the dark or who suffered from the reproach of irregularity; laws were passed raising them to an equality with medically educated practitioners, formerly esteemed as the only real physicians. Then having tasted blood, the legislators passed law after law regulating medical practice and prescribing a maximum dosage of various drugs, and appointed hirelings, lay and medical, male and female, to see that these laws were executed in a way best adapted to inconvenience and irritate the honest practitioner.

Formerly the harassed doctor looked to his county and State societies to protect him against ad-

verse legislation, but now to his dismay he not infrequently finds his natural protectors failing to oppose, if not actually supporting, one objectionable bill after another. As a matter of fact the county and State societies are not the proper agencies for safeguarding the material interests of the medical profession. They were founded primarily to provide an arena where scientific questions could be discussed. Now science and politics do not mix well, and a realization of this fact has led to the organization of societies having as their main object the prevention of legislation inimical to the medical and allied professions. One of these societies, a pioneer in the work and a type of the class, is The Professional Guild of Kings and Queens Counties, New York, membership in which is made up of physicians, dentists, and pharmacists. This Guild has the usual officers, a board of directors and an executive secretary whose whole time is given to the service of the society.

A brief summary of the recent work of this organization may be of interest as showing in what its activities consist. The Guild proposed the bill introduced by Assemblyman Lord, mention of which was made recently in our news column, the object of which is to repeal the State narcotic law and abolish the narcotic commission. Soon after this bill was introduced the Guild arranged for a mass meeting in Brooklyn in opposition to the new regulations suggested by the narcotic commissioner. At this meeting representatives from numerous scientific societies in Greater New York spoke, and, in a spirit of fairness first Deputy Commissioner Mulhall was invited to make the first speech. She accepted the invitation and embraced the opportunity to state that, although her statistics showed that only five per cent. of physicians, dentists, and pharmacists were crooked, she believed 20 per cent. were. A committee was then sent to Albany to meet the narcotic commissioner and arrange for a hearing in New York City in opposition to his regulations. Later the Guild took an active part in securing a large delegation from medical societies throughout the State for the hearing at Albany on the various narcotic bills. At this hearing 98 per cent. of those who spoke favored the Lord bill. While on the train returning from Albany the delegation was informed by the lady deputy commissioner that the new regulations would be pushed to the limit. Therefore another mass meeting of representatives from the various societies was called at which it was determined to enjoin the commissioner from enforcing his regulations (papers have since been served on him) and to use every effort to secure the passage of the Lord bill and to abolish the superfluous State narcotic commission.

This is only a small part of what this one society has done, but it proves the value of a non-scientific organization of the kind to do work which the individual doctor could not possibly do alone and which the county or State society could not do as effectually without neglect of its scientific interests.

When one thinks of all the measures under way or threatening—compulsory insurance, annual registration, health centers, chiropractic licensure, antivivisection, and others nearly as vicious, it is easy to see that only a strong organization, having a single aim, can save us from the assaults which our altruism of many years back laid the profession open to, if it did not actually invite them.

THE BABY'S MILK.

Of equal importance with the much-discussed subject of milk-modification is the less-discussed subject of the kind of milk to modify. On some points there seems to be a fair degree of unanimity. Very few advocate the prolonged feeding of any canned food to babies. Practically all pediatricians use cows' milk in some form in the routine artificial feeding of infants. The question at issue, then, and it is a question which merits clarification, is whether the infant should be fed raw certified milk, pasteurized milk, or boiled milk. Certainly if raw milk be used, the ordinary "market milk," with its higher bacterial content and greater likelihood of causing trouble, should be avoided. The champions of raw milk should be the champions of certified milk. They should also be interested in seeing to it that certified milk is all that it is certified to be.

Those familiar with bacterial counts for the past year know too well how frequently certified milk has failed to meet the requirements of the various medical milk commissions. At the meeting of the American Association of Medical Milk Commissions, held in Louisville in November, 1920, it was fairly agreed that the "labor situation," more than any other factor was, and is, responsible for the frequently high bacterial content of certified milk. The occupation of dairyman stands competition with other trades very badly—due partly to irregular hours, partly to the general aversion to any sort of farm work, largely to the higher wages paid to industrial workers. Employees in a certified dairy must be intelligent, careful, teachable; they must take what would seem to the ignorant and indifferent, ridiculous care in their work. Such workers have been difficult, often almost impossible to get. Producers, usually far less able than distributors to weather any storm, have often been obliged to make use of milking machines to make the available labor accomplish more. Milking machines are notoriously hard to clean. They may effect a reduction in the number of laborers employed; but they require the most intelligent and painstaking care in their use, if the bacterial counts are to be kept within certification requirements. Clearly, those who favor the use of raw certified milk in infant feeding have to contend with the fact that bacterial counts are occasionally, in some communities frequently, high; and that a few virulent streptococci, even though the actual count be well within requirements, can do serious damage to infants.

If the milk is properly cared for afterward, pasteurization makes it safe for use by adults and

young children. Though the bacterial counts of pasteurized milk are often high, the likelihood of pathogenic organisms being present is very slight.

The complete safety and ready digestibility of boiled milk are certainly powerful arguments in its favor as the best form of milk to use in infant-feeding (provided of course that care is taken to furnish antiscorbutic vitamins). If we boil the milk, the necessity for using the more expensive certified milk is at least questionable—especially as the fat content of market milk is not likely to fall below standard. It requires an enormous amount of effort on the part of medical milk commissions, producers, and distributors, to keep bacterial counts below ten or even fifty thousand. The corresponding increase in price of such milk practically prohibits its use by the poor. The infant mortality-rate has always been a check (albeit an immorally expensive one) on the purity of the milk supply. Will boiling the infants' milk allow producers to "get away with" grossly contaminated milk? Decidedly, it should not. There are no accurate data on how many killed bacteria can be fed with safety. And no one would relish having the point decided by his own baby.

Most of those who favor boiled milk for infants agree that milk need not be boiled after the baby has reached the age of two years. Should not young children above two years of age be given raw certified milk? Such children are in all probability, or at any rate should be, taking a fairly general diet. It is inconceivable that pasteurized milk should be harmful to them. In fact it is becoming increasingly clear that the entire milk supply should be pasteurized. It is safe to say that if the efforts at present being expended by the profession on certified milk were to be devoted to securing a supply of pasteurized milk of acceptable purity—say a fat percentage of 3.5 and a bacterial count not to exceed 250,000—the result would be distinctly beneficial. At any rate it would be far better than the condition at present prevailing in many communities: a badly contaminated milk supply for the general public and a hyper-pure milk supply for the relatively few who can afford its higher price.

DIRECT PATERNAL ANCESTRY OF GENIUS.

Of recent years, perhaps in part due to the gallantry of feminists, the claim has been reiterated that prominent men derive their talents chiefly from the mother, the influence of the father being almost negligible. As far as we know there has never been any scientific statistical basis for such a claim. On the contrary, Galton years ago proved conclusively that many men of great talents and achievement were sons, grandsons, or nephews of prominent men bearing the same name. Despite the great resemblance of many men to their mothers and maternal grandfathers, family portraits extending over many generations often show remarkable "throwbacks" to paternal grandfathers, great uncles, etc. We have seen the statement that

hereditary characteristics tend to die out after four or five generations, but it is difficult to understand how this could happen, because the ancestor "thrown back to" should in turn "throw back" to some ancestor of his own; possibly the chances are against throwing back on the paternal side, for after all this may be the exception.

Those who believe strongly in the influence of the paternal line are inclined to disbelieve in the obscure paternal ancestry of talented men. Granted that the father and grandfather were obscure, it is possible that back of the latter there was recognized ability. Biographers of men of humble origin often make strenuous efforts to connect their subjects with distinguished namesakes, and usually without much success. Yet occasionally it happens that a presumption of this ancestral superiority comes to light through the results of trained genealogical effort.

It has generally been believed that Burns the poet was of thoroughly plebeian origin. The poet himself inclined to this view, for a careful search through books on surnames and heraldry revealed no trace of his own, which was really Burness, a name evidently not the same as the familiar surname of Burns. Several years ago the discovery is said to have been made that a presumable ancestor of Burns in the paternal line with the born name of Campbell and of some prominence, had for certain reasons changed it to Burness. The evidence is said to have been imperfect enough to cause the truth of the statement to be challenged and the question must be left open. In the case of Poe the evidence that his family name was originally Powell is strong if not conclusive. Bewley, a professed genealogist, collected the data and published them in 1907, but the fact does not seem to be generally known. The Poes of the County Cavan in Ireland, the poet's forbears, disappear from the records about the middle of the XVIIIth century, as if lost in complete obscurity; but Bewley had little difficulty in connecting them with the Powell family of that region, in which they had been well known for several centuries. There is absolutely no evidence to connect this branch of the Poes, at least, with the Poer or Power families. Of course the paternal grandfather of the poet, General Poe, was a man of eminence, but it is of some interest to trace the right male line to prominent folk in the old country.

Doubtless attempts of the same nature would repay the effort in the case of other men of talent. According to one pedigree Edwin Booth was a lineal descendant of Barton Booth, a great actor in the XVIIth century. His paternal grandfather, however, is said by some biographers to have been of Hebrew extraction, and in such a case the name of Booth must have been assumed. In this connection it may be said that Bret Harte was fully aware that his paternal greatgrandfather was Abraham Hart, the Hebrew founder of the New York Chamber of Commerce, and that his surname was not related to the familiar British name of Hart.

THE TREATMENT OF PULMONARY EMPHYSEMA.

THE treatment of pulmonary emphysema may very rightly be regarded as the type of palliative treatment in which, on account of sheer inability, we are obliged to deal with a lesion which becomes definitively confirmed. But the distressing accidents to which the patient is the prey or those which threaten him can be cared for.

This treatment is largely hygienic and is based upon the fact that the patient must abstain from all activity and ceaselessly care for his daily existence. For those who are able to carry out this manner of living and can change climates according to the season, in order to enjoy continually a dry atmosphere and an almost equal temperature, the pulmonary condition may be kept in check and the patient fairly comfortable. The emphysematous subject is fragile and should be regarded as such, otherwise an aggravation of the pulmonary lesion will arise and the risk of cardiac complications will be considerable and constitute the great danger to the patient.

For some observers the diet should be rigorously regulated, all meat being practically excluded, at least for a certain time, while an exclusive milk diet is enjoined during difficult phases of the affection. Others are less strict in their prescriptions, although they advise great care in diet in order to avoid an overplus of food and especially auto-intoxication from the digestive tract, which may be the starting point of acute paroxysms and other complications. Constipation should also be persistently treated.

Treatment, properly speaking, comprises physical and medicamentous therapeutics. The former may be summed up in aerotherapy, which can be carried out by baths of compressed air, or by pneumotherapy, which is a variety of the former and undoubtedly less subject to caution. As treatment which cannot profitably be employed other than in large establishments, aerotherapy also requires very strict medical oversight. Unquestionably, it has given very appreciable results, but in many cases it has been found necessary to give it up. Cases which benefit by it must be selected with extreme care and, as Robin very justly remarks, patients with high blood pressure, arteriosclerosis, cardiopathies, pulmonary tuberculosis, obesity or plethora should abstain. The same observer recommends hydrotherapy in the form of the Scotch douche as a regulator of the nutrition, accelerating diuresis and, in a fashion, brings about a cutaneous reaction which diminishes the tendency to bronchitis, all ways to be feared in these subjects.

Treatment by drugs is limited and about all that can be essayed are iodine as a basis, strychnine often useful as a tonic, morphine and its succedaneous products for the dyspnea, and balsams, such as terpin, for eliminating bronchial mucus. Iodine is not a remedy for emergency use in emphysema, but rather an agent to be exhibited con-

tinuously. Therefore, the daily use of potassium iodide must be resorted to, and when administered for a prolonged period it improves the permanent dyspnea and frees the bronchi from adherent mucus which otherwise fills them.

PSYCHOLOGY OF THE TUBERCULOUS.

SEVERAL well known phthisiologists have taught that the tuberculous subject tends to be self-centered and indifferent to the comfort and welfare of others, while Dr. Knopf of New York has expressed his disbelief in this teaching, perhaps regarding the consumptive as as much of an altruist as a patient with any other chronic incurable disease. In a paper on the psychology of the chronic invalid Ichok (*Journal de médecine de Paris* for January 10, 1921, xl, 1) touches incidentally on the psyche of the consumptive. He quotes a page from Daremberg, a famous phthisiologist, on the latter subject, but thinks it would apply with equal force to the sufferer from any other chronic malady. Daremberg attributes strong egoism to the consumptive and narrates a number of its expressions, one being that the victim of this disease cheerfully allows his friends and relatives to wear themselves out in his service and is utterly indifferent to the possibility of communicating his disease to others. Laignel-Lavastine, the well known alienist, speaks of this egoism as negative rather than positive. Realizing his weakness and helplessness the consumptive accepts attentions as might for the same reason a child. But he does not exhibit an active, aggressive egoism. Ichok barely mentions the characteristic optimism of the consumptive: for if the latter believes that he is getting better—as he is very apt to do—such belief must react on the psyche, and hence perhaps the subject of the *spes phthisica* merely feels that he can make up the sacrifices of his relatives after his recovery. Many adolescents impose on their parents and companions from the same motive—they expect to prosper amazingly in life and then it will be a mere bagatelle to repay favors. The author mentions the surprising sexual potency of many consumptives—amounting at times to an erotomania—and believes that the phenomenon may be in part responsible for the optimistic tendency, since a man who is sexually strong cannot well visualize himself as doomed to death.

SPORTSMEN'S EPICONDYLITIS.

AT a meeting of the Lyons Surgical Society on January 20, 1921, Tavernier read a paper on this affection which, while very common, is but little known to the profession (*La Presse Médicale*, January 29, 1921). He reported two cases, the duration of which had been three and seven years respectively. It was probable that the lesion was an osteoperiostitis of the epicondyle at the area of insertion of the muscles, due to overstrain. The x-ray showed a proliferation of the periosteum. The affection might readily be confounded with sprain, rupture of muscle, or an osseous deformity, and doubtless usually passes for one of these conditions. The seat of the pain is said to be just above and in front of the prominence of the epicondyle. Swelling or hematoma has not been seen. It is not improbable that a minute splinter of bone has been torn away in some of the cases as a result

of sudden muscular contraction. Villard has located the pain at the insertion of the extensor communis and has found the condition obstinate and progressive. When the patient rests there is a remission and when he begins to exercise it returns. Both Villard and Tavernier mention the loose cellular tissue which lies beneath the tendons of the extensor muscles, separating them from the insertion of the supinator brevis. It is possible that exceptionally a bursa forms in this area and its inflammation is at the root of the trouble in these cases.

News of the Week.

Quarantine for Emigrants at Cherbourg.—From twelve to fifteen days' quarantine for emigrants bound for the United States in the steerage will be required at Cherbourg, France. The steamship companies are preparing inspection, disinfection, and housing facilities for an average of three hundred emigrants at each sailing.

France's Youths Unfit for Army Service.—According to reports by medical boards who have been examining the class of 1921, which will join the colors next month, of more than 300,000 eligibles only 165,000 measured up to the ordinary physical standards. Doctors recommend the passage immediately of a law making physical education compulsory in all French schools.

Smallpox Epidemics.—Albion College, Albion, Mich., has been closed and all the students sent to their homes until April 5 because of an outbreak of smallpox in the institution. In Collinsville, Oklahoma, 100 cases of smallpox have been reported to the city health officer within a short period. West New York, a district adjoining Union Hill, N. J., has been placed under quarantine by the New Jersey State Board of Health following the discovery of seven cases of smallpox. The schools and places of amusement in West New York have been closed.

Eugenics Bill Defeated.—A eugenics measure, requiring applicants for marriage licenses to file physicians' certificates stating their mental and physical qualifications, was defeated by the Michigan Senate on March 17.

Chicago Cuts Death Rate.—The death rate in Chicago, during February, 1921, was nearly 50 per cent. lower than during February, 1920, the average death rate being 13 per 1000 population. There was a marked decrease in the communicable diseases reported, there being 7,767 for February of this year against 15,712 for February, 1920.

Danger Signal for Whooping Cough Victims.—The Board of Health of Lansdowne, Pa., requires that every sufferer from whooping cough, whether adult or child, shall wear a red flannel band four inches wide around the left arm. A child so tagged may travel the streets, provided he is accompanied by an adult, but will not be permitted to attend a public gathering or enter a store. Should the privilege be abused quarantine will be imposed.

Course for Medical Officers.—Plans are being made by the officers in charge of the Medical Field Service School of the United States Army, located on the site of the old Indian school at Carlisle, Pa., for the accommodation and training of large num-

bers of commissioned and non-commissioned officers of the United States Army who have chosen to serve in the medical branch of the Army. Approximately seventy regular class medical officers will be sent to the Carlisle School on June 1 for a short course for medical corps officers. This school is part of the program outlined by the War Department for the education of medical officers for capable service either in time of war or during peace times. The men who will be sent to the school in June are now in training at the Army Medical School in Washington. The training is also to be extended to dentists and veterinarians.

State Guard Medical Unit Mustered Out.—The local medical unit of the Connecticut State Guard was mustered out of service at the State armory on March 10. Major C. C. Gildersleeve, now in the State guard reserve, formerly commanded the unit.

New Kansas City Hospital Opened.—The Physicians and Surgeons Hospital, an open staff hospital, has recently been established in Kansas City, in a building which was formerly the East Hotel, at Eleventh and Harrison Streets.

Plan to Extend Work of Chicago Hospital.—A campaign to raise \$500,000 for the extension of the Illinois General Hospital and Cancer Research Foundation will be begun on June 1 and continued for ten days. It is expected that fully one-third of the work of the hospital will be free clinical and dispensary work. Dr. E. S. Pettijohn is chairman of the campaign fund.

Van Cortland Hospital Reopened.—Van Cortland Hospital, the annex to Montefiore Home, New York, which was operated by the Government for the care of wounded officers, has been reopened as a rest home for paying patients.

Ask Pardon for Doctor.—The first application for pardon of a physician for violation of the State drug Act in Pennsylvania, so that the way may be clear for him to appeal for restoration of license to practice, has been filed with the State Board of Pardons. The State Bureau of Medical Education and Licensure, which has charge of the enforcement of the drug act in Pennsylvania, has revoked the license of a number of physicians.

Brooklyn Surgeon Sued for Damages.—An action for \$50,000 was begun in the Supreme Court, Brooklyn, on March 19, against a surgeon who is accused by a woman patient of having sewed up a needle in her abdomen following an operation. A second operation was performed, but no needle was found, and no relief resulted. The defendant has made a general denial and has applied for a bill of particulars.

New Courses in Psychological Medicine.—The craze for psychoanalysis and its practice by the unqualified is being counteracted in England by the establishment of courses in psychological medicine in British universities. Last year a course of lectures was instituted by Cambridge University under the direction of Sir Frederick Mott in order to qualify students for a diploma in psychological medicine. More recently London University, the Royal College of Physicians and Surgeons, and the Universities of Leeds and Edinburgh have provided similar courses, which lead to a diploma in this branch of medicine.

Typhus Fever Death in Youngstown.—Advises

received at the New York City Health Department report that a case of typhus fever has appeared in Youngstown, Ohio. The victim arrived in this country on the steamship *Ryndam*, on February 6 and came down with typhus fever on March 7, twenty-two days after his arrival.

Red Cross Robbed in Warsaw.—On the night of March 13 burglars blew open an old Russian safe in the American Red Cross quarters in Warsaw and abstracted 925,000 Polish marks, belonging to the American Red Cross. Of this sum 772,000 belonged to American doctors and nurses.

Influenza Again Appears.—A widespread epidemic of influenza in which nervous symptoms seem to predominate is reported from London. An increase in the number of cases reported in New York City is also noted since March 1. The records of the New York Health Department show that there have been 1,038 cases and 120 deaths from the disease reported since January 1.

Antianthrax Serum Available.—The Bureau of Laboratories of the Department of Health of New York City announces that it has on hand a limited supply of anthrax serum which will be furnished to physicians for cases under their care in New York City, and who are actually unable to buy the commercial product. The serum is the gift of a commercial concern none having, as yet, been prepared by the Department of Health.

Dr. Joseph Marshall Flint has resigned his position as professor of surgery in the Yale Medical school, on account of ill health. His resignation is to take effect in June.

Dr. Charles Ballard of Flint, Mich., a reserve officer in the United States Public Health Service, has been ordered to active duty in the Public Health Hospital at New Haven, Conn.

Dr. H. S. Newcomer of Philadelphia has resigned from the Pennsylvania Hospital for Nervous and Mental Diseases in order to accept a position at the Henry Phipps Institute.

Dr. Thomas R. Donovan of Fitchburg, Mass., has been appointed by the United States Public Health Service to be district medical examiner for the Fitchburg district.

Dr. H. D. Bernard of Sacramento, Cal., has resigned his position as city physician.

Dr. Eric A. Crull has resigned as city Health Commissioner of Fort Wayne, Ind. Dr. Maurice Lohman will succeed Dr. Crull as Health Commissioner.

Miss Winifred Holt of New York, founder of the Lighthouse, an educational institution for the blind, has been decorated in behalf of King Emmanuel of Italy in recognition of her services to the blind of Italy during the world war.

Dr. Charles F. Painter has resigned as dean of Tufts Medical School. He will continue, however, as a member of the faculty, retaining his title of professor of orthopedic surgery.

Major C. P. Faller has resigned as regimental surgeon of the Eighth Infantry, Pennsylvania National Guard.

Dr. William Sharpley has been elected president of the State Board of Health of Colorado.

Dr. B. R. Leroy has been elected health officer of Trumbull County, Ohio.

Creighton Alumni of '96 Have Reunion.—The

second graduating class of Creighton Medical College, which went out from the college in 1896, held a reunion on March 3, which was attended by five of the original twenty-one members of the class. Dr. D. J. Hammond of Omaha was president of the class.

Harvey Society Lecture.—The ninth of the present course of Harvey Society Lectures will be delivered by Dr. F. Gowland Hopkins, Professor of Biochemistry at Cambridge University, at the New York Academy of Medicine, on the evening of April 2. His subject will be "The Chemical Dynamics of Muscle." The following Harvey Society lecture will be delivered by Sir Walter Fletcher, secretary of the Medical Research Council of Great Britain, on the evening of April 16. The title will be announced later.

The Brooklyn Cardiological Society will hold its third meeting at 102 Fort Greene Place, Brooklyn, N. Y., on March 31.

Gamma Mu Chapter of Kappa Psi Medical Fraternity was officially installed in Portland, Ore., on March 5. This chapter is made up of students of the Oregon Medical School.

The **Columbiana County Medical Society**, at its meeting held in East Liverpool, Ohio, March 8, elected the following officers for the ensuing year: *President*, Dr. P. C. Hartford, East Palestine; *Vice-President*, Dr. George P. Ikirt, East Liverpool; *Secretary-Treasurer*, Dr. C. R. Larkins, East Liverpool.

Vacancies for Clinical Psychiatrists.—The United States Civil Service Commission announces an open competitive examination for associate in clinical psychiatry and psychotherapy at St. Elizabeth's Hospital, Washington, D. C., at \$2,500 a year, and for other positions requiring similar qualifications. Applicants must have graduated with a degree from a college or university of recognized standing, with major work in social science or psychology, or as M. D. or Ph.D., and in addition must have three months' experience in work involving normal psychology. Applicants should apply at once for Form 2118, stating the title of the examination required to the United States Civil Service Commission, Washington, D. C.

Massachusetts Towns Offer Inducements to Physicians.—It is stated in the *New York Herald* that many small towns of Massachusetts are offering special inducements in the way of "cash bonus" in their efforts to attract young physicians to settle in them. More than seventy towns are without doctors. One town offers to give \$500 annually to the physician who will come there to practise. The authorities are getting in touch with the medical faculties of Harvard and other schools in the hope that graduates may be persuaded to settle in the smaller communities. It is estimated that the average country doctor in Massachusetts earns about \$2,000 a year.

Requests to Charity.—Of the \$2,500,000 bequeathed to various philanthropies by the late Mrs. Elizabeth Milbank Anderson, the New York Association for Improving the Condition of the Poor receives \$200,000; the Children's Convalescent Home at Chappaqua, N. Y., \$100,000; National Committee for Mental Hygiene, \$100,000; Henry Street Settlement, \$50,000; Adirondack

Cottage Sanitarium, \$25,000; State Charities Aid Association, \$25,000; Society of the New York Hospital, \$50,000.

Private Hospitals Opposed to Regulation.—A bill is before the Massachusetts Legislature which aims to place private hospitals under regulations of local boards of health. One of the provisions of the bill would permit abutters to prevent the establishment of a private hospital within 100 feet of their property. The purpose of the bill is to protect property owners from loss of value due to private hospitals conducted in such a manner as to cause depreciation in the value of surrounding property. The bill is meeting with vigorous opposition.

New Building for Doctors and Dentists.—Plans have been drawn for a unique cooperative physicians and dentists' office building at 141 East Sixty-fourth Street, New York. The structure will have five stories. Each floor will have a waiting room and five suites of offices. A plan of financing has been worked out so that with a comparatively small sum a desirable suite may be purchased and the annual payments for five years will be no more than the average rental prevailing for good office space. At the end of five years the annual payments, according to the plan, will be only \$1 a square foot. An executive committee selected by doctors will determine matters of policy.

Campaign to Raise Funds for Physicians' Home.—An association has been formed and a charter obtained at Albany for the purpose of establishing a home for aged physicians who find themselves in failing health and without funds. Practicing physicians throughout the country will receive an appeal for an annual subscription of \$10. Sustaining membership is \$100. Dr. Robert T. Morris, who has been largely instrumental in starting the movement is president of the organization.

Mount Sinai Hospital Buildings Progressing.—At a meeting of the trustees of Mount Sinai Hospital, New York, on March 19, it was announced that it would probably be another year before the new private pavilion, the new children's hospital, and the auditorium will be ready for use. The hospital had a deficit of \$50,842, for the year due to increased expenses. It was announced that ten perpetual beds had been endowed, one memorial bed, and one life bed. Legacies amounting to \$61,231 were received.

Rockefeller Board Aids Brussels University.—The Rockefeller Foundation has announced a contribution of 43,000,000 francs toward a budget of 100,000,000 francs for new buildings and endowments for the medical school of the University of Brussels. Part of the fund will go to the establishment of a nurses' training school in memory of Edith Cavell and of Madame Depage, who with the Queen of Belgium headed the activities of the Belgian Red Cross during the early part of the war. The classrooms of the new buildings will be on a new site on the Boulevard de Waterloo, adjoining the municipal hospital of St. Pierre, which will also be built and reorganized to serve as the teaching hospital of the university.

No Inebriate Hospitals.—According to a report

by Moratton M. Pollock, statistician of the New York State Hospital Commission, published in *Mental Hygiene*, no State hospitals for inebriates exists in the country, the last having been closed in 1920.

Obituary Notes.—Dr. JOSEPH RANSOHOFF, professor of surgery at the University of Cincinnati, died of heart disease at his home in Cincinnati on March 3, at the age of sixty-eight years. He was a graduate of the Medical College of Ohio, in 1872, and was made a Fellow of the Royal College of London in 1877. Dr. Ransohoff was a Fellow of the American College of Surgeons, and a member of the American Association of Surgeons, the Southern Surgical and Gynecological Associations, and the Western Surgical Association. He was on the surgical staff of a number of Cincinnati hospitals.

Dr. CHARLES C. LAMBERT, a graduate of the Baltimore University School of Medicine, in 1901, died at his home in Grandmount, Ia., on March 4.

Dr. JAMES MILTON STEADE, a graduate of the Cincinnati College of Medicine in 1894, died of heart disease in San Diego, Cal., on February 24, at the age of fifty-seven years. He was at one time president of the board of aldermen of San Diego and was a member of the city Board of Health.

Dr. E. H. BYRON of Lemoore, Cal., a graduate of the California Eclectic School, in 1900, died after a lingering illness, in a San Francisco hospital, in the latter part of February.

Dr. CARL WAGNER, a member of the Rush Medical College faculty and Chief Surgeon of St. Joseph's Hospital, Chicago, died at his home, on March 11, at the age of fifty-eight years. He was graduated from the University of Heidelberg in 1891, and was a Fellow of the American College of Surgeons. He was a member of the Chicago Pathological Society and the American Medical Association. Dr. Wagner was consulting surgeon to the Municipal Tuberculosis Sanitarium, Vice-president of the Medico-Legal Society, and a counselor for the Chicago Medical Society.

Dr. WALTER S. LINK of Parkersburg, W. Va., a graduate of the University of Maryland School of Medicine in 1897, died of cerebral hemorrhage in a local hospital on March 6. He served in the late war as captain in the Medical Corps.

Dr. J. D. DUNLOP of Alpena, Mich., a graduate of New York University Medical School, in 1884, and of the University of Toronto, in 1887, died at his home about March 1.

Dr. BRUCE FFOULKES of San Francisco died in a local hospital as the result of being gassed during action in the St. Mihiel sector during the world war on March 4, at the age of forty-seven years. He was Lieutenant-Colonel of the Three-hundred and Fifty-ninth Sanitary Train, and was gassed when the Germans shelled a hospital of which he was in charge. He was graduated from the Cooper Medical College, Calif., in 1894.

Dr. STANLEY P. BLACK died at his home in Pasadena, on March 5, at the age of sixty-two years. He was graduated from the Northwestern University Medical College in 1885. He was a member of the American Academy of Medicine, the American Association for the Advancement of Science, one of the founders of the Los Angeles Clinic, and a trustee of the Barlow Medical Library.

Dr. ERNST LEDERLE, twice Health Commissioner of New York City, died of septic poisoning at a sanatorium in Goshen, N. Y., on March 14, at the age of fifty-six years. Dr. Lederle was Health Commissioner of New York City from 1902 to 1904 and again from 1910 to 1914. Dr. Lederle was not a physician, but an expert chemist. He was graduated from the Columbia University School of Mines in 1886 and later received from the University the degrees of Ph.D. and Sc.D. He established the Lederle Laboratories and Lederle Antitoxin Laboratories. He was a member of the Society of Chemical Industry and the American Chemical Society.

Dr. CHARLES MAITLAND MANN, a graduate of Cornell Medical School in 1907, died suddenly at his home in Petersburg, N. Y., on March 7, at the age of thirty-seven years. He served in the Medical Corps of the United States Army during the world war, at United States Hospital 16, New Haven, Conn.; Camp Jackson, Columbia, S. C., and Spartansburg. He was formerly visiting physician at St. Joseph's Hospital, New Rochelle, N. Y.

Dr. SILAS PIERSON LEVERIDGE, a graduate of Bellevue Hospital Medical College in 1880, died of pneumonia at his home in New York City on March 16, at the age of sixty-five years.

Dr. WALDO J. LUSSIER of Woonsocket, R. I., died on March 11, at the age of forty-two years. He was a graduate of the College of Physicians and Surgeons, N. Y., in 1911, and was a member of the American Legion and Veterans of Foreign Wars.

Dr. WILLIAM D. BOOKER, formerly clinical professor at Johns Hopkins Medical School, died at his home in Baltimore on March 15, at the age of seventy-five years. He was a graduate of the University of Virginia in 1867. He was made Professor Emeritus of Johns Hopkins in 1909. Dr. Booker was a member of the American Pediatric Society and the American Medical Association.

Dr. DANIEL V. FAHEY, a graduate of the Long Island College Hospital in 1919, resident surgeon of St. Catherine's Hospital, Brooklyn, N. Y., died of epidemic encephalitis, on March 18, at the age of twenty-nine years.

Dr. A. B. NELSON of Arcadia, La., died in Albuquerque, N. M., on February 27, at the age of forty-six years. He was graduated from the Memphis Hospital Medical College in 1902, and studied in Europe for two years.

Dr. ARTHUR G. HOBBS of Atlanta, Ga., a graduate of the Louisville University School of Medicine in 1877, and professor of diseases of the ear, eye, and throat at the Southern Medical College, died at his home on March 9, at the age of sixty-seven years. Dr. Hobbs was president of the American Rhinological Association in 1891.

Obituary.

SIR FELIX SEMON, K.C.V.O., M.D., F.R.C.P.

LONDON.

SIR FELIX SEMON died March 1, at Rignalls, Great Missenden, England, at the age of 72 years. He was born at Danzig on December 8, 1849. He began his medical studies at Heidelberg in 1868, and took the M.D. degree at Berlin in 1873. He then studied

in Vienna and Paris, devoting his attention more particularly to diseases of the throat and nose, and becoming expert in the use of the laryngoscope, then recently introduced into medicine.

He then settled in England, and was admitted a member of the Royal College of Physicians in 1876, and a fellow in 1885. In 1894 the German Emperor conferred on him the title of Royal Prussian Professor, the Order of the Red Eagle having been given him in 1888. He was one of the founders of the Laryngological Society and was elected President for the years 1894-6. At the Diamond Jubilee in 1897 he received the honor of knighthood, and in 1902 he was decorated C.V.O., being advanced to K.C.V.O. in 1905. In 1901 he was appointed Physician Extraordinary to King Edward VII. During the war he remained loyal to his adopted country. Semon continued to enjoy a large laryngological practice until 1911, when he retired. British laryngologists and many of his foreign confrères then collected a sum of £1,040 as a testimonial, which he presented to the University of London to establish a fund for the award of a commemorative bronze medal for the best work in the treatment of diseases of the throat and nose, and to found the "Semon Lectureship in Laryngology." In 1884 he founded the *Internationale Centralblatt fuer Laryngologie und Rhinologie*, and for 25 years acted as its editor.

By his skill, his untiring energy, and his honesty of purpose Semon did much for laryngology in England. He found it in its infancy; he left it an important and flourishing specialty. It was perhaps owing to his initiative that it long maintained a closer relationship with Berlin and Vienna than any other branch of medicine or surgery. His own work was done chiefly in connection with cancer of the throat and with the functions and diseases of the motor nerves of the larynx.

Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

London, February 28, 1920.

The Influenza Epidemic.—Dr. H. Kenwood, in his annual report as medical officer of health for the county of Bedford for the year 1919, made some interesting remarks on the recent influenza epidemic, which caused a civilian mortality throughout the country at the rate of 4,774 per million per annum, an epidemic mortality not equalled in Great Britain since registration commenced. Nor did this heavy mortality truthfully represent the ravages of the disease; for the deaths attributed to pneumonia, bronchitis, heart disease, and phthisis were also markedly increased as the consequence of the influenza infection. Moreover, the age distribution of the attacks and of the deaths markedly departed from that of previous epidemics. From 15 to 25 were the years of highest mortality in the epidemic of 1918-19; whereas the most fatal years of previous epidemics were those of 55 and over. In Dr. Kenwood's view inoculation is of value in protecting against fatal complications rather than against attacks of the disease. The Ministry of Health

has made a vaccine available for distribution through medical officers of health to medical practitioners, and doubtless in the event of another epidemic this precautionary measure will be widely adopted. The epidemic showed the need of a promptly available supplementary personnel for temporary employment in time of public health emergency. Nurses are required in epidemics of influenza, measles, and whooping cough who can visit all the poorer homes in which it has been ascertained that such diseases have occurred, and it would be well if these services could be supplemented by a voluntary personnel suitably trained to offer good advice and to make inquiry with the view of ascertaining which cases were really necessitous. Recent war experience has shown that there are in every community persons who would be able and willing to volunteer for such emergency services if they were invited to do so. Dr. Kenwood thinks that the suffering and mortality in an influenza epidemic could be materially reduced by adequate nursing assistance; a provision of fuel, food, and clothing to really necessitous cases; by hygienic advice, more particularly as to ventilation and the placing out of the rest of the family; the distribution of a suitable disinfectant with directions as to its use, and the provision of more hospital isolation and treatment.

Proposed State Control of Vaccines and Drugs.

—Provision for the supervision and control of therapeutic substances which cannot be tested adequately by chemical means is recommended by a Ministry of Health Departmental Committee, presided over by Sir Mackenzie Chalmers. The substances in question include vaccines, serums, toxins, antitoxins, and analogous products, salvarsan and its analogues, and various drugs. It is proposed that the controlling authority should be the Committee of the Privy Council appointed on March 11, 1920, under powers conferred by the Ministry of Health Act, 1919, and that the main functions of the committee should be to decide from time to time what substances are to be brought under control and to prescribe the methods of standardization and testing for these substances. It is further proposed that there should be a control laboratory, under Government control, wherein standards would be prepared and maintained; research carried out in connection therewith, and tests made to ascertain that the products issued by manufacturers conform with the standards laid down. The Medical Research Council, who already possess the requisite organization, should be responsible for this central laboratory. The method of control should include the licensing of manufacturers, inspection of their plant, premises, and processes, and the testing of the finished articles. Products made abroad should be subject to similar restrictions.

Prevention of Venereal Disease.—The report of the special committee appointed by the National Council of Public Morals at the request of Dr. Addison, the Minister of Health, was published a short time ago. This committee included men and women, medical and lay, of opposite views with regard to the best means of dealing with the venereal problem and especially with respect to

the most effectual measures of prevention. In spite of this fact the committee has presented a unanimous report, although some of the conclusions or rather recommendations are not very definite. For sometimes, as noticed in these letters on several occasions, the efforts to prevent venereal disease, which after all seems to be the only way to abolish it, have been baffled by divergent views as to the provision of facilities for immediate disinfection. On the committee of which the Bishop of Birmingham was chairman, were laymen and medical men who held quite different opinions, and it is therefore encouraging to know that a unanimous report was rendered. It is to be hoped now that a common understanding may be come to between the moral and medical advisers of the country, as it is mainly the moral aspect of the question which has hindered any agreement with regard to immediate disinfection or self-disinfection. So long as there exists disagreement between eminent members of the medical profession on this point just so long there cannot be widespread cooperation of the public and therefore no national effort is possible which alone can make a success of any method. Of course it is obvious that chastity is the best safeguard against the spread of venereal disease, but at the same time it is freely recognized by even those who lay stress on the moral side of the matter that a large number of persons male and female pay no attention to moral appeals, but indulge more or less frequently in promiscuous intercourse, thereby incurring the risk of contracting and spreading the disease. Moreover, the evil does not end with them, but is spread with disastrous results among innocent women and children. The war, too, has rendered individuals more prone to promiscuous intercourse and less amenable to teachings of religion or to moral law. As for the medical aspects of the situation the report appears to be sufficiently clear. It is stated in a definite manner, although as said before there is a certain amount of "hedging" that for a considerable proportion of the population means for disinfection should be provided as quickly as possible after sexual intercourse either by the man concerned, or by or under the supervision of a medical practitioner or trained assistant. And it is pointed out that the results obtained in preventing the development of the disease will depend largely on, it might almost have been said wholly on: (1) The interval of time which elapses between exposure to risk and the application of the disinfectant substances, and (2) The care and thoroughness with which the disinfecting process is carried out. It is known that if a disinfectant is applied properly within a short time after intercourse the infective agent is destroyed, but such a disinfectant should be applied as soon as possible after intercourse. An important question arises in connection with providing a civilian population with facilities for immediate disinfection. Will those requiring disinfection make a prompt use of these facilities, if they are supplied at ablation or early treatment centers. Opinions of members of the committee did not agree on this point. Evidence was given that in the case of soldiers, at any rate, careful instruction as to

self-disinfection had the desired effect and could be relied on to prevent the development of the disease. However, a civilian population differs very considerably from an army and it seems that a good deal of educational propaganda will have to be undertaken before the mass of the population realize the necessity for prompt and careful self-disinfection. The committee considered that no difficulty should be placed in the way of either (1) The spread of knowledge as to the use and value of disinfectants; or (2) The obtaining by individuals of such disinfectants from druggists or other sources. The moral aspect is discussed at length in the report but the evils of self disinfection are not so greatly emphasized as formerly when the matter has been debated by opponents of the method. It appears as if a compromise or understanding may be reached between the Society for the Prevention of Venereal Disease, which has consistently advocated the provision of facilities for self-disinfection, and the National Council for Combating Venereal Disease, which has opposed this policy.

Hospital Libraries.—A largely attended meeting took place in the London Library on Feb. 27 in support of the movement so successfully begun during the war by the British Red Cross Society in supplying books to the military hospitals. Now that this organization is dealing with the needs in illness of the civilian population, it is hoped to place the effort upon a permanent basis and to establish libraries in all hospitals, infirmaries, and asylums. General Sir John Goodwin, well known in America, who spoke at the meeting, said that after thirty-two years' experience of hospitals he now made a point of demanding a library in connection with such institutions. In a hospital in France, through which 58,000 officers and men had passed, the books had been an incalculable help and they would be the same to civilians who were dreading or recovering from severe operations.

LETTER FROM BELGIUM.

(From Our Special Correspondent.)

LIEGE, February 15, 1921.

Reforms of the Sanitary Service.—The Sanitary Service of the Army has instituted a series of reforms the result of which will be greatly to the benefit of this important branch of the service. Before the war financial difficulties prevented the carrying out of certain scientific projects. But the terrible experience we have passed through has opened many eyes. At present the young medical students of service age are able to enter into an eight-year engagement during which they can continue their studies while rendering to the army services which do not interfere with their work. Those in the upper classes in the university can enter into a similar arrangement, but they have the rank of adjutant or second lieutenant, according to their place in the school. In consequence of this the vacancies created by the licensing of the medical volunteers have been almost all filled. Evidently we shall have to wait some years before being able to establish a complete system, especially as relates to the encouragement of the

young in scientific studies, the stability of the special services in the hospitals, the creation of research laboratories, etc. What is essential now is to attract workers and to make teachers of them in order to create a military medical school worthy of the name and worthy of the army to which they will have to dedicate their activities.

The Effect of Tubal Pregnancy on the Adnexa of the Opposite Side.—At a recent meeting of the Belgian Society of Obstetrics and Gynecology Dr. Keiffer reported a case of tubal pregnancy in which the symptoms pointed to the existence of tubal lesions on the other side of the body. He thought that the lesions were the consequence of the extrauterine pregnancy, but most of those who took part in the discussion were of the opinion that lesions were present on both sides and that it was their presence that determined the lodgment of the ovum in one or the other tube. These tubal lesions were as a rule of gonorrheal origin. At the same meeting Dr. Brouha reported an interesting case of fatal uteroplacental apoplexy occurring at the beginning of the sixth month, manifesting itself by extensive infiltration of capillary origin in the uterine wall. At autopsy grave and extensive lesions of the liver and kidneys were found, showing that the woman was in a state of toxicaemia which usually finds external expression in eclampsia.

Albee's Operation for Pott's Disease.—At a recent meeting of the Belgian Surgical Society Mme. Derscheid and M. Delchef of Brussels presented two children with Pott's disease of the spine who had been operated upon by Albee's method. The value of these interspinous grafts was still undecided; they would be useful only if they gave speedy and definitive protection against external shocks. Albee's opinion that the osseous graft remains alive and grows was not accepted by many, and the two cases here reported confirmed radiologically this negation. The patients were a girl of 8 years and a boy of 10, operated upon at the termination of spondylitis, which had lasted four years. The operative indication was that they could not dispense with the supporting jacket. The clinical result was in each case excellent, and the children were able now to walk without support. But the x-ray pictures showed that the grafts began to be absorbed in from six to eight weeks, and at the end of six months this absorption was already far advanced. The general condition of the two children had greatly improved, but the deformity had increased. The authors concluded from this that in a case of still active Pott's disease the bony support would be insufficient. He insisted upon the necessity of repeated x-ray examinations before coming to a final judgment regarding the results of Albee's operation. They thought possibly the Nageotte grafts, the absorption of which is less rapid, would be more efficacious.

In discussing this report M. Maffei of Brussels said it should be noted that Albee's principal object in employing bone grafts was the correction of the deformity; but in Pott's disease we have to consider the tuberculous lesion as well as the deformity, and it seems to be on the former especially that the graft acts by a sort of cellular

action (cytotherapy). Maffei agreed with the previous speakers that the graft was almost always absorbed; at the end of two years, out of 35 cases operated upon the graft persisted in only two. He had observed that when the gibbosity increased in these grafted cases it assumed the form of a rounded curvature and was not angular.

Renaissance of the Belgian Universities.—We have previously spoken of the change brought about in the intellectual life of Belgium by the millions of francs donated by America. These millions were divided among the State universities. Also there is a "University Foundation" with headquarters in Brussels which distributes judiciously various sums, under the name of loans, to needy students in the four State universities. It is understood that the loan will be repaid, without interest, within fifteen years at the latest. But the Free University of Brussels has also received a magnificent gift from America. Following the visit to America of the Brussels Medical Mission, composed of MM. Bordet, Depage, Sand, and Dustin, the Rockefeller Foundation, generously seconding the favorable disposition of public opinion in America, promised a gift of forty million francs to the medical school on condition that the Communal Council would undertake to defray any additional expenses. Just now American delegates have come to Brussels asking that the questions raised by this offer be studied and answered as soon as possible. Under this stimulus the Municipal Council has taken the necessary steps for fulfilling the conditions mentioned. And already St. Peter's Hospital is about to be demolished in order to be rebuilt in accordance with the modern views of hospital construction.

The Médico-Chirurgical Society of Liège.—At the annual meeting of the Société Médico-Chirurgicale de Liège, held February 9, the election resulted in the selection of M. Brouha of Brussels, president; M. Hougardy, first vice-president; M. Stockis, second vice-president; M. Cahay, treasurer; M. Delrey, secretary. The scientific session was opened by Dr. Roersch, who presented a detailed clinical study of perforating gastric and duodenal ulcers. He showed by general and personal statistics the advantages of early operation, and on the other hand the prognosis becomes more and more grave in proportion to the length of time that operation is delayed.

Progress of Medical Science.

Boston Medical and Surgical Journal.

March 10, 1921, clxxxiv, 10.

1. The Role of Immunity in Tuberculosis, Henry F. R. Watts.
2. The Schick Test and Immunization with Diphtheria Toxin-Antitoxin, Benjamin White.
3. Abolition of Acute Blastoiditis by the Use of Sir A. E. Wright's Solution, George A. Leland.
4. Treatment of Hypertrophied Tonsils and Adenoids by Radium, Francis H. Williams.
5. The Energy Requirements of Girls from 12 to 17 Years of Age, Francis G. Benedict and Mary F. Hendry.

2. The Schick Test and Immunization with Diphtheria Toxin-Antitoxin.—Benjamin White makes the following recommendations: 1. All persons over 18 months of age in the entire community should have their susceptibility to diphtheria determined by means of the Schick test, and the reaction which they show should be noted either in institutional records or in the records of the

family physician. 2. In infants below 18 months of age the Schick test is not necessary because a negative reaction may give rise to a false sense of security. Very young infants may exhibit a negative Schick test owing to the immunity passively acquired from the mother, but, inasmuch as this type of immunity is transient, it is safer to assume that no child under 18 months possesses permanent immunity. 3. All infants below 18 months of age accordingly should be actively immunized with three doses of 1.0 c.c. of diphtheria toxin-antitoxin mixture, irrespective of the reaction to the Schick test which the infants might show at the time of immunization. The doses should be 0.5 c.c. for babies under six months of age and 1 c.c. for all others. 4. All persons over 18 months of age who give a positive Schick test should be immunized by receiving three subcutaneous injections of 1 c.c. each of toxin-antitoxin at intervals of seven days. 5. All persons immunized by this method should be retested three months after the last injection, and reimmunized if they should by any chance still give a positive Schick reaction.

Journal of the American Medical Association.

March 12, 1921, LXXVI, 11.

1. New Aspects of Some Nutritional Disorders. Alfred F. Hess.
2. Arteriosclerosis and Cardiovascular Disease: Their Relation to Infectious Diseases. William Ophuls.
3. The Functions and Scope of an Industrial Clinic in a General Hospital. Harry Linenthal.
4. The Application of Certain Physical Efficiency Tests. Vernon T. Scott.
5. Relative Effectiveness of Various Forms of Treatment in Neurosyphilis: Observations of the Comparative Value of Routine Intravenous Treatment, Spinal Drainage and Arspenaminized Serum Intraspinally (Swift-Ellis). John H. Stokes and Earl D. Osborne.
6. Gallbladder Disease: Report of Two Hundred and Thirty Cases. Donald S. Adams.
7. Removal of the Gallbladder Without Drainage: Further Observations. A. Murat Willis.
8. Bronchiectasis and Bronchitis Associated with Accessory Sinus Disease. Gerald B. Webb and G. Burton Gilbert.
9. Clinical Evidences of Acidemia in Chronic Nephritis. Beaumont S. Corneli.
10. Results of Operation for Varicocele. John Douglas.
11. Organ Stimulation by the Roentgen Ray. William F. Petersen and Clarence C. Saelhof.

3. **The Functions and Scope of an Industrial Clinic in a General Hospital.**—Harry Linenthal bases this communication on experience in the industrial clinic of the Massachusetts General Hospital. He points out that physicians in general have little or no familiarity with industrial processes or conditions, and as a rule have little interest in them. The industrial clinic can thus be of help to them by pointing out the etiological factors in industry responsible for certain pathological states which would otherwise remain obscure and unrecognized. This bringing to light of the etiological factors which exist in the health hazard to which a patient may be exposed at his work and which is wholly or partly responsible for the symptoms for which he presents himself for treatment is the chief function of the industrial clinic. Moreover, cases of industrial disease present many problems which do not arise in the treatment of the ordinary patient. It is necessary that a person suffering from ill health resulting from industrial conditions be registered and followed up by a clinic interested and competent to deal with the case in all its social and industrial ramifications. The patient should be referred to other clinics when special treatment is necessary. The industrial clinic in the general hospital permits of the grouping of cases and, by the frequent repetition of observations in the same class of workers, suggests new problems. It also permits the analysis of accumulated records and inferences as to the effects of certain occupations, and may thus increase knowledge of the effects of occupation on health. Other functions of the industrial clinic are the training of students in this comparatively new field of hygiene, the investigation of problems in industrial disease, and the bringing about of changes in industrial establishments so as to make hazardous processes safer. There is no agency at present more capable, with the aid of other special clinics in the hospital, of handling the problems that arise in connection with those crippled or made ill by industry. No agency is so well equipped and able to correlate occupations with the physical condition of the worker and thus serve a reliable and accurate source

of vocational guidance to those incapacitated by industry. Finally, it may be pointed out that an industrial clinic, with its group of physicians and social workers trained in industrial problems, brings the hospital in closer contact with social and economic conditions outside the hospital walls than is possible for any other clinic, and thus furnishes an avenue for aggressive work on the part of the hospital beyond its walls for the prevention of social conditions. The writer cites cases illustrative of the possible industrial etiology of skin diseases, respiratory diseases, and occupation strains. He emphasizes the point that the great function of an industrial clinic is to trace the part industry plays in producing the more common diseases seen in all classes of the community. If the effects of industry were only in the production of the specific occupational diseases, the problem would be comparatively easy and relatively unimportant. Easy, because the casual relationship between the industrial condition and the resulting disease is manifest. Relatively unimportant, because the number of workers engaged in processes giving rise to specific industrial diseases are few in comparison with the vast army of workers exposed to less specific hazards of irritating dust or fumes, of localized fatigues, of insanitary conditions, or who are constantly subjected to the monotony and general fatigue effects of modern industry.

5. **Relative Effectiveness of Various Forms of Treatment in Neurosyphilis.**—Stokes and Osborne, from their observations on the comparative value of routine intravenous treatment, spinal drainage and arspenaminized serum intraspinally (Swift-Ellis), reach the following conclusions, which they do not consider necessarily final: 1. A comparison of the findings on patients receiving spinal drainage in conjunction with arspenamin intravenously and routine mercurialization, and the findings on patients receiving an equal amount of routine treatment without spinal drainage, demonstrates no superiority in favor of the drainage method. 2. The most immediate change produced by either of these methods of treatment is in the cell count. 3. A transient but marked rise followed by a fall toward normal limits occurred in patients receiving spinal drainage, and there is reason to believe that a similar Herxheimer-like curve of pleocytosis accompanied by transient exacerbation of symptoms occurs in many patients under treatment for neurosyphilis by routine methods. 4. Temporary rise in the cell count early in the course of treatment should not therefore necessarily be regarded as of unfavorable prognostic significance. 5. In ten patients in whom spinal drainage had produced indifferent results, the administration of arspenaminized serum intraspinally some months later produced what appeared to be more and more permanent results.

11. **Organ Stimulation by the Roentgen Ray.**—Petersen and Saelhof record experiments with the stimulation of the liver, the kidney and the pancreas by means of the Roentgen ray, and discuss the clinical application of their findings. From these observations they conclude that the Roentgen ray, in proper dosage, has the property of stimulating cellular metabolism. When organs are selectively stimulated by Roentgen rays, therapeutic results can be achieved either by direct stimulation of an external secretion (the kidney) or of an internal secretion (the pancreas in diabetes). A second method of possibly influencing remote pathological lesions lies in the mobilization of antibodies, enzymes, and thromboplastic substances following selective organ stimulation. The effects on tuberculosis (irradiation of the spleen), on hemophilia and purpura (irradiation of the spleen) and some of the effects on malignant tissues can possibly be examined from this point of view with profit. It is probable that the indications of Roentgen-ray therapy in the treatment of internal diseases will find marked extension if proper recognition is given the possibility of organ stimulation by such physical means.

The Lancet.

February 19, 1921, cc, 8.

1. The Hunterian Oration on Astley Cooper and Hunterian Principles. Sir Charles J. Symonds.
2. An Address on Skin Disease in Relation to Internal Disorder. Sir James Galloway.

3. A Local Survey of Encephalitis Lethargica. Based on Thirty-two Cases Occurring in Manchester During 1920. W. St. C. McClure.
4. A Case of Ostitis Deformans. Dorothy C. Hare. With X-Ray Report by C. C. Bernard.
5. Auricular Fibrillation: Some Observations and Deductions from a Series of 400 Cases. D. S. Brachman.
6. Percentage and Fractional Dilutions. B. Blacklock.
7. Kinematograph Illumination: The Use and Abuse of Light in Studios for Kinema Film Production. J. C. Elvy.

2. **An Address on Skin Disease in Relation to Internal Disorder.**—Sir James Galloway, in discussing the cutaneous manifestations which must be considered as phases or results of a general infective process or of some internal disorder, draws attention first to the erythema group, a class sufficiently well defined for purposes of clinical recognition. The discussion does not involve the various forms of reddening produced by merely local mechanical or bacterial reactions. On the other hand, the manifestations of this group may be not only erythematous but also urticarial, exudative, vesicular, and hemorrhagic in character. Under this head are considered acute exanthematous diseases; the action of alien proteins; exudative erythema; disorders of the gastrointestinal tract; erythema nodosum; lupus erythematosus; the pemphigoid group. Diseases of the skin associated with functional disturbance of the blood-vessels which come within the category under consideration are thromboangiitis obliterans and permanent dilatation of arteries and capillaries. The nervous system, both central and peripheral, has long been held responsible for exerting influences on diseases of the skin, among which are herpes zoster and syringomyelia. Considering the skin in relation to disorders of abdominal and other viscera the writer deems it a matter of surprise, considering the close physiological relationships which exist between the kidneys and the skin, that disease of the kidney is not more often associated with manifestations on the skin. Very few examples come to mind of skin outbursts occurring in the course of renal disease. In cases of severe disease of the skin, especially in cases of exfoliative dermatitis, albuminuria and nephritis occur. This complication has been frequently noted in the case both of children and of adults. The presumption in such cases is that the cutaneous disease and the renal disorder are manifestations of the same toxic cause, and that it is not correct to assume that the symptoms on the skin are caused by the disease of the kidney. Of the many remarkable manifestations on the skin occurring during the course of disorders of metabolism one of the most interesting is xanthoma. Pigmentary changes in the skin have long been associated with the health of the patient. Disorders of the glands of internal secretion are to be taken into consideration in this connection. Reference is made, in closing, to the change in the skin associated with disease affecting the structure of the blood and certain hitherto unknown lymphatic glands. Lymphatic leucemia and the lymphogranulomatosis known as Hodgkin's disease may be taken as examples.

5. **Auricular Fibrillation.**—D. S. Brachman bases this contribution on 400 cases, 110 of which were in-patients and 290 out-patients. The youngest was 16 years of age, the oldest 76. No less than 25 per cent. of all patients admitted to the wards of the National Hospital for Diseases of the Heart have auricular fibrillation, yet approximately 8 cases out of 10 are not recognized prior to admission, whereas even without polygraphic or electrographic help not more than one out of 10 should be missed. From his study of this series the following conclusions are drawn: 1. The three most constant and diagnostic signs found in auricular fibrillation are: (a) the irregular irregularity in rhythm, (b) enlarged transverse diameter of the heart, (c) a difference in the apex- and pulse-rate. 2. An irregular heart rhythm is almost pathognomonic of auricular fibrillation. It must be differentiated from that found in (a) multiple premature beats, especially those of auricular origin, and (b) sinoauricular heart-block. 3. There are no symptoms pathognomonic of auricular fibrillation, nor are there any more suggestive of this than of other cardiac conditions. 4. A diagnosis of auricular fibrillation having been made it is essential to consider (a) the pathological condition of the heart which led to this condition, and (b) the effect that the fibrillation will have on the circulation as a whole, and especially on the left ventricle. 5. It is desirable

to decide whether there is myocardial change in the auricles alone, or whether the ventricles also are affected. If the latter is the case, the prognosis is distinctly worse. 6. The main object to be achieved when treating auricular fibrillation is to adjust the rate of the ventricles so as to produce an adequate circulation without undue ventricular work. 7. The great therapeutic agent is rest—physical, mental, and cardiac. 8. The commonest antecedent disease is rheumatic fever. Rheumatic fever or chorea was found in 39 per cent. of the total number questioned, while 19 per cent. of the total gave a history of no previous illness. Graves' disease very definitely leads to fibrillation. 9. Primary myocardial involvement was found in as many cases as were associated with pure mitral stenosis. The other conditions in the order of their frequency were mitral regurgitation, both mitral and aortic disease, and lastly, aortic disease alone. 10. Fibrillation of the auricles can continue until the auricles are completely exhausted and become practically a passive chamber. The contractions may then come on only occasionally and be very slight, but impulses will still be transmitted to the ventricles. 11. There is no predisposition in either sex towards fibrillation. 12. As the pulse-rate usually does not give the ventricular rate of contraction, it is necessary in all cases of auricular fibrillation to count the apex-rate as well. 13. A murmur presystolic in time can be heard in some cases of auricular fibrillation associated with mitral stenosis, but this is usually due to a diastolic murmur running into the following systole when the rest period is short.

British Medical Journal.

February 19, 1921, 1, 313S.

1. Vaccine Therapy in regard to General Practice. Alexander Fleming.
2. The Serological Characters of Disease-Producing Pneumococci. Richard R. Armstrong.
3. Exomphalos, or Hernia into the Umbilical Cord. Robert Tennent.
4. The Cure of Hemorrhoids without Operation. J. C. Lyth.
5. Resection of Intestine for Acute Intussusception: Two Cases of Recovery. A. H. Southam and C. H. Crawshaw.
6. Complete Heart-block in a Case of Diphtheria. R. Clayton Allen. With Note by Dr. Hugh Barber.

1. **Vaccine Therapy in regard to General Practice.**—Alexander Fleming has been practising vaccine therapy since it was in its infancy, and as time goes on he finds himself more and more convinced of its efficacy, not only for the more severe cases which are to be seen at a hospital, but also and more especially for the lesser ailments which seldom appear at a hospital, but with which the practitioner has much to do. He defines vaccine as a substance which, when injected into the animal body, induces the formation of specific antibodies. The term "vaccine," therefore, is synonymous with the word "antigen." In relation to the question of whether a stock or an autogenous vaccine should be used, four different classes of cases must be considered: Class 1. Where the vaccine is to be used for prophylaxis. Here there is no choice—only a stock vaccine can be used. Class 2. Where the nature of the bacterial infection is known but a culture of the microbe cannot readily be obtained from the patient. In such cases, again, there is no choice, and stock vaccines must be used. Class 3. Where, owing to the profusion of contaminating microbes, it is difficult to identify and differentiate with sufficient sharpness one microbe from another of the same morphological species. Here only an experienced bacteriologist will be able to make satisfactory autogenous vaccines. Class 4. Where the infecting microbe can easily be obtained from the patient in pure culture. A stock vaccine is indicated when the infecting organism belongs to a group the members of which differ very little among themselves. Thus, in staphylococcus infections, a stock vaccine will in almost all cases give as good results as an autogenous, and in some few cases the stock vaccine will prove the more beneficial. It is desirable to use an autogenous vaccine (a) when the infecting agent belongs to an ill-defined group of microbes. This is well exemplified in the so-called "B. coli infections," for the name is loosely applied to a large group of organisms which, as regards their antigenic properties, are very different. It is therefore more satisfactory in such infections to employ an auto-

genous vaccine. (b) When the infection is severe and it is felt to be too great a risk to wait to see whether the stock vaccine is effective; but it is wise in such cases to give a small dose of the stock vaccine while the autogenous one is being prepared. (c) When treatment with a stock vaccine has failed. The clinical effects of the injection of a bacterial vaccine may be divided into two classes: (a) toxic, and (b) immunizing. The clinical application of vaccine therapy is considered particularly with respect to catarrhal infections of the respiratory tract (the common cold, bronchitis, influenza); pneumonia; whooping cough; chronic rheumatic conditions; diphtheria carriers. It is pointed out that patients may be inoculated with bacterial products not only from without, but also introduced into their circulation by some disturbance of the infected focus. It has been shown by means of blood examinations that any such disturbance is followed by a sequence of events which are the exact counterpart of those following the administration of vaccines by hypodermic injection. In the treatment of any patient by vaccines a satisfactory conclusion is to be arrived at only if the phenomenon of autoinoculation is considered, and in most cases it is necessary that these autoinoculations should be diminished or abolished by keeping the infected part as much as possible at rest by splinting or some other means.

Endocrinology.

January, 1921, v. 1.

1. Adenoma of the Thyroid with Hyperthyroidism (Thyrototoxic Adenoma).—History of the Recognition of This Disease as a Clinical Entity. A Study of the Symptomatology with Basal Metabolic Rates. Walter M. Boothby.
2. A Case of Dystrophia Adiposogenitalis. Franklin G. Ebaugh and R. G. Hoskins.
3. Determination of Relative Activity of the Thyroid Lobes. N. Worth Brown.
4. The Hypophysis Cerebri of the Woodchuck (*Marmota monax*) with Special Reference to Hibernation and Inanition. A. T. Rasmussen.
5. The Controlling Factors in Amphibian Metamorphosis: A Review. John F. Fulton, Jr.

1. Adenoma of the Thyroid with Hyperthyroidism (Thyrototoxic Adenoma).—Walter M. Boothby traces the history of the recognition of this disease as a clinical entity, and studies the symptomatology with basal metabolic rates. He summarizes his findings thus: 1. According to Plummer's classification there are two separate and distinct types of hyperthyroidism, each due to a different pathological change in the thyroid gland: in the one type, the hyperthyroidism associated with the clinical syndrome of true exophthalmic goiter is always accompanied by diffuse hypertrophy and hyperplasia of the thyroid gland, in the other type the hyperthyroidism, not associated with this typical diffuse hypertrophy and hyperplasia, but with the occurrence of adenoma in the gland, is due to the adenoma, and the resulting clinical syndrome is distinguishable from that occurring in true exophthalmic goiter. 2. The syndrome associated with the hyperthyroidism from adenoma of the thyroid is considered by Plummer to be a distinct clinical entity and may be defined as a disease associated with adenoma, characterized by an increased basal metabolic rate excited by an excess of the normal thyroid hormone in the tissues. About middle age the adenomatous tissue gradually begins to furnish an excessive amount of the apparently normal thyroid hormone (thyroxin) and this produces the increased metabolic rate and intoxication clinically evidenced by nervousness, tremor, tachycardia, loss in strength and weight, and a tendency to hypertension, and in the later stages myocardial disintegration. The underlying cause or stimulus that activates the thyroid to adenomatous growth and over-secretion is not known. 3. Detailed metabolic rate and blood pressure studies are reported in seventy-five cases of adenoma with hyperthyroidism in which the average basal metabolic rate before treatment was + 35 per cent. and after operation + 7 per cent. Similar studies of 201 cases before treatment are also given in which the average basal metabolic rate was + 28 per cent. In contrast the average basal metabolic rate in 167 cases of adenoma without clinical evidence of hyperthyroidism was + 2 per cent.; in eighteen of these cases the average basal metabolic rate before

operation was — 4 per cent. and it remained practically unchanged, — 8 per cent., as a result of thyroidectomy. 4. Three groups of exophthalmic goiter cases of varying degrees of severity were studied. In thirty-six patients with the severest type of the disease the average metabolic rate before treatment was + 66 per cent.; these patients were subjected to rest in bed and two ligations at an interval of a week or more and within ten days after the second ligation the basal metabolic rate was — 50 per cent. After three months' rest at home these patients returned to the clinic and were found to have an average basal metabolic rate of + 42 per cent., with corresponding clinical improvement; within two weeks after thyroidectomy the rate had dropped to + 19 per cent. In a second group, fifty-two moderately severe cases, the patients were subjected to a single ligation and thyroidectomy one to two weeks later. The basal metabolic rate before treatment was + 52 per cent., after thyroidectomy + 15 per cent. In twenty-two the basal metabolic rate before treatment was — 57 per cent. and ten days after the preliminary ligation was + 41 per cent.; within two weeks after thyroidectomy the basal metabolic rate in this group had fallen to — 16 per cent. In fifty-two patients with mild exophthalmic goiter on whom a primary thyroidectomy was performed the average basal metabolic rate before treatment was + 36 per cent. and two weeks after operation + 8 per cent.

New Orleans Medical and Surgical Journal.

February, 1921, lxxix, 8.

1. Tapping of the Heart. Y. R. LeMonnier.
2. Congenital Malformation of the Anus and Rectum, with Report of Cases. E. D. Fenner.
3. Vertigo or Dizziness. S. C. Jamison.
4. Occipito-Posterior Positions. E. L. King.
5. Menace to Public Health. Oscar Dowling.

1. Tapping of the Heart.—Y. R. LeMonnier reports a case of supra acute pericarditis in which he tapped the heart, with the result that the patient lived, but an organic affection of the heart immediately supervened. This case was observed in 1875, and as he has not seen another since he concludes that these cases, immediately accompanied with or followed by valvular troubles, dropsies, embolisms, paralyses, etc., are fortunately rare.

United States Public Health Reports.

February 18, 1921, xxxvi, 7.

Influenza Studies; Further Data on the Correlation of Explosiveness of the 1918 Epidemic.—Raymond Pearl says that in the first of these studies, published in the fall of 1919, a definite and sensible correlation was established between the explosiveness of the outbreak of influenza in 1918, as measured by an epidemicity index, and the normal death rate from certain organic and chronic diseases. The present, more critical study, attempts to determine by multiple or partial correlations the chief factors for the great variation in explosiveness in 34 American cities. New indexes are employed and every effort is made to get critical quantitative measures of the variables involved. In general the second study confirms the first; and the author believes that the critical refinements introduced fully meet all earlier criticisms. He maintains that the correlation between the death rate from organic diseases of the heart and explosiveness of the influenza outbreak is extremely significant. He points out that the normal death rate from pulmonary tuberculosis and the explosiveness of the epidemic, though sensibly correlated, are not markedly so; and that the death rates from cancer and typhoid fever show no sensible correlation. Moreover, of the six environmental and demographic variables considered, only one, the latitude of the city, shows any correlation with the epidemic; and the significance of this is held to be doubtful. A similar correlation between deaths from influenza and those from cardiac diseases was also found, but not between influenza and acute nephritis, Bright's disease, or tuberculosis. The author concludes that the results indicate clearly that explosiveness of outbreak and total destructiveness are distinct but related epidemiological characteristics.

Book Reviews.

PSYCHOPATHOLOGY. By EDWARD J. KEMPF, M.D., Clinical Psychiatrist to St. Elizabeth's Hospital (Formerly Government Hospital for the Insane), Washington, D. C.; Author of "The Autonomic Functions and the Personality." 87 illustrations. St. Louis: C. V. Mosby Company, 1920.

THE Author of this book, which is interesting, even if not to be taken seriously by all readers, starts out with the assumption, which he calls a fact, that "Man is a species of ape that has gradually developed an intricate social system of laws and beliefs which direct the gratification of the individual's affective cravings." With this as a premise it is easy to go on to show that the conventions which this reformed ape has established and the punishments which he has decreed for those who run counter to them have created a fear of tabooed cravings within himself, the struggle to control which establishes functional neuroses or psychoses. Then the door is opened wide and Freud finds himself entirely at home.

As in all books written by Freudians, the impression is given that every trivial or serious deviation from normal mental processes has a perverted sex basis—in other words, *cherchez l'infame*. Even the poor sufferer from delirium tremens overcome by his fear of snakes and the like, "is the victim of his homosexual cravings to be sexually overcome by a potent male!" We presume the professional psychoanalyst is free from repressions, transferences, and the like, but the author of this book does not hesitate to accuse the critics of psychoanalysis of such, or to accuse those who do not practise this form of suggestion as influenced by financial considerations in keeping the yearning neurotic attached to them.

The book is of value to one who wishes to learn the Freudian conception of insanity, but it will not help one who seeks an all-around sane view of mental disease; neither does it serve those who are looking for an exposition of the technique of psychoanalysis. But it is the best, as it is the latest, authoritative treatise on sexual psychopathology.

THE DIFFICULTIES AND EMERGENCIES OF OBSTETRIC PRACTICE. By COMYNS BERKELEY, M.A., M.D., M.C., Cantab., F.R.C.P. Lond., M.R.C.S. Eng., Obstetric and Gynecological Surgeon to the Middlesex Hospital; Surgeon to In-Patients, Chelsea Hospital for Women; Senior Obstetric Surgeon, City of London Lying-In Hospital; Gynecological Surgeon, Eltham and Nottingham Hospital; Lecturer on Obstetrics and Gynecology, Middlesex Hospital Medical School; Examiner in Obstetrics and Gynecology to the Universities of Oxford, Cambridge, London, Manchester, and Sheffield; Sometime Examiner in Obstetrics and Gynecology to the University of Leeds and the Conjoint Board of England; and VICTOR BONNEY, M.S., M.D., B.Sc. Lond., F.R.C.S. Eng., M.R.C.P. Lond.; Assistant Obstetric and Gynecological Surgeon to the Middlesex Hospital; Lecturer on Practical Obstetrics, Middlesex Hospital Medical School; Surgeon to the Chelsea Hospital for Women, the Freemason's Hospital; Gynecological Surgeon to the Miller Hospital, the Putney Hospital, and the Hospital for Nervous Disease, Maida Vale; Examiner in Obstetrics and Gynecology to the Conjoint Board of England; Late Emden Scholar and Mercers Prizeman, Middlesex Hospital Cancer Research Laboratories, and Hunterian Professor, Royal College of Surgeons of England. Third edition, with 309 illustrations. Philadelphia: P. Blakiston's Son & Co.

THIS edition of Berkeley and Bonney's "Obstetric Practice" will be welcomed by those already familiar with the work and will prove to be an invaluable aid to those to whom it comes as a new treatise. The book does not deal with normal pregnancy and childbirth, but only with their diseases and accidents; this strikes one as peculiar at first, but it is really logical and in analogy with the procedure in regard to other branches of medicine. Pregnancy and childbirth being normal processes, it is proper to consider them separately for the same reason that physiology and pathology receive separate treatment.

None of the difficulties of the subject is omitted, the

book beginning with the difficulties of diagnosis of pregnancy and ending with the diseases and injuries of the newborn child. In this edition a supplementary chapter on the feeding of infants has been contributed by Dr. H. C. Cameron. This subject might appear not to be in keeping with the plan of the book to deal only with abnormalities, but it really is, for the only normal infant feeding is breast feeding, and artificial feeding may in all truth be called difficult.

The book is written in an easy style, and the lucid descriptions in the text are made still more clear by many excellent illustrations. It is not to be recommended to the student until he is thoroughly familiar with the physiology and mechanism of normal pregnancy and labor and their management by watchful waiting but then, before beginning his accoucheur apprenticeship, he will find this work of the greatest value, and a general familiarity with its teachings will give him confidence to take the oversight of his early cases of midwifery.

GYNÄKOLOGISCHES VADEMECUM für Studierende und Aerzte. Von Prof. Dr. A. DÜHRSEK in Berlin. Dreizehnte und vierzehnte verbesserte Auflage. Berlin: S. Karger, 1920.

THIS work first appeared in 1891. The ninth-tenth edition followed in 1913, having been the occasion of important addenda. The present edition—thirteenth-fourteenth—has also been improved in accordance with the scientific developments of the intervening years.

INTRODUCTION TO GENERAL CHEMISTRY. An Exposition of the Principles of Modern Chemistry. By H. COPAUX, Professor of Mineral Chemistry at the School of Industrial Physics and Chemistry of the City of Paris. Translated by HENRY LEFFMANN, A.M., M.D., Member of the American Chemical Society and of the (British) Society of Public Analysts. Philadelphia: P. Blakiston's Son & Co., 1920.

THIS little book is the result of an effort so to present the fundamental principles upon which the modern science of chemistry is founded that they will be readily comprehensible and that the student will absorb them in a form that is substantially correct. The author has been singularly successful in his task and his translator has performed his duty well. The book should be welcomed by junior students of chemistry and is one that senior students and even practising chemists would do well to read so that their ideas (often erroneous) may be clarified and corrected.

THE SYSTEMATIC TREATMENT OF GONORRHOEA IN THE MALE. By NORMAN LUMB, O.B.E. (Author of "The Urethroscope in the Diagnosis and Treatment of Urethritis"), Late R.A.M.C. Specialist in Venereal Diseases, and Officer-in-Charge of Divisions 39 and 51 General Hospitals, B.E.F.; Clinical Assistant, St. Peter's Hospital for Stone. Second Edition. Philadelphia and New York: Lea & Febiger, 1920.

THIS little volume is intended as an aid to the general practitioner. The author lightly touches upon the essentials of etiology, pathology, diagnosis, and treatment of gonorrhea and its complications. He wastes time and space in the consideration of such worthless procedures as electrothermal therapy and intramuscular administration of colloidal preparations of palladium and manganese. Because of his results with detoxicated vaccines he is optimistic toward this type of therapy. Occasional ambiguities mar the general clarity of expression of his thoughts.

HANDBUCH DER SPEZIELLEN CHIRURGIE DES OHRES UND DER OBEREN LUFTWEGE. Herausgegeben von Dr. L. KATZ, Spezialarzt für Ohren, Nasen, und Halskrankheiten in Ludwigshafen a. Rh.; und Prof. Dr. F. BLUMENFELD, Arzt für Nasen, Hals, und Lungenkrankheiten in Wiesbaden. Vol. II, No. 6. Leipzig: Verlag von Curt Kabitzsch, 1920.

THE present installment of 188 pages comprises an article on the surgical diseases of the internal ear by Prof. W. Uffenorde of Göttingen, who in a succinct and comprehensive manner discusses this subject under the following headings: inflammatory diseases, wounds, tumors, and malformations; and functional indications of surgical intervention. A series of fourteen colored plates accompany this number.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON MEDICINE.

Stated Meeting, Held February 15, 1921.

Dr. SAMUEL BRADBURY in the Chair.

The program of the evening was presented by the Staff of Montefiore Home and Hospital.

Diagnosis of Intrathoracic Neoplasms.—Dr. MAURICE FISHBERG read this paper. (See page 513.)

Dr. DOUGLASS SYMMERS stated that from the anatomical standpoint, intrathoracic tumors, exclusive of the teratomata, were divisible, broadly, into three groups; namely, those springing from the thymus body or its remnants, those from the peribronchial lymph nodes and those from the lung proper, including the bronchi, the interstitial tissues, and the pleura. Tumors springing from the thymus formed an interesting group. For example, there was a variety of thymic lymphosarcoma which grew expansively and was apt to produce mechanical symptoms referable to the upper mediastinum. It was interesting to observe that lymphosarcomata of this description sometimes caused bilateral enlargement of the kidneys due to extensive infiltration of tumor cells. In two cases of this description encountered at Bellevue Hospital, the combined weight of the kidneys was 1040 and 1100 grams, respectively. In some cases lymphosarcomata of the thymic remains were richly vascularized, so that the tumor might actually pulsate, giving rise to symptoms that suggested aneurysm. A certain proportion of all cases of myasthenia gravis was associated with lymphosarcoma of the thymus. Still another form of lymphosarcoma of the thymus which was extremely important from the standpoint of recognition, was the so-called leucosarcoma of Sternberg. It grew for a period of months or years as an ordinary lymphosarcoma, and then suddenly commenced to pour lymphocytes into the blood, terminating life with the symptoms of acute leucemia. Finally, there was a variety of enlargement of the thymus body which presented the histological characteristics of Hodgkin's disease. In one such case observed by Dr. Symmers, the sternum was extensively eroded and in another case the growth penetrated the suprasternal region, replacing a portion of the thyroid gland. This latter case was associated with extensive edema of the upper part of the chest and of the right arm. There was still another variety of thymic tumor, the exact nature of which was at present unknown. Dr. Symmers stated that in 1914 he and Dr. Morgan Vance had observed a tumor of the thymic region that was roughly triangular in outline, measured 18 x 25 cm., and produced extensive nodular metastatic deposits in the lungs and pleura and in the vertebrae, from whence it infiltrated the spinal cord with the production of complete paraplegia. The patient showed no respiratory symptoms referable to the presence of the growth. Dr. Symmers said that the histology of this growth suggested the possibility of origin from Hassell's bodies. The second group of intrathoracic tumors was represented by the lymphosarcomata of the peribronchial lymph nodes. This type of growth was more apt to mould itself around the vascular and other tubular structures of the part, compressing them rather than producing direct infiltration. It tended, however, to spread along the peribronchial connective tissues. Finally, there was a group of tumors springing from the tissues of the lung itself. In the past eighteen months Dr. Symmers stated that he had seen seven cases in which the diagnosis of primary tumor of the lung could be made with reasonable, if not absolute, certainty. Primary tumors of the lung were not to be diagnosed anatomically until every possible source for the origin of metastases had been eliminated. Metastasis might come from minute diverticula of the esophagus that had undergone epitheliomatous transformation with secondary involvement of the lungs. Of seven primary lung tumors encountered at Bellevue Hospital, one was an epithelioma of the bronchus, three were adenocarcinomata springing from the submucous glands in the bronchi, two mesotheliomata of the pleura, and one spindle-cell sarcoma.

Dr. SIDNEY YANKAUER called attention to the fact that Dr. Fishberg had failed to make mention of the bronchoscope, and emphasized the importance of this method of examination. In the last four years he had examined about 100 cases of pulmonary suppuration of various kinds in patients of different ages. In 16 instances a tumor was definitely diagnosed with the bronchoscope. From the standpoint of the bronchoscopist there were two kinds of intrathoracic tumors. One grew externally to the bronchi and made itself evident only by the fact that it pressed upon a bronchus. In these cases the nature of a growth could not be determined because the growth could not be seen. In another class it either originated in or broke its way into the bronchus and in such cases the bronchoscope was of great value. One could remove a piece of the tumor and make a microscopic examination. Of the 16 intrabronchial tumors ten were carcinoma and three sarcoma; of which two occurred in children and one in an adult. The other three cases were benign tumors which had not been mentioned this evening, namely, two fibromata and one granuloma. The fibromata were both removed with the bronchoscope and in both cases a complete cure was effected. The great value of the bronchoscope lay in the possibility of a definite diagnosis, and of a diagnosis when the tumor was small enough to be suitable for removal. He believed that the thoracic surgeon would not hesitate to enter the chest and remove a tumor at the stage at which it could now be discovered.

Dr. MORRIS MANGES said that Dr. Fishberg's paper showed what could be done by the study of physical signs if one started out to make a diagnosis by physical signs. He felt that we were leaning too hard upon the x-ray and that many had forgotten the value of a careful physical examination. He was very glad Dr. Fishberg had not brought his x-ray illustrations for without them he had been able to bring this lesson home much better.

Dr. ALFRED MEYER stated that Dr. Lilienthal had been called out and before going had asked him to accentuate that occasionally artificial pneumothorax was of value in diagnosis if the chest was first aspirated and then an x-ray plate taken. Then he himself also wished to accentuate that one should not become too enthusiastic over one method and decry other methods but should use every link in the chain in trying to forge a diagnosis. From his own point of view, Dr. Meyer said he wanted to say a word as to the value of cytology. If there was only pulmonary involvement with the pleural effusion due to mechanical cause simply and not to involvement of the pleura the likelihood was that one would get little information by tapping, but in many cases there was secondary involvement of the pleura and the chances of confirming the diagnosis by tapping and cytological examination were more favorable than Dr. Fishberg had said. It depended upon the kind of examination that was made. Dr. Mandelbaum had developed a method of cytological examination of tapped fluids which had helped him in malignant disease of the lungs and pleura and in intraabdominal disease supposedly malignant. One could collect the fluid in a sterile bottle, centrifuge it, imbibe the sediment in paraffin, cut sections, stain and mount. Dr. Meyer stated that he had personal knowledge that that method was not followed very extensively and he would like to suggest its wider use, and hoped that other laboratories would go into the finess of the method in order that they might have a larger percentage of positive results.

Dr. A. S. BLUMGARTEN spoke of the value of pneumothorax as a diagnostic aid. They had been using this procedure for two years at the Lenox Hill Hospital. One patient had had repeated pleural effusions for fourteen months, and the physical signs and x-ray photographs showed nothing but pleural effusion though a large number of x-ray plates had been made. Finally the fluid was withdrawn and the pleural cavity inflated with oxygen and then a mass about the size of a walnut was revealed in the x-ray pictures. Consequently they were very sure this was a primary tumor of the right lobe. The right lower lobe of the lung was removed and the patient recovered; he died eight months later of chronic nephritis. Strangely enough when the pathologist's report came back it stated that

the tumor was benign. Artificial pneumothorax with oxygen and an x-ray had shown the mass when all other methods had failed.

Dr. FISHBERG, in closing the discussion, said he had an antipathy for any one who urgently claimed priority, but nevertheless he would like to go on record that this system of artificial pneumothorax for the diagnosis of tumor of the lung had been evolved at the Montefiore Home during the past three years. This was brought out in an article that had been sent to the *Journal of the American Medical Association* two months ago and would soon be published. He was not saying this for the purpose of establishing priority but to record the actual fact. Now, as to what Dr. Symmers had said, he felt very grateful to him for his elucidation of the pathology which he himself did not feel competent to discuss. He was much gratified to hear him say that during autopsy it was at times difficult to differentiate primary and secondary tumors of the lung. The question might be asked how they knew that the tumors he had reported were all primary. But if a pathologist, while making an autopsy, could not decide, how could the poor clinician who was merely a practitioner of the art of medicine be able to decide? However, he considered lung tumors primary when no metastatic deposit could be found in any other part of the body. As for the cytological examination, they had been getting the fluid, centrifuging, cutting sections, staining, and making examinations, and the pathologist could not always say that they were dealing with tumor cells. The cytological examination had often shown epithelial cells, and cells looking like cancer, but one could not place as much confidence on such a finding as upon finding a pneumococcus or tubercle bacilli. As for the bronchoscope, he had had no experience. As a tumor invaded the lumen of a bronchus in only perhaps 10 per cent. of the cases there would be 80 or 90 per cent. in which the bronchoscope would not reveal what could be found by physical signs.

Clinical Aspects of Disturbance of Cardiac Conductivity.—Dr. B. S. OPPENHEIMER made this presentation. He stated that the electrocardiograph did not give direct evidence of the muscular condition of the heart; it did, however, show disturbances in conductivity. It had been learned that auricular flutter, impure flutter and fibrillation were really due to disturbances in conduction within the auricle. Lewis had recently produced auricular flutter in dogs by increasing the heart rate. Auricular fibrillation, instead of being originated by multiple foci, was found to originate from a single point. Dr. Oppenheimer showed by means of lantern slides and charts that the excitation wave travelled in a circle and when the rate was sufficiently increased the successive excitation waves interfered with one another causing block in certain areas. Clinically extrasystoles did not diminish the output of the heart. In auricular flutter the output of the heart was diminished 15 per cent. and the blood pressure was reduced 15 per cent. This was in part due to the abnormal increase in the ventricular rate. In auricular fibrillation the output was reduced 40.6 per cent.; the blood pressure 34.8 per cent. In heart block the output might be reduced 44 per cent. and the blood pressure 33 per cent. In complete heart block the output was reduced 60 per cent. It therefore appeared that to determine the efficiency of the human heart one should study its muscular conductivity.

Dr. ROBERT H. HALSEY stated that as the various forms of interference with conduction of impulses from auricle to ventricle had been described and illustrated very beautifully, he would show some electrocardiograms of ventricular tachycardia with complete block instead of duplicating what Dr. Oppenheimer had said. The first slide illustrated auricular flutter with a ventricular rate of 150 and an auricular rate of 300—that is to say, there was a two to one block. Individuals with this type of tachycardia frequently responded promptly to digitalis therapy and sometimes, as in this case, had a return of normal sequential rhythm under the normal pacemaker. The next slide, taken while the patient had been lying quiet, showed the ventricle beating at 165, while the auricle contracted only 75 times per minute. After exercising, the record showed the ventricle maintained its high rate while the auricle increased to 105. This showed

that exercise affected the auricular rate but not the ventricular which was of intraventricular origin and there was complete block without retrograde impulses to auricle from ventricle. Without such aid as the electrocardiograph, it would be impossible to elucidate such conduction difficulties as shown.

Dr. SELMAN NEUFHOF spoke of sinoauricular heart block. He said that while this condition was usually due to digitalis, he had seen at least two instances in which it was due to tobacco poisoning. The theory of Garrey and Mines was very fascinating, but he wondered how, after all, their theory of "inter-auricular block" accounted for the clinical and autopsy conditions in which auricular fibrillation was so common. He thought there were possibly mechanical changes in auricular texture, such as the thickening found in cardiosclerosis, or the auricular distention and dilatation found in mitral stenosis which might act as mechanical factors in preventing the normal spread of the auricular impulse, thus tending to block the impulse and hence cause auricular fibrillation. Of course those having auricular fibrillation were usually at a tremendous disadvantage from the circulatory standpoint; yet one saw patients aged seventy and more getting along fairly well; usually a pulse deficit was absent in these individuals. This led one to speculate as to the reason for the comparative absence of symptoms. It might be because the progress of the myocardial disease had been a gradual one, thus gradually allowing the heart to make up for the deficiency. Besides, these elderly people were not subjected to great circulatory strains. At any rate it was a fact that many subjects of auricular fibrillation grew to be old people.

Dr. CARY EGGLESTON mentioned a point which had interested him not only in relation to Dr. Oppenheimer's paper but before, that was with reference to Eyster's figures. Eyster's figures gave one the impression that partial heart block was a condition of greater clinical severity than auricular fibrillation so far as subjective symptoms were concerned. He did not wish to be understood as saying that the figures were wrong, for they were doubtless correct for animals, but from the clinical standpoint they conveyed a wrong impression. Fibrillation was symptomatically a far graver condition than partial heart block, though not prognostically as grave.

Dr. LOUIS FAUGERES BISHOP stated that one of the most important points was that of compensation and in heart block they had an example of what compensation would do in these old people who stood fibrillation and stood it well; it was because they had developed a certain amount of compensatory heart block. He had at the present time under observation three persons with large old rheumatic hearts with chronic fibrillation. All of them had developed partial heart block and they went along fairly well month after month without digitalis because the rheumatic lesion had not only produced fibrillation but also a fairly complete heart block. He thought that the idea that heart block might be beneficial in many cases of fibrillation was of great interest. Dr. Oppenheimer's paper was extremely interesting and satisfactory as we were all very much puzzled by these intermediate cases where we did not know whether we were dealing with a fibrillation or a flutter. Dr. Bishop cited one instance which he had just seen in which the first part of the electrocardiogram showed a flutter and then in the second half it went into a fibrillation. It was very puzzling in some cases to decide whether one was dealing with flutter or fibrillation; in these cases he was apt to consider the condition one of fibrillation but they offered an interesting debating ground.

Dr. HAROLD E. B. PARDEE said that he was glad to have this new conception of auricular fibrillation made more generally known, because the old theory of multiple foci of extrasystoles had not been satisfactory. This new theory of Lewis' explained many things both clinical and experimental, that could not be explained by the old theory. There was one thing mentioned by Dr. Oppenheimer which would be found very helpful in the diagnosis of auricular flutter when an electrocardiographic record was not available. This was the slowing of the pulse rate which resulted from pressure upon the vagus nerve in the neck. The heart

slowed with pressure and quickly speeded up again when it was stopped reaching exactly its former rate. Such an effect from vagus pressure could not be obtained when the heart was rapid with a normal A-V mechanism, nor when it was rapid because of paroxysmal tachycardia. The slowing with flutter was due to the effect of vagus pressure in diminishing the function of conduction between auricles and ventricles. The same phenomenon of slowing would be produced if auricular fibrillation were present with rapid rate, but he thought that this could usually be distinguished from auricular flutter by the irregularity. Eyster's figures showed the comparative efficiency of the circulation during normal slow rhythm and during the abnormally rapid rate when auricular flutter or auricular fibrillation was experimentally induced. The situation was nothing like that which we met clinically, for in clinical auricular fibrillation the ventricles were always kept slowed, or at least should be, by the action of digitalis. He felt that incomplete heart block, a two to one block, was more serious than auricular fibrillation because in the latter condition the danger was from a too rapid ventricular rate, and this danger could be easily controlled by digitalis. We must not be over-impressed with the relative unimportance of extrasystoles, though considering only their effect upon the efficiency of the circulation; we must consider also their importance as a sign of myocardial disease. This brought up the question of the value of the auricle in the efficiency of the circulation. Henderson's work had shown that the auricle had little or no effect in driving the blood, its chief function apparently being to bring about a proper closure of the flaps of the auriculoventricular valves. Moreover, it was hard theoretically to understand how a very brief pressure rise of only about 10 mm. of mercury, taking place at the side of the ventricles opposite to the aorta, could have much effect upon the circulation as a whole.

Dr. OPPENHEIMER, in closing the discussion, said that Dr. Halsey's cases were very remarkable in showing all the different conduction disturbances. As to the prognosis in these conduction disturbances a great deal depended upon the complications that might be present. According to the estimations made by Eyster and Swartwout the normal heart of the human being could do ten times as much work as it was ordinarily called upon to do. If its efficiency were reduced by 40 per cent. it would still have a tremendous factor of safety. That was the reason Dr. Neuhoef had seen auricular fibrillation run along for years. The prognosis was not dependent upon the heart block, but usually these patients had some unusual underlying condition that determined the prognosis. They hoped in a few months to be in better position to give some idea of the outlook in cases of heart block. As regards the action of the auricles, Henderson thought that they had little effect on the circulation, but if one read Starling's work it would be found that he considered diastole as important as systole in its effect on the output.

Delayed Resolution in Lobar Pneumonia.—Dr. HARLOW BROOKS presented this paper, in which he stated that the subject, delayed resolution in lobar pneumonia, received relatively little attention in most textbooks, and for the greater part it was mentioned, when at all, as of infrequent occurrence and apparently of little clinical importance. It was probable that it was much more frequent than casual statistics would indicate, for the reason that many practitioners both in and outside of the hospital were accustomed to discharge their pneumonia cases long before all the physical signs of pulmonary infiltration had disappeared from the lungs, and in more than a few instances he did not exact final searching reexaminations. His experience in the military service, during which period he was enabled to follow his cases for much longer periods than was usually customary in civil life, had convinced him that the condition was far more frequent than he had supposed and its importance was much greater than was usually accepted to be the case. Its occurrence differed greatly in different seasons and particularly in the various epidemic types of pneumonia. No definite period could be fixed as to when all the signs of pneumonia should disappear from the lung under normal conditions, and the term "delayed resolution" was

therefore a very elastic one and in large degree inaccurate. For clinical purposes perhaps one was justified in assuming that, when definite progress in resolution occurred after a period of improvement, but then the exudate failed to resorb with a rapidity discernible from day to day, one was then dealing with a delayed resolution. One must not group as delayed resolution those instances of pneumonia in which an interstitial pneumonia followed the acute disease, nor yet those cases in which pulmonary gangrene or pulmonary abscess occurred. If one accepted the definition proposed it would be found, he believed, that most cases of delayed resolution presented no elevation of temperature after the subsidence of the acute course; if, however, one included those instances in which abscess or pulmonary gangrene or pulmonary fibrosis occurred, it would be found that an elevation of temperature did persist. Most writers made the statement that delayed resolution occurred chiefly in the asthenic, the debilitated, and in highly intoxicated cases of pneumonia. If we included under this title cases which developed pulmonary abscess or pulmonary gangrene, this was beyond doubt a correct assumption, but if we accepted the classification which he proposed, he did not think we could accept this statement, for the cases in which he had particularly observed the conditions the subsequent complete resorption had not been of this character. The statement was also generally accepted, and was so stated in most textbooks, that delayed resolution occurred most commonly in the lower lobes. The experience of the war pneumonias was rather the persistence of foci of infiltration in the upper lobes, hence the frequency of the mistaken diagnosis of pulmonary tuberculosis. He did not feel that we were as yet justified in any very definite conclusions as to the causative factors back of delayed resolution in pneumonia. There could be no doubt, however, but that hypostasis from monotonous position, from a defective heart action, or from a frank septicemia, favored delay in resolution. The most important phases of differential diagnosis lay in most instances between developing pulmonary abscess, pulmonary gangrene, atelectasis, pleural effusions, thickened pleura, pulmonary fibrosis, and neoplasms. The differentiation of delayed resolution from pulmonary abscess and gangrene was relatively easy: from the temperature course which sooner or later in the latter conditions assumed a septic course, from the x-ray findings, from an increasing evidence of necrosis, and with absolute conclusiveness from the character of the sputum which eventually declares itself. The differentiation from atelectasis as from pulmonary embolism was much more difficult. The history of an embolism, the x-ray or fluoroscopic appearance with a falling away of the involved tissue from the pleural wall were all usually sufficiently decisive to admit of satisfactory differentiation. Thickened pleura, if it was accompanied with an organized exudate and with pleural adhesions, was by no means easy of differentiation, and final separation could perhaps be determined only by the course, namely, when the beginning of resorption was evident on the one hand and absent on the other. Where pleural effusion or pleural thickening or organization was associated with delayed resolution, differentiation by auscultatory and tactile fromitis, and by other physical signs, was by no means simple, and repeated observations were commonly necessary. Pleural effusions were more frequently confused with delayed resolution than any other one condition, particularly when the exudate was, or was supposed to be, interlobar or encysted. The x-ray would materially help in some instances, but in others it confused rather than otherwise, and the more definite method appeared to be the precise location of the shadow with the x-ray or fluoroscope, and the differentiation finally by diagnostic needling, oftentimes frequently repeated. The diagnosis from tuberculosis was particularly difficult, though in many, perhaps most, instances the greater frequency of the delayed resolution in the basal portions of the lung tissue, and the greater frequency of tuberculosis in the upper portions of the lung were helpful. As a rule, the shadow or area of dullness in delayed resolution was larger and more dense than was the case in the earlier phases of pulmonary tuberculosis, and the gradual tendency of the delayed resolution to clear, first at its periphery, while tuberculosis necrosed

centrally or became more dense, were also points of great assistance. Finally, loss in weight, increasing fever, augmenting asthenia, and the finding of tubercle bacilli furnished means of differentiation. Pulmonary fibrosis could oftentimes be differentiated by the ultimate result, and one could never be sure but that the area of supposed delayed resolution might not be undergoing fibrosis. It must be recalled that in many instances probably a pulmonary fibrosis succeeded a delayed resolution. Pulmonary neoplasm was most frequently first diagnosed as probable pulmonary fibrosis, or if associated with the history of an acute pulmonary inflammation with delayed resolution. The asthenia, cachexia, progressive anemia, etc., which characterized so many neoplasms even in their very early stages were largely wanting in many new growths of the lungs. The spread of the neoplasm, contrasted with the stationary character or retrogression of delayed resolution, were two points of differentiation of particular value in which the fluoroscope or plate were of even more conclusive value than physical examination. Sharp lines of limitation, unless at the lung borders or the bronchial septa, indicated neoplasm as a rule; for generally delayed resolution presented lines of limitation of a less definite and more hazy character. Where the pleural surfaces were involved, thoracotomy with the removal of a fragment of pleural tissue for biopsy was justified. An important point of differentiation between pulmonary neoplasm and delayed resolution was the relatively early appearance of circulatory deficiencies or of dyspnea in cases of neoplasm; these two symptoms were strikingly small in delayed resolution, even when it was of quite wide distribution. The involvement of lymph nodes in the mediastinum was almost certain to be present in both conditions. The differentiation of these two conditions was extremely difficult.

Dr. C. N. B. CAMAC, after congratulating Dr. Brooks and the Section on the paper, stated that the subject was one which was very difficult at the moment to discuss, because during the past few years the term pneumonia had taken on so much more specific an application. It must be stated definitely whether one was speaking of a pneumococcus or of an influenza pneumonia, or any of the other bacterial pneumonias, and also whether one was speaking of lobar or bronchial pneumonia. He did not believe we could accept the diagnosis of unresolved pneumonia until we knew with which of the pneumonias we were dealing. The work of Dr. Cecil on experimental pneumonia in the monkey presented the subject in an entirely new aspect. In only one instance in this experimental work on monkeys inoculated intratracheally with pneumococcus did they find an unresolved pneumonia. Dr. Camac quoted from Dr. Cecil's report (*Journal of Experimental Medicine*, April 1, 1920, xxxi, 4, p. 421) commenting on this instance of unresolved pneumonia following prolonged illness to show that the writer used the term unresolved pneumonia very guardedly. In speaking of pneumococcus pneumonia we again had to take into consideration the various subdivisions, so that we could not speak of this infection as broadly as we formerly did. Another point that entered into the question was that, in studying the mechanism of recovery from pneumonia it seemed that we must consider both that of the local condition in the lungs and that of the system. To make this clear, Dr. Camac again quoted from the report of Dr. Cecil and Dr. Blake, as follows: "The mechanism of recovery from lobar pneumonia has been the subject of much investigation. Neufeld and Haendel, Cole and his coworkers, Blake and others, have attributed it in part to the development of humoral antibodies and have demonstrated the appearance of these antibodies in the circulating blood at or about the time of crisis."

Lord has suggested that another factor may be of considerable importance in bringing about crisis and resolution of the pneumococcal process, attributing recovery to local biochemical changes in the course of which the acid death-point of the pneumococcus is reached.

In one instance crisis with recovery occurred with pneumococcus septicemia persisting forty-eight hours after crisis. In several instances a critical fall in temperature has occurred about the seventh or ninth day with subsequent return of fever and death several days later. Autopsy has shown a resolving pneumonia, death apparently being due to a persisting pneumo-

coccus septicemia usually associated with some complication." Dr. Camac called attention to the fact that the pathology in the involvement in a pneumococcus pneumonia was a surface one; the deeper tissues were not attacked; whereas in an influenza and streptococcal pneumonia the deeper tissues were attacked, so that one found an entirely different process to consider pathologically as well as bacteriologically. When unresolved pneumonia was considered, it should be accepted as a diagnosis with caution because one might be led to overlook some complication of serious moment, but amenable to treatment. It was well known that physical signs were often present long after the acute stage of a pneumococcus lobar pneumonia, and frequently the individual went on to recovery with signs still present, but it was a most misleading conclusion to draw that these cases with continued symptoms and signs had unresolved pneumonia. In 139 cases of pneumococcus lobar pneumonia among soldiers he had seen no cases of delayed resolution; with persistent search complications were always found to explain the continued fever or other symptoms. Bronchopneumonia presented an entirely different problem, and any pneumonia in children or in old people was still different. It might be that in old people and young children and those exhausted by long illness we were dealing with biochemical changes influencing resolution. In this connection it was noteworthy that Dr. Brooks had stated that most of his cases of delayed resolution were bronchopneumonia. Dr. Camac said he felt that to deal with this subject in greater detail would go beyond the limits of a discussion, but stated that while he was not willing to say that delayed resolution in pneumococcus lobar pneumonia never occurred, yet he thought it to be extremely rare and that it should be accepted as a diagnosis only when every other complication had been positively excluded. On the other hand, bronchopneumonias of the influenza or streptococcal bacteriology, or any pneumonia in the extremes of life or in those depleted by disease or undernourishment, might fail in the reparative process. He expressed the hope that when Dr. Brooks published his paper from his large number of carefully observed cases he would state specifically the bacteriology and pathology of the unresolved cases. Dr. Camac believed we were as yet far from a clear understanding of just what was meant by "delayed resolution" and "unresolved pneumonia" in spite of the brilliant advances made by research in the pathology and bacteriology of pneumonia.

Dr. RUSSELL L. CECIL stated that the studies on pneumonia to which Dr. Camac had referred had been carried out at the United States Army Medical School in Washington and had been published in the *Journal of Experimental Medicine*. It was interesting to see in monkeys with pneumonia how advanced the process was in many instances some time after the monkey had recovered. In the animals that had recovered it was found that the process of resolution was still going on. If we had a way of obtaining lung tissue from convalescent pneumonia patients we would be amazed to see how many tissue changes remained long after the pneumococcus had been killed.

Dr. FISHER said he believed that at the Montefiore Home they had had opportunities to study certain chronic pulmonary processes which were new in the United States among the native population. In the textbooks it was stated that bronchiectasis was a very rare disease, which was true in the native population, but at the Montefiore Home they were getting people from a portion of the world where the influenza has been endemic for many years, and they were finding localized pulmonary processes resulting from these infections. He had recently seen such conditions develop in New York after the new epidemic. If following an acute attack of pneumonia the temperature did not come down, the first thought should be of localized empyema or pulmonary abscess. That abscess might be a large one and cause trouble, or perhaps kill the patient, but there might be many small abscesses, such as Dr. Symmers had found while making autopsies and described in the *A. M. A. Journal* two years ago. These small abscesses might break into a bronchus. Usually they were localized in the left lower lobe, rarely in the right, and rarer still in the upper lobes.

In those who survive the acute stage, fibrosis was going on with resulting dilatation of the bronchi. These cases were quite easy to diagnose immediately after pneumonia; if the pneumonia did not resolve, the chances were eight out of ten that one was dealing with a localized empyema or an abscess formation in that particular area. Dr. Fishberg said he was glad to hear what Dr. Camac had said. In the true old-fashioned pneumonia resolution occurred very quickly. It was only after the bronchopneumonia of influenza, or the various types of streptococcus pneumonias, not commonly seen previously, that he saw these particular cases in which a small abscess formation occurred and left the patient with a localized suppurating lesion. Patients with these chronic abscesses might go on afebrile and quite comfortably for years, though now and then, when drainage was obstructed, they suffered from an acute exacerbation of the fever, etc., and then a diagnosis of pneumonia was made. The result was that these patients gave a history of several attacks of "pneumonia." He agreed with Dr. Brooks that in chronic cases there was at times great difficulty in differentiating this condition from cancer of the lung. However, a careful consideration of the history, symptomatology, and physical signs, coupled with good radiographic plates, should, in most cases, lead to a proper appreciation of the nature of the disease.

Dr. Brooks, in closing the discussion, said he thought Dr. Camac had failed to get his point. He had wished to make clear that he only regarded as cases of delayed resolution those in which there was a definite progress in resolution after a period of improvement; then there would be persistent signs with an afebrile delay. Where there was fever there would be found probably pulmonary abscess or gangrene, especially if a fluoroscopic examination was made. These cases occurred in lobar pneumonia, but more frequently in bronchopneumonia. Dr. Manges had asked with reference to the treatment of these cases with the x-ray. It was their idea that some of these cases improved as a result of the frequent fluoroscopic examinations to which they were subjected.

The Right Ventricle in Pulmonary Tuberculosis.—Dr. E. P. BOAS read this paper, in which he reviewed briefly the literature bearing on his subject. He stated that it seemed that many had believed that possibly with increased fibrosis in the lung dilatation and hypertrophy would occur in the right heart, and that if there were adhesions impairing the elasticity of the lung the effect on the pulmonary vessels might be similar to that of arteriosclerosis and would increase the work placed upon the right heart. A number of authorities had reported that right ventricular hypertrophy occurred with lung adhesions. However, in most of these reports the method of determining the hypertrophy of the heart were not accurate. The present investigation was undertaken to determine by means of the electrocardiograph what the influence of fibroid phthisis was upon the ventricles of the heart. The investigation included 97 patients in whom a careful history and a thorough physical examination was made, special attention being paid to the cardiovascular condition. Electrocardiograms were taken in the usual way and interpreted by Dr. Mann. The results of the investigation did not confirm the views that were quite generally held. Of the 97 cases, 27 showed left ventricular predominance and 29 showed right ventricular predominance, while 41 showed predominance of neither the right nor the left ventricle. It was well known that many cases of hyperthyroidism showed left ventricular predominance, and that symptoms of Graves' disease often occur in the tuberculous. To determine the influence of hyperthyroidism in the presence of tuberculous cases presenting this complication were compared and as many with right as with left ventricular predominance were found. The same was found to be the case in fibroid phthisis and whether the tuberculous was active or inactive. Right ventricular predominance was not associated with any particular type of tuberculous. Three cases showing hyperthyroidism to the same degree and pulmonary lesions practically identical were studied; one showed left ventricular predominance, one right ventricular predominance, and one showed a normal electrocardiogram. Study was also made of the blood pressure and x-ray observations were made,

and these seemed to show no constant finding associated with fibroid phthisis. The duration of the illness seemed to have no influence in determining the condition of the right ventricle. The patients in this series were classified by sex, and it was interesting to note that among 49 males and 48 females left ventricular predominance was twice as frequent in the women as in the men, and right ventricular predominance twice as frequent in the men as in the women.

Dr. EGGLESTON congratulated Dr. Boas on the care with which he had analyzed his findings. They were more or less what he would have expected. The pulmonary vascular tree was notoriously distensible. As Wiggers had shown, very wide changes in the pulmonary capillaries could be compensated for by the remaining open vessels without any extra amount of work being thrown on the right heart. The fact that the electrocardiograph showed predominance of a ventricle did not necessarily spell hypertrophy. It would seem that there was not necessarily any relation between phthisis and the condition of the right side of the heart. This work certainly ought to be pursued much further. Dr. Boas's records were too few to serve as a basis for conclusion, but they pointed to the fact that fibroid phthisis had relatively little significance so far as the size of the chambers of the heart was concerned.

THE PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, Held January 26, 1921.

THE PRESIDENT, DR. GEORGE MORRIS PIERSOL, IN THE CHAIR.

Auricular Fibrillation, the Most Common and Important of Cardiac Arrhythmias.—Dr. ROSS V. PATTERSON of Philadelphia read this paper in which he said that auricular fibrillation, considered from the clinical point of view, was the most important mechanical derangement of the heart. It was the most frequent form of disordered heart action associated with the symptoms and signs of cardiac failure. It belonged to the ultimate sequelae of inflammatory and sclerotic endocarditis and valve lesions, myocardial degeneration, and circulatory stress from various causes; it was often the immediate cause of cardiac failure. Auricular fibrillation occasioned a profound derangement of the normal cardiac mechanism by reason of over dilatation of the auricular walls, fibrous overgrowth, and functional dissociation of the muscular fibers. The auricles no longer acted as efficient contracting chambers, but stood in a position of permanent diastole, acting merely as reservoirs of the blood which reached them from their tributary veins. The general circulatory effect in extreme grades of this disorder was a lowering of arterial pressure with a tendency to its transference to the venous system through the pulmonary circuit. As a result there occurred congestion of the lungs, engorgement of the entire venous system, general visceral congestions and often the outpouring of the fluid portion of the blood into the subcutaneous tissues and serous cavities of the body. Auricular fibrillation, therefore, produced marked disorder of the cardiac contraction, circulatory failure of advanced degree, and, owing to the congestion of the viscera, interference with the function of many organs, the function of the lungs being early and severely affected. In extreme grades the symptoms were those of rupture of compensation—cyanosis, edema, dyspnea, and the usual evidences of interference with the function of the kidneys, stomach, liver, and other organs, a pulse extremely rapid in rate and wholly irregular in character, the beats varying as to both sequence and force. Palpation and auscultation at the apex revealed the disorder of the ventricular action. The heart beat as compared with the pulse beat might show a difference of as many as 30 or 40 or more per minute. The outlook was dependent, not only upon our ability to control the ventricle, but also upon the degree of damage which it had suffered as a result of the influence of causes which had also affected the auricle and perhaps the arteries and other organs as well. Like other cardiac conditions the prognosis was largely a myocardial

question, due importance being accorded to the mechanical and dynamic considerations affecting the heart, blood vessels, and their contents. The effects of treatment were often brilliant. There was no condition in which a physician might so easily gain a reputation if he would but familiarize himself with the principle of treatment and administer remedies with persistent determination. The ordinary treatment for the restoration of the circulatory balance by rest, purges, venesection, and the treatment of special symptoms due to visceral congestion should be utilized. Digitalis or an allied drug should be administered in every case in which, while the patient was at rest, the heart beat exceeded 100 per minute. As soon as reduction to this rate was accomplished the use of digitalis should either be discontinued or greatly lessened in amount. In cases in which the disorder was extreme and the indications were to bring the heart under control quickly an initial dose of one drachm of the tincture might be given followed by an equal amount in each 24 hours divided into 3 or four doses. The rest period in bed should be prolonged beyond the relief of symptoms in order that the overworked ventricular myocardium might gain its tone and the functions of other organs be restored.

Dr. E. B. KRUMBHAR of Philadelphia said that in spite of the commonness and importance of auricular fibrillation we knew little of its actual causation. Though easily recognizable and known to be found in several well defined clinical conditions, its actual pathogenesis was still unknown. Similarly its finer pathology was still obscure and he thought there was an important field for more intensive study of the subject. As to prognosis he thought it was correct that the auricular fibrillation of cardiac sclerosis was a graver condition and less responsive to digitalis than was the fibrillation of rheumatic cardiac disease. Statistics of the duration of life of fibrillators usually limited them to two or three years, but, of course, it was well known that individual patients might live much longer. For instance, in his own family one individual was pursuing a comfortable existence with a fibrillation of more than 12 years duration and his brother had a fibrillating heart for probably more than 25 years. The heart that was not enlarged and beat slowly would probably last longer than the quick heart with frequent rate. As to digitalis, the assay of the leaves used should be known. It was generally accepted that digitalis helped the ventricle, not only by blocking some of the forms of auricular impulses, but also by depressing the irritability of the ventricular musculature. It had been observed that transient attacks of even the graver forms of arrhythmia were by no means uncommon; in fact, transient fibrillation could be divided thus: (1) The single transient attack, occurring in the course of an acute infection or intoxication; (2) The paroxysmal type, often occurring at frequent intervals and clinically bearing some resemblance to attacks of flutter and paroxysmal attacks of tachycardia.

A General Description of Cardiac Arrhythmias.—Dr. LOUIS FAUGERES BISHOP of New York City read this paper in which he said that modern cardiology dated back only 15 years and that it was only about 10 years since the profession had become conscious of its existence. The details of it were quite intricate and baffling, but of vital importance to the intelligent care of those suffering from heart trouble. Many physicians had not taken up the subject at all but had passed it over as a laboratory matter. This was very unfortunate as there was nothing more vital in the problem of the prolongation of life. He said that there were seven varieties of irregular heart and a friend of his had suggested taking, as a way of remembering, the words ships, leaving out the i and putting three A's after it, thus having the letters SHPSAAA. S stood for sinus arrhythmia; H, for heart block; P, for premature contraction; S, for simple paroxysmal tachycardia; A, for auricular flutter; A, for auricular fibrillation; A, for alternation in pulse. In sinus arrhythmia we found the beats of the heart all right in themselves but the intervals between them were unequal, the spacing between the beats becoming gradually broader, then gradually shorter. In heart block we found either a lengthened distance between the auricle and ventricle or no regular interval at all. The former meant that the

impulse of the heart was delayed between the auricle and the ventricle; the other that the auricle and ventricle were beating independently of each other. In premature contractions the ventricle contracted prematurely independently of the rest of the heart. In simple paroxysmal tachycardia the beats were very numerous and crowded together. In auricular flutter the auricle was beating very rapidly and producing small waves at regular intervals, but the ventricle was responding to only a certain proportion of the auricular beat. Often the rate of the auricle was 300 and that of the ventricle 150. In auricular fibrillation the auricle was paralyzed but trembling, and, instead of one definite wave, we had a lot of irregular small waves that could not be counted. The result was to irritate the ventricle and make it very rapid and irregular. Alternation of the pulse was a condition in which the heart was failing and every alternate beat was reduced in size.

Dr. GEORGE W. NORRIS of Philadelphia said that he thought that of all the advantages of working with the graphic methods the greatest was that they taught us to observe carefully. As a result of this most were agreed that 90 per cent. of all the cardiac conditions met with could be practically diagnosed without graphic means. That left 10 per cent. in which the most expert would be left in doubt as to the exact condition. These had to be deciphered principally by the electrocardiograph. Auricular fibrillation was probably the commonest serious arrhythmia. Next in order came premature contractions. This subject was very complex, but a good knowledge of it could be picked up by concentrated work.

Cardiac Arrhythmias.—Dr. JOSEPH SAILER of Philadelphia read this paper in which he said that he had decided to give a brief clinical description of certain cases which showed various forms of cardiac disturbance. G. C., 56 years of age, suffered with dyspnea and dizziness. The heart was enlarged. There was slight reduplication of the first sound at the apex and slight roughness of the first sound at the base, a moderate degree of renal insufficiency, and marked inequality of the blood pressure in the two arms without any evidence of aneurysm. The condition had slowly grown worse because the patient had persisted in continuing his work. Two electrocardiograms showed extreme left preponderance and arrhythmia, and numerous ventricular contractions. J. H. M., 70 years of age, when first seen eight years ago had an extremely irregular heart coupled with great slowness. The heart and liver had been greatly enlarged and there had been periods of cardiac decompensation associated with dyspnea, cyanosis, edema, and hydrothorax. The electrocardiogram had shown a typical slow flutter with very large auricular waves; the auricular beats had been fairly rhythmic, running over two hundred per minute. There had been all the evidences of mitral disease and toward the end of the patient's life there had been vigorous pulsation of the liver. This patient had been given digitalis from time to time, usually with almost disastrous effect. So far as treatment was concerned there had been numerous occasions of marked decompensation, always relieved by numerous baths and caffeine. The latter had seemed to be almost specific. H. F., 27 years of age, suffered from what she called nervousness with violent palpitation and pain in the cardiac region and dyspnea, occurring about three times a day and lasting about five minutes. The pulse was 144, the heart action was fairly regular, and there was evidence of mitral stenosis. The first lead of the electrocardiogram showed only tachycardia. While the second lead was being taken the patient had some violent trembling, but this subsided and the latter part of this lead was normal. During the third lead only the violent muscular tremors were manifest. Occasional premature contractions were present. I. D. had sharp pain in the left chest, under the scapula; there was marked dyspnea with a sense of pressure upon the chest. The remarkable feature of this tracing was the deep notching of the rising branch of wave R in the third lead and there was evidence of moderate right preponderance. J. M. W. had a tachycardia and evidence of hyperthyroidism. She was extremely emaciated and had suffered various nervous shocks. Hers was a case of temporary auricular flutter. During the intervals there was a tachycardia with perfectly normal complexes; then occurred the

flutter which as usually a two to one rhythm. W. S., 29 years of age, felt well, was athletic, had a diastolic murmur and Corrigan pulse, also a right preponderance. The heart was entirely rhythmical. The reason for the right preponderance in this case, which would lead one to suspect a Flint murmur in spite of the Corrigan pulse, was not clear.

Dr. JAMES TALLEY of Philadelphia said that in respect to auricular flutter he had one patient who had had it for more than seven years. He also had at the hospital a carpenter who had been fibrillating for eight years. As long as the man had a pulse that was not too rapid, and there were no premature beats, showing that his ventricle was not involved and his lungs were clear, he might get along for a long time.

Dr. E. B. KRUMHOLTZ of Philadelphia said that it should be emphasized that if digitalis was used in auricular flutter in the attempt to transform this to fibrillation and thence to normal rhythm, and, if this attempt failed, the digitalis should probably not be continued unless it quickly showed an ability to reduce the ventricular rate. The U wave mentioned by Dr. Sailer in one of his cases probably was due to an impulse from the vena cava. He based this opinion on some animal experience, in which, with both auricle and ventricle at rest, a small contraction was observed in the superior vena cava and recorded as a monophasic wave by the galvanometer. The case with the disappearing P wave might possibly be explained as due to paroxysms of auricular fibrillation, such as he had previously mentioned, and these would not be ruled out even if the ventricular action at these times were regular, if one further assumed that complete block was also present.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

MEDICAL COUNCIL OF CANADA.

Toronto, Winnipeg, and Vancouver, June, 1920.

(Concluded from page 460.)

SURGERY.

1. What symptoms may be produced by hypertrophy of the prostate? Discuss the histological pathology of the condition.
2. What clinical symptoms and physical signs are presented in a recent unilateral dislocation of the lower jaw; describe the anatomical features of the joint involved and indicate the appropriate treatment.
3. Describe the anatomy of femoral hernia and indicate the manner in which you would establish the differential diagnosis between inguinal and femoral hernia.
4. Enumerate the possible causes of acute and chronic intestinal obstruction. What symptoms and physical signs would be produced in obstruction caused by a new growth in the lower part of the sigmoid flexure of the colon. Indicate the probable x-ray findings by the use of barium in such a case.
5. On what physical signs would you establish a diagnosis of cancer of the breast? Enumerate the conditions of the breast with which it may be confused. Discuss the differential diagnosis and the treatment.
6. Concussion of the brain: Discuss this condition under the following heads: (a) Common causes, (b) symptoms and physical signs, (c) pathology, (d) appropriate treatment, (e) prognosis and possible sequelae.

ANSWERS.

SURGERY.

1. *Hypertrophy of the prostate* is very common in patients over fifty-five. The different varieties are: (1) General enlargement of all the tissues; (2) local enlargement, giving rise to definite tumors in the gland, which may be glandular (adenoma) or fibromyomatous. These tumors may project toward the rectum, into the urethra, or up into the bladder. The prostate urethra is always lengthened and distorted, so that micturition is interfered with. If the median lobe is enlarged the

internal urinary meatus is more or less blocked. *Symptoms* begin with frequency of micturition, then some difficulty in the act of micturition, with diminution in the power of projection. Some pain and tenesmus occur later. Secondary changes in the bladder depend on the amount of obstruction. Hypertrophy and sacculation come on, and are followed by atrophy and dilatation. Dilatation of the ureters and hydronephrosis are produced still later. As atrophy of the bladder comes on a certain amount of residual urine remains after each act of micturition. As this increases distention and atony are found with overflow incontinence. Cystitis soon comes on, and may be followed by septic changes in the kidney. The early changes may be unnoticed till overflow incontinence appears. Priapism may occur in the early stages.—(*Aids to Surgery.*)

"*Histologically*, an enlarged prostate consists of an overgrowth of the glandular tissue, sometimes diffuse, more frequently in the form of multiple adenomata, set in a connective-tissue basis developed from the prostatic stroma of muscle fibres. Cystic changes are not unusually observed in these adenomata. Occasionally a few fibromyomata may develop, but they are decidedly uncommon."—(*Rose and Carless' Manual of Surgery.*)

2. *DISLOCATION OF THE LOWER JAW.* "The mechanism of the dislocation is as follows: When the mouth is opened, the condyle of the jaw slips forward on to the eminentia articularis, and it requires very little force to displace it still further into the zygomatic fossa. The inter-articular cartilage follows the condyle, and the attachment of the external pterygoid muscle to that structure and to the bone explains the occurrence of dislocation from muscular action. The displacement may be unilateral or bilateral, more frequently the latter. The mouth remains widely open, the teeth and the jaws being separated by an interval of about an inch. The lower jaw projects unduly, and is fixed, saliva dribbling over the lip; speech and deglutition are impaired, the pronunciation of the labial consonants being especially difficult. A hollow can be detected immediately in front of the tragus, where the condyle is normally lodged, and in front of this hollow the condyle can be felt, being recognized by the slight amount of passive movement still possible. A finger in the mouth may define the coronoid process in an abnormal position beneath the zygoma. When the dislocation is *unilateral*, the symptoms are much less marked. Some amount of movement of the jaw still remains, whilst the chin is displaced towards the sound side.

Treatment. "Reduction is usually easy. All that is needed is to depress the condyle below the level of the eminentia articularis, when the masseter, temporal, and internal pterygoid muscles speedily draw it back into the glenoid cavity. The patient is seated in a chair; the surgeon standing in front protects his thumbs with thick napkins, and introduces them into the mouth, pressing upon the lower molar teeth. Pressure is continued in a downward and backward direction until the condyle is free, and then the chin is raised by the fingers on either side. The jaw is kept at rest for a week or ten days by means of a four-tailed bandage. Anesthesia is occasionally necessary."—(*Rose and Carless' Manual of Surgery.*)

3. *Femoral hernia* leaves the abdomen through the femoral ring and descends into the femoral canal; this canal is funnel-shaped, is about half an inch in length, and ends at the saphenous opening. Femoral hernia is always *acquired*, and has a sac. Its course is first vertical, then forward, then upward over Poupart's ligament. Its coverings, from without inward, are: Skin, superficial fascia, cribriform fascia, crural sheath, septum crurale, subserous tissue, and peritoneum. The neck of the hernia is situated at the femoral ring; to its outer side lies the femoral vein, and to its inner side is Gimbernat's ligament; in front of it is Poupart's ligament, and behind it are the pubis, the Pectineus, and the pubic portion of the fascia lata. In the immediate neighborhood of the femoral ring are: Anteriorly, the communicating branch between the deep epigastric and the obturator arteries; externally, the femoral vein and deep epigastric vessels; superiorly, the spermatic cord (or round ligament) and the deep epigastric vessels.

In *inguinal hernia*: The impulse is felt above Poupart's ligament; the inguinal canal may be filled; the

hernia emerges on the inner side of the pubic spine (above the inner end of Poupert's ligament); and is apt to recur readily after reduction.

In femoral hernia: The impulse is felt below Poupert's ligament; the inguinal canal is empty; the hernia emerges on the outer side of the pubic spine, and does not recur so readily after reduction.

4. *The causes of acute intestinal obstruction are:* Strangulation through apertures, or by means of bands and contracting adhesions; impaction of foreign bodies or feces; internal hernias; the presence of tumors; volvulus or intussusception; intestinal paralysis; disease in the intestinal walls ultimately narrowing the lumen.

The causes of chronic intestinal obstruction are: Foreign bodies, impacted feces, cicatricial bands outside the intestine, compression of the intestine by tumors, stricture or new growths in the intestinal walls.

A new growth in the lower part of the sigmoid flexure would cause at first constipation, rumbling, distress over abdomen but chiefly in left lower quadrant; there would be delay of meal in reaching the rectum and also obstruction to an enema. Later, there might be diarrhea, and if the tumor had ulcerated or broken into the intestinal lumen, blood, or pus might be passed with fecal matter or even independently of it. Examination with a proctoscope might show the tumor, and excision of a piece would show if it was malignant or benign. X-ray findings might be negative, owing to the part of the intestine affected being behind the pelvic bones; but, on the other hand, a combined screen and plate examination, with an opaque enema, may show the "filling defect" which will have an irregular outline, will be constantly present in every examination, and will not be affected by the administration of medicines.

5. The breast should be thoroughly and carefully examined. Diagnosis is generally easy in advanced cases; "but in the early stages, when radical treatment is so essential, a cancerous tumor may be confused with inflammatory and other benign swellings. In *chronic inflammatory thickening* the skin may be pitted, and the tumor fixed in the breast, and ill-defined; but the whole gland is often uniformly enlarged, scars of old abscesses may be visible, and the glands are swollen at an earlier stage, and to greater size than in cancerous conditions. *Adenomata* are generally clearly limited and freely movable; there is no dimpling of the skin, and the lymphatic glands are not enlarged. *Tense cysts*, when fluctuation cannot be elicited, are similar in most of their symptoms to adenomata; and differ from 'malignant cysts' by the absence of adhesions or extension of the disease to lymphatics. *Sarcomata* are more rapid in growth and soon involve the skin, and do not affect the glands in the early stages. *Duct cancers* are apt to be multiple, are more circumscribed, and are specially distinguished from scirrhus by the bloody discharge from the nipple; they differ also from simple papilliferous cysts of the ducts by the tumor invading the breast. *Epithelioma* of the areola or nipple differs from eczema in its intractability to soothing treatment; and from scirrhus in its superficial and more localized situation, at all events in the early stages. In cases of *doubtful* diagnosis it is advisable to prepare for a radical extirpation of the disease; but first to incise the tumor and remove a piece from the growing edge for immediate examination."—(Buchanan's *Surgery*.)

The patient should be advised, if the tumor is *malignant* (and it is not an inoperable case), that prompt and thorough operation is absolutely necessary. If the tumor is *benign*, the tumor alone should be excised. In *doubtful* cases it is well to imagine the growth malignant until it is proved to be otherwise. If the breast is removed and the tumor is proved benign, the woman has lost a breast; whereas, if it is not removed, and the tumor should prove to be malignant, she will lose her life. The best plan is (with the consent of the patient) to prepare for a radical operation, excise a piece of the tumor, have it examined microscopically, and if it proves to be benign, remove the tumor; if it is malignant, remove the whole breast and neighboring lymphatic glands.

"The presence of a tumor, dimpling of the skin, retraction of the nipple, with cachexia, enlarged lymphatic glands in axilla or above or below the clavicle,

and microscopical examination of an excised piece of the tumor all aid in the diagnosis of malignant growth of the breast. *Treatment* should be early and thorough. However small the tumor may be, the entire breast and its corresponding lymphatic area, as high as the apex of the axilla, should be removed; for, once infection of the lymphatic spaces has occurred, the whole lymphatic area must be looked upon as infected. Successful operations depend upon a knowledge of the *lymphatics* and *extent* of the breast. The lymphatics begin in plexuses around the acini, which converge to vessels running along with the ducts and end in a sub-areolar plexus. From this three or four main lymphatic trunks run to the axillary glands. In addition, lymphatics run along the suspensory ligaments to the skin all over the prominence of the breast from the interacinar plexuses. Also vessels leave the deep part of the breast to join lymphatic plexuses in the pectoral fascia. The plexuses in the fascia run to the axilla, and also communicate with those in the pectoralis major. Lymphatic vessels pass into the mediastinum, and also communicate with those of the opposite breast and axilla. The extent of the breast is much greater than the prominence would lead one to believe. It extends almost to the clavicle, just to the edge of the sternum, down to the seventh rib, and out to the mid-axillary line. The points, then, in operating are that the whole breast, the skin over the prominence, the pectoralis major muscle (except the clavicular portion), the fat, fascia, lymphatic vessels and glands of the axilla must be removed, and in one piece, for if cut across at any part there is danger of strewing cancer cells on the wound and so infecting it with growth. Removal or division of the pectoralis minor facilitates the cleaning of the axilla.—(*Aids to Surgery*.)

6. *Concussion of the brain* is due to a shaking or jarring of the brain by direct (e.g., a blow on the head) or indirect force (e.g., a fall on the buttocks). In the mildest form no anatomical changes take place, but in the severe variety there are lacerations of the brain tissue and blood vessels. If the bleeding from these lacerations is sufficiently great to exert pressure on the brain, or if edema supervenes, the condition is one of compression rather than concussion.

"The symptoms vary from temporary giddiness or stunning, to collapse and death. In a well marked case there is unconsciousness which is rarely complete, in that the patient may be partly roused by shouting, pricking the soles of the feet, etc. The muscles are relaxed, the skin cold and pale, the temperature subnormal, the respirations slow and shallow, the pulse weak and rapid. The pupils are equal, react to light and are usually dilated. The reflexes are sluggish or, in the severest cases, abolished. The sphincters are relaxed, so that involuntary evacuations from the bowel may occur, but retention of urine is more common than its expulsion, owing to relaxation of the bladder muscle. Transient paralysis may exist. This is the stage of collapse, which may last from minutes to hours; it ends either in death or in the stage of reaction, which may be inaugurated by a convulsion, or more commonly by slight movements of the extremities and vomiting. The symptoms mentioned above gradually disappear, the temperature rises, perhaps to 100° F., or a little above, and there is headache, drowsiness, or irritability, which may last a number of days.

"The prognosis should always be guarded, although in most cases complete and permanent recovery follows. The early dangers are compression from hemorrhage or edema, and inflammation of the brain or meninges. Among the sequelæ may be mentioned cerebral irritability, inveterate headache, vertigo, loss of memory, change in character, insanity, epilepsy, diabetes, neurasthenia, and possibly tumor or abscess. Frequently the patient's memory is defective for the events immediately preceding the accident.

"The treatment during the stage of collapse is the application of external heat and the administration of stimulants as in shock. Alcohol, however, should not be given, because of its exciting effect on the brain, and care should be taken not to overstimulate. When reaction has been obtained, the patient should be kept in bed in a quiet room, an ice bag placed on the head, the bowels opened with a purge, and the catheter used if there is retention of urine. The diet should be fluid,

and sedatives used if necessary. If unconsciousness is prolonged, a suspicion of greater injury than concussion should always be entertained. After severe concussion the patient should avoid mental exertion for a number of weeks or months." (Stewart's *Manual of Surgery*.)

Pathology.—"In fatal cases, one finds on post-mortem examination merely the same conditions as obtain in shock, viz., engorgement of the lungs, viscera, and the right side of the heart, whilst the brain presents some lesion of varying severity, from mere punctiform ecchymoses to actual disintegration and disorganization. The symptoms are supposed to be due either to a paralysis of the vasomotor centres in the medulla, or to a reflex inhibition of the heart through the vagus. More recently Duret has suggested that the blow on the skull causes a temporary localized depression of the bone, and this leads to compression of a cone-shaped area of the brain substance. As a result, the cerebro-spinal fluid is displaced and forced downwards to the base of the skull, where it collects, particularly in the fourth ventricle, and thus the vital centres grouped around this space are compressed."—(Rose and Carless' *Manual of Surgery*.)

BULLETIN OF APPROACHING EXAMINATIONS

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION
Alabama*	S. W. Welch, Montgomery	Montgomery July 12
Arizona*	A. Martin, 207 Goodrich Building, Phoenix	Phoenix April 5
Arkansas*	T. J. Stout, Brinkley	Little Rock May 10
California	C. B. Finkham, Sacramento	San Francisco June 27
Colorado	David A. Strickler, Empire Building, Denver	Denver April 6
Connecticut*	R. L. Rowley, Hartford	Hartford June 12
Delaware	H. W. Briggs, Wilmington	Wilmington June 21
Dist. of Col.	E. P. Copeland, Washington	Washington April 12
Florida*	W. M. Rowlett, Tampa	Jacksonville June 13
Georgia	C. T. Nolan, Marietta	June 10
Idaho*	Robert O. Jones, Boise	Boise April 5
Illinois	F. C. Dodds, Springfield	Chicago April 5
Indiana	W. T. Goff, Crawfordsville	Indianapolis April 5
Iowa	G. H. Sumner, Des Moines	Iowa City June 21
Kansas	H. A. Decker, Leavenworth	Topeka May 19
Kentucky	A. T. McCormack, Louisville	Louisville May 19
Louisiana	E. W. Mahler, New Orleans	New Orleans June 21
Maine	F. W. Searle, Portland	Portland June 21
Maryland	J. McP. Scott, Hagerstown	Baltimore June 21
Massachusetts*	W. P. Bowers, 1 Beacon St., Boston	Boston May 8
Michigan	B. D. Harrison, 205 Whitney Building, Detroit	Ann Arbor June 11
Minnesota	T. McDavitt, St. Paul	Minneapolis April 5
Mississippi	J. D. Gillesley, Jackson	Jackson June 11
Missouri	G. H. Jones, Jefferson City	St. Louis April 5
Montana*	S. A. Cooney, Helena	Helena April 5
Nebraska	H. H. Antles, Lincoln	Lincoln June 8
Nevada	S. L. Lee, Carson City	Carson City May 2
N. Hampshire	C. Dunnett, Concord	Concord June 21
N. Jersey	A. MacNister, Trenton	Trenton June 21
New Mexico	R. K. McClanahan, E. Las Vegas	Santa Fe June 21
New York	G. M. Wiley, Univ. of State of New York, Albany	Albany May 23
No. Carolina	K. P. B. Bonner, Moorehead City	Raleigh June 11
No. Dakota	G. M. Williamson, Grand Forks	Grand Forks July 5
Ohio	H. M. Platter, Columbus	Columbus June 11
Oklahoma	J. M. Byrum, Shawnee	Oklahoma City June 11
Oregon	R. E. Watkins, Portland	Portland June 11
Pennsylvania	N. C. Schaeffer, Harrisburg	Philadelphia July 5
Rhode Island	A. E. Richards, Providence	Providence April 7
So. Carolina	E. A. Booser, Columbia	Columbia June 28
So. Dakota	H. R. Kennastoo, Ronesteele	Pierre June 28
Tennessee	A. B. DeLoach, Memphis	Memphis Nashville Knoxville July 5
Texas	T. J. Crowe, Dallas	Dallas July 5
Utah	G. F. Harding, Salt Lake City	Salt Lake City July 12
Vermont	W. Scott Noy, Funderhill	Burlington July 12
Virginia	J. W. Preston, Roanoke	Richmond June 11
Washington*	W. M. O'Shea, Spokane	Spokane July 12
W. Virginia	R. D. Davis, Charleston	Charleston July 12
Wisconsin	J. M. Dodd, Ashland	Milwaukee June 28
Wyoming	J. D. Shingle, Cheyenne	Cheyenne June 28

*No reciprocity recognized by these States.

The Paris Epidemic of Bubonic Plague.—The Claude Bernard Hospital played the part of a pest house during the incidence of plague in Paris. The period of infection lasted from August to December, 1920. During this period the hospital received 66 patients, but in 23 the suspicious suppurating adenitis turned out to be of the banal sort. This leaves 43 cases of pestous adenitis.—*La Presse Médicale*.

Therapeutic Hints.

Acute Nasal Sinusitis.—Sir St. Clair Thomson considers this condition very amenable to simple treatment. The indications are to facilitate the discharge and soothe the pain. The patient should remain in bed, with the whole head wrapped in a woollen shawl or something that answers the same purpose. Warmth is applied to the affected forehead or cheek by means of a hot-water bottle or other warming process. The following nasal inhalation is recommended, for four minutes every hour or two hours:

R Menthol gr. xxx
Tincture eucalypti

(vel Spirit. vini rect.) ʒiii

S. To a jug half full of boiling water add a teaspoonful of this; arrange a handkerchief as a cone over the jug, and sniff the steam up the nostrils.

The following may be substituted for this:

R Eucalyptol ʒi
Menthol grs. xxx
Tincture of benzoin ʒii

Nose lotions, during an acute sinusitis, are useless, but as soon as the thoroughfare through both nasal chambers is restored, and they begin to discharge freely, an alkaline nose lotion, such as the following, used as a spray, is soothing:

R Sodii bicarbonatis gr. iii

Sodii bichloridis gr. iii

Acidi carbonici puri gr. i

Sacchari albi gr. v

Aquam ad ʒi

A grain of cocaine may be added to an ounce of this spray.—*The Practitioner*.

Artificial Immunization Against the Tubercle Bacillus.—Barbary recommends the following in the production of artificial immunity, based on observations on animals which possess natural immunity against the tubercle bacillus:

Cinnamate of benzyl 0.05 to 0.10

Cholesterin (pure) 0.20

Camphor 0.25

Olive oil, pure, washed in alcohol,

and sterilized at 120° 5.00

To make one ampoule. An injection is given every other day up to ten injections, and then daily for ten days.—*The Practitioner*.

Ivy Poisoning.—The United States Department of Agriculture (Farmers' Bulletin 1166) gives the following simple formula which may be dabbed on the poisoned parts after thorough cleansing or applied by saturating one or two thicknesses of a light bandage:

Zinc oxide 15 grams

Phenol 2 grams

Lime water to make 250 cu. cm.

This may be used in the early or late stages.

Scarlatina.—H. Goldstein recommends the following alkaline mixture in cases of uncomplicated scarlatina:

R Sod. citratis ʒiii

Syrupi ʒiv

Liq. ammon. acetatis

Liq. potassii citratis āā qs. ad ʒiv

M. Sig.—A teaspoonful in sweetened water every two or three hours.

—*American Journal of Clinical Medicine*.

Miscellany.

NEW BOOKS AND OLD.

By JOHN RUTBRAH, M.D.

BALTIMORE, MD.

II. THE EARLY HISTORY OF SURGERY IN GREAT BRITAIN.

If you want to spend a pleasant evening along historical lines you cannot do better than to get *The Early History of Surgery in Great Britain*, by G. Parker. This is one of the newer publications in which the author tries to trace the revival and early surroundings of the surgical art after the end of the dark ages of Europe. It is written in a very pleasing style and seems to be the result of a considerable amount of research and wide reading, and it gives an interesting list of authorities and books of reference. An American notes with pleasure the numerous references to the work of Garrison.

The book makes several points very clear. First, the surgical knowledge of the early Britons was very slight and there was curiously little left of the accumulated stores of medical knowledge that must have been transported to Briton by the Romans and by others. So little is there, indeed, that Parker begins his story at about the year 1000 and from then brings it down to 1850. I cannot pass over without quoting one paragraph which expresses the same thought to which I gave utterance in another place.

Nor were the methods and aims of ancient writers so absurd as the casual reader may imagine. Their quaint phraseology and the absurd theories they put forward to explain their facts, and indeed our habit of selecting ludicrous passages for quotation, are apt to blind us to their work and meaning, and to the identity of their aims with ours in a given operation, for example. In many instances the very methods we have adopted were discovered by them, and then disused and forgotten. Posterity will equally laugh over our technical language, and the theories brought forward in the scientific papers of to-day, when the style has faded with time.

Among the early English surgeons who received more than passing mention is John of Arderne. He was born in 1307 and after a considerable military experience under the Dukes of Lancaster, he practised twenty years in Newark and later, in 1370, removed to London where he joined the Guild of Military Surgeons. His later years were taken up with medical writing, producing various treatises as to "the care of the eyes," on "venesection," on "sinus and fistula in ano," on "the use of rectal injections," on "plants and their uses." He devised an operation for fistula in ano and warned against operating for cancer of the rectum, mistaking it for simple ulceration. He gave a very good account of the diagnosis of cancer of the rectum.

John of Mirfield, of the same period, is also mentioned at some length. He came down to London and became a member of the staff of St. Bartholomew's Hospital and canon of the Priory which governed it. The results of his experience as a quiet and cloistered practitioner, were embodied in a treatise on medicine and surgery written in 1380, called a *Breviarium Bartolomei*.

Surgery and medicine had become separated. Un-

fortunately so, because the physicians spent their time largely in useless disputation, while the surgeons operated without sufficient preparation and study. We may quote one paragraph of Mirfield dealing with this subject:

Long ago, unless I mistake, physicians used to practise surgery, but nowadays there is a great distinction between surgery and medicine, and this, I fear, arises from pride, because physicians disdain to work with their hands, though, indeed, I myself have a suspicion that it is because they do not know how to perform particular operations, and this unfortunate usage has led the public to believe that a man cannot know both subjects, but the well informed are aware that he cannot be a good physician who neglects every part of surgery, and, on the other hand, a surgeon is good for nothing who is without knowledge of medicine.

Parker traces quickly in every period the organization of surgery on the continent and then proceeds to contrast that with the situation as found in England. The first law regulating the practice of medicine and surgery in England was the Act of 1421. Up to this time the regulation of surgeons was by the Barber-Surgeons companies, and was therefore limited to the towns, but there were ignorant practitioners not only in the country districts but in the cities as well. In the period of history in which practically every worker in every line of human industry had to be a member of a guild, it very often happened that there was no guild for the particular branch represented, and the individual had to join some other association, so that it came to pass that there were curious associations; surgeons and barbers were not infrequently associated with laborers in other crafts. The Barber-Surgeons company of London at times contained more members than any other guild in the city. At the present time there is only one legal Barber-Surgeons company in existence and that is in Newcastle where ten members have the freedom by inheritance and are ruled by two stewards pointing to their former division as surgeons and barbers. This is an instance of what is meant by the freedom of the city, which is nowadays an empty phrase, but which in those days meant that the surgeon or worker in some other line might practise his profession or art, and in some cities there were free days when people from the outskirts could also come in and carry on their avocations. The Barber-Surgeons company of Edinburgh was given a monopoly of practice under the charter of James the Fourth, in 1506. The charter provided no apprentice might be taken until he could read and write; no barber allowed to practise surgery unless knowing the things required of the surgeons who, it was said, should not practise "until each had been diligently examined and tested, especially in anatomy and in the nature and complexion of every member of a man's body." Here we must comment on how curiously things wag in this world. In America today alcohol *i. e.*, whiskey, may be bought only on a physician's prescription. The grant of the Barber-Surgeons Company of Edinburgh gave them a monopoly in the manufacture and sale of alcohol.

Parker, along with practically all of the English writers, pays but little attention to the work of John Mayow, although he mentions him in a single sentence. Thus it is that one of the greatest geniuses that England produced is still a practic-

ally unknown man. Mayow, a hundred years before Lavoisier, carried out and described experiments showing the relation of air to combustion, fermentation, and respiration, covering almost the same ground as the famous Frenchman.

One American surgeon is mentioned, William Shippen, 1736-1788, trained at Edinburgh, and the first professor of surgery and anatomy in the Medical Department at the University of Pennsylvania, and at one time Surgeon General of the United States Army.

Taken all in all, this little work will be found well worth reading and besides what it tells of the English surgeons, makes clear the position of the guilds, the work of the early anatomists, gives a good idea of the prevalence and disappearance of leprosy during the middle ages, and the rise and disappearance of bathing establishments, and a very good account of the early hospital period. Before the Reformation there were large and wonderful hospitals completed all over Europe, some of them magnificent structures. With the Reformation came destruction, and the world was medically, in certain ways, plunged back, so that many of the hospitals became almshouses or establishments of very questionable character. The author is to be congratulated on being able to present so vividly so many varied topics related to his subject.

11 EAST CHASE STREET.

Medical Practitioners of Old Bordeaux.—

Durodié has continued his studies of Bordeaux practitioners from the early years of the XV century to the latter part of the XVIII. The first installment which dealt with the earliest practitioners was abstracted in the MEDICAL RECORD. In the final installment which appears in the *Gazette hebdomadaire des sciences médicales de Bordeaux* for November 28, 1920, xli, 48, there are several matters of interest. Thus Pierre Desault was born in the city in 1675, and in a volume on venereal diseases published in 1733, he announced that these are caused by the passage of "infinitely small worms" from one individual to another; thus crudely anticipating the discovery of the gonococcus and treponema. Another local celebrity, although he graduated at Montpellier and removed eventually to Paris, was Jean Baptiste Sylva, who was at one time physician to Louis XV. At the beginning of the XVIII century an epidemic attacked "every woman in Bordeaux." It was evidently a psychoneurosis and Sylva was summoned to his home town from the metropolis. He pronounced the convulsions, which were evidently hysterical, to be epileptic, and having made this diagnosis and stricken the Bordelais with fright, he made a quick exit to Paris. A Bordeaux journal and public opinion denounced Sylva and his diagnosis, whereupon the epidemic disappeared as if by magic. It was believed that Sylva, knowing the characteristics of the Bordeaux population, had effected a psychic cure. For many years there was antagonism between the teaching faculty of the medical school and the local medical union, perhaps the usual feud between the "ins" and the "outs." Of scores of physicians and surgeons mentioned by Durodié few did anything to distinguish themselves. They seem to have been a cosmopolitan lot and Spanish

and Irish surnames are recognizable among those from different parts of France.

Fifty Years of Cancer Mortality in Basle.—Jessen considers this subject in the *Schweizerische medizinische Wochenschrift* for November 18, 1920, i, 47, the period extending from 1870 to 1919. Many tabulations are given. The general death rate shows almost a steady decrease during this period and has been cut in two. The ratio of cancer deaths to all deaths has trebled during the same period. The percentage of cancer deaths to population shows a much less pronounced increase—about 8 to 13. The population of the city has increased from about 43,000 in 1870 to about 134,000 in 1919. A study of Switzerland as a whole, reputed to be the most cancer infested of all the European States, shows great disparities by cantons. For while about 4,000 die annually of the disease in a population of over 3,750,000, some of the cantons show a cancer death rate four or five fold that of others. Basle is low in the list, having for the city a rate of 9.7 per 10,000 inhabitants while in Appenzel the rate is 21.3 and in Obwalden 18.2. The canton with the lowest incidence is Wallis with 4.8. In regard to localities, cancer of the tongue does not seem to have increased in 50 years, in striking contrast to the testimony of London surgeons who state that it has trebled in thirty years. The same may be said of cancer of the larynx, both forms being far more common in males. Jessen also sees no increase in cancer of the esophagus. Cancer of the stomach shows a notable increase in men but only a slight one in women. It attacks urban much more than rural dwellers. Cancer of the colon, unlike any of the preceding, is more common in women, and here an increase cannot be proven. Cancer of the rectum attacks the two sexes alike and an increase cannot positively be shown. Cancer of the breast appears to show an increase in very old women while cancer of the uterus apparently shows little change. The discrepancies between totals and regional figures are not accounted for by the author, who doubtless believes the increase is largely only apparent and due to better diagnosis, longer life, etc.

Morphinomania in Spain.—Dr. Mally of Barcelona has written a paper on this subject which is found in abstract in the *Revista Medica Cubana* for August, 1920, xxxi, 8. The author states that while addiction is much less common in Spain than in the other large culture countries it is common enough and on the increase. The author before his removal to Barcelona had practised 20 years in France, where he devoted special attention to morphinism and other addictions. Of the two methods of sudden or gradual suppression the author prefers the latter. He has treated 172 morphine addicts since coming to Spain, and of this number there were 108 physicians, 4 druggists, 4 nurses, and 7 medical students—in other words 123 were in professional contact with the drug. There were 13 military and colonial functionaries, 11 intellectuals of all classes, 3 lawyers, 6 landlords, 2 artists, 2 students (nonmedical), 1 priest, 5 miscellaneous professional men, and 6 married women. It may have been only a coincidence that 86 per cent. of all addicts were syphilitics.

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THE ADVANTAGE OF MENTAL THERAPY IN ORGANIC NERVOUS DISORDERS.

By L. PIERCE CLARK, M.D.,

NEW YORK.

Introduction.—In this clinical study I shall consider the results of mental therapy in the treatment of functional, constitutional, or organic nervous disease. The material is exclusive of those cases with hysteric and psychoneurotic components, and embraces an effort to extend the usefulness of interpretation and treatment of mental therapy in a domain of general medicine not yet well defined or understood. I have carried on this work for several years, and I believe the data are sufficiently justified by time element as well as general effectiveness to warrant a more or less final report.

In Part I I have discussed the probable nature of some of the spasmodic disorders, such as tics and yep neck, an effort being made to explain these affections on a constitutional basis in which both neural and psychic factors coalesce. The enduring results in a series of case studies are given. Part II is devoted to the end-results of a series of cases of retarded depression (mild types of the manic depressive syndrome). Here the time element of an enduring recovery plays no small rôle. Several years of health have now elapsed in the majority of the cases reported. A short exposition of Hoch's theory of the constitutional basis upon which these psychotic states have originated is also set forth. Part III concerns a short elaboration of the constitutional theory of essential epilepsy and the technique upon which a long series of cases has been treated. Some symptomatic or organic epileptics are detailed to show the good results with which well marked and obvious convulsive states may be handled. Part IV is a brief consideration of the neuralgic disorders treated by mental therapy and the end results of such a plan of treatment. Part V is devoted to the general discussion of the more extended efforts of mental therapy in other organic neuroses and visceral diseases, and the possible application of a psychologic theory for their origin.

I. SPASMODIC TORTICOLLIS.

Several years ago, not satisfied with the limitations in the field of analytic treatment of the psychoneuroses I undertook in both the psychiatric and the neurologic field to study such cases that had done so poorly under physiotherapy. I desired to study those types of cases that presumably had an or-

ganic basis or at least a constitutional anlage. While in the past spasmodic torticollis has been considered to have an organic basis, there is an increasing number who believe the psychic element plays the greater rôle in its pathogeny. Those who still believe in an organic basis for this affection, place its lesion in a faulty mechanism of the spinal or bulbar tissues. I have no doubt the anatomic studies (of Hunt and others) incline those who hold to an organic basis to locate more definitely the disorder as a disturbance in the functioning of the midbrain, caudate nucleus and putamen. Some somatists believe the essential pathogeny of the affection is in still higher regions, even to the cerebral cortex itself. The pathogenic issues are not likely to be settled in the immediate future, inasmuch as hardly any one pretends to isolate such overacting nerve cells even by the most exact technique, even supposing autopsy material be forthcoming. The neurotic heredity so frequently present in the condition gives others who approach the pathogeny from this organic standpoint additional reasons for not more concretely locating the lesion. The claim that it is due to a primary defect in the nerve elements themselves, a sort of imbalance of natural functions of the nerve centers concerned, is still less definite or susceptible of proof; nor is the issue of the exact anatomic pathogeny of the disorder solely of academic value, for if it be proven of definite somatic causation one would hardly expect the disorder to be greatly influenced by other means than a strictly organic therapy.

Up to comparatively recent years, even with the most intense application of physiotherapy, this affection has failed of even temporary relief, thus lending additional evidence of its organic origin as well as the general hopelessness of its permanent relief. A few workers in this field who have excluded the different forms of so-called hysteric spasm and have then applied mental treatment to the essential type of the disorder, have usually experienced relapses after a more or less apparently complete recovery, so that one might conclude that when a torticollis has become at all definitely developed, the lesion, whatever it may be, was not only organic in origin but was hopeless of permanent cure.

With such despairing issues confronting us, I began the psychogenic study and treatment of a series of the disorder in its pure type. I fully realized that nothing but the so-called essential cases of this affection would be worth while. Not only should the ordinary hysteric cases be completely eliminated, but instances of the disorder of short duration such as those of a few weeks' stand-

ing needed to be excluded. With this idea in mind I selected the most inveterate cases. In all, my experience was limited to some half dozen cases now under observation from three to eight years. Before making a short digest of this work and my results, I may state in all fairness that while psychoanalytic methods were those predominantly used, all other forms of suggestive and supportive therapy also were employed. However, in no instance were drugs or physiotherapy such as massage, electricity, etc., used. There is no doubt in mind, moreover, that the disease, aside from that of a hysteric character, is really as organic at bottom as all other similar spasmodic diseases, but probably this basis is not in the sense which that term is ordinarily employed. The imbalance in the centric functioning of the several nerve centers controlling the disorder may be the real fault, plus something else added (to be stated later). While this in itself is not an exact explanation, it is the best that I can venture. The same or similar interpretation may also hold true for the essential pathology of many epilepsies and spasmodic syndromes.*

CASE I is that of a middle-aged man, unmarried, now nearly eight years entirely free from a severe type of spasmodic torticollis. He had a full nerve resection of the right spinal accessory and the external roots of the third and fourth cervical nerves. This as well as all other plans of physiotherapy proving of no avail, analysis was undertaken for the greater part of two years. The gradual additional involvement of the splenius and trapezius muscles modified the ordinary picture of torticollis. A history of motor instability in tremors, unrest, and "fidgety" makeup was revealed. The improper subordination of these inherent defects of the motor mechanisms were fairly well handled until the stress of a maladjusted business and social life removed the controlling psychic factors and the patient became a confirmed ticur. He had had his disorder for about three years before the analytic treatment was undertaken. After his recovery he reentered his old employment and made good, having been advanced in position and salary. He has enlarged his avenues of good fellowship through club associations. The innate feelings of inadequacy have been fairly well eliminated both by the analysis as well as the actual benefits derived from his more advantageous position. Material proof of the increased esteem of one's fellows is, perhaps, one of the best medicines for feelings of inferiority. His former fits of temper, depression, and general restiveness at home were so improved that a disinterested member of his family largely confined her praise of the treatment to the marked permanent changes in his personality.

CASE II is that of a middle-aged woman, single, who had a right spasmodic torticollis with a retrocollis combined, existent for about six months before analytic treatment was instituted. The patient had an attack of chorea, which persisted for months following acute rheumatism. After a free period of several years the chorea reappeared at twelve and endured for a short time (two months). She had a defective motor heredity and was a restive, shy, timid child. A one-sided love affair seemed to have been the psychic cause of disturbing the motor balance and control and the tic movement developed during the breakdown that followed. The neurotic element was here most marked and the erotic fancy was quite distended. In consequence it

*For further details on the subject, as well as case reports, see: "Some Observations Upon the Etiology of Mental Torticollis," MEDICAL RECORD, February 7, 1914; "A Further Study Upon Mental Torticollis as a Psycho-neurosis," MEDICAL RECORD, February 28, 1914; "Remarks Upon Mental Infantilism in the Tic Neurosis," MEDICAL RECORD, March 28, 1914; "Further Observations on the Tic Neurosis," MEDICAL RECORD, January 30, 1915; "The Results of the Psychic Treatment of Mental Torticollis," MEDICAL RECORD, July 14, 1917.

was thought that an analysis would not be quite so much of a test for an organic condition as in Case I, but the results proved that whether one stressed the psychic factors or not the end results were less satisfactory than in Case I. After the first month's treatment the patient lost the pain, tenderness, and tension in the spasmodic muscles, and the tonic spasm changed to a clonic one over long periods (15 to 30 minutes). After three months' treatment she made slow progress, and at the end of six months but little further improvement was shown. The main reasons for the relief stopping here seems to have been that she found it impossible to sublimate further from the love experiences that brought out the disorder. At present she is keeping house for a relative and engages in religious and charitable work at odd moments. She has not the innate ability or opportunity to develop a proper emotional outlook and economic independence, as in Case I, hence the psychic perturbations must still permit many lower automatic motor activities.

CASE III is that of a young man who had had his torticollis for several months when I first saw him. There was retro as well as torticollis and some involvement of all the muscles of the shoulder girdle. He has been entirely well now for nearly four years. He had motor instabilities as a boy, was clumsy and incapable of doing things with his hands. His final breakdown came after disappointments in business and a love affair. In the course of three or four months he sufficiently recovered to warrant his going away with another torticollitic patient (Case IV) for a camping trip. The experiment of several months' association, while good for both, went poorly so far as companionship was concerned, and they ended by mutually accusing each other; but both showed marked improvement. The line of betterment in this case was shown in his decided change from a state of extreme invalidism, in which he did nothing but bemoan his fate, to becoming industrious; he took up wood-carving, shovelled snow, sawed wood, and took long walks without attendance. I have rarely seen a torticollitic so invalidated by his disorder as was this patient at the beginning of his treatment. It took two men to help him about aside from his own constant efforts to keep his head from "twisting off." After a year of treatment he finally went back to work in the same shop and fully adjusted himself to the old job. He perfected his attitude toward his superiors so that he has been advanced in position with increased salary. He finally made a good adult marriage and has a comfortable and happy home. Outside of business hours he engaged in war work. He became a good mixer among his fellow workmen and community associates. From a vacillating, indecisive character he has now gained an independent position, both socially and economically.

CASE IV is that of a man of 32 years who had a right spasmodic torticollis of two months' duration when he applied for treatment. He had tried all sorts of drug and physical therapy without effect. He had a mildly severe grade of neurotic constitution, was tender-minded and sensitive and had trouble with his superiors. A feeling of inferiority and much tension was engendered and he finally had a nervous breakdown and a torticollis. In the ultimate analysis, as in all the other torticollitics, the underlying inferiority was brought to the fore. Three months' analysis almost completely restored this patient to the normal. This speedy recovery was due partly to the fact that his torticollis had been very recent when he came under treatment (three months); also, when the underlying defects of inferiority, infantile attachments and fixations were once psychoanalytically released, there was a more spontaneous readjustment of his attitude toward adult life. Soon after recovery he was married. During the past three years he has kept continuously at work and has been able to successfully make an independent career for himself.

It may be the same principle holds true here as in the advice given by the old judge to his young colleague: "Give your decisions, but reserve your reasons for them." One is constantly importuned to lay down some sort of rational explanation of the nature of the affection itself as well as the

manner by which cure is brought about. It is unnecessary to say that both attempts are not only tentative, but may not be worth the risking. However, the following may be hazarded: If we assume that spasmodic torticollis and tics are really disturbances in the functioning of certain nervous elements in the basal ganglia, how may we explain the radical cure by purely mental therapy? At the outset we must select the constitutional imbalance or instability theory as the more rational hypothesis rather than a nerve lesion as ordinarily understood. In many torticollitics these motor defects can be presaged, in fits of trembling, tendency to cramp, spasm disequilibrium, or lack of smoothness in muscular movements in early childhood. Although these different motor instabilities are subtended by widely different nervous structures, they are as a whole evidences of an imperfect development of the motor mechanism. If we go further and assume a corresponding instability of the highest cortical elements also, and even a defective psychic balance—although in this latter statement we assume the impossible chasm of a psychophysical parallelism, yet the combination of such a chain of defects makes possible the advent of the disorder, especially when some emotional stress or shock precipitates the disintegration of motor control of lower and perhaps less stable centers. According to the teachings of Hughlings Jackson, the highest moral inhibitions, those of the psyche, let loose an unbridled anarchy in previously disorderly lower nervous centers and tics and spasmodic disorders may result. By this hypothesis it is more understandable that by reestablishing the proper superior psychic control we may recover the torticollitic from his disorder. It is also easier to understand that where the main psychic traits of mental balance and control are not sufficiently strong, or even when the fault is analyzed, the individual cannot bring about an orderly mastery of the lower nerve centers especially when the automatic controlling mechanism in the basal ganglia is weak. In former reports I felt it necessary to maintain the strict psychogeny of spasmodic torticollis and tics, but more recent studies show me that the above interpretation is, perhaps, the more reasonable one. One may thus maintain that these affections may still be regarded as organic, but of that nature of constitutional instability of the lower nerve centers wherein a disturbance and loss of control of a superior inhibition mechanism, the psyche, really permit an exhibition of the inherent motor defect as we know it clinically. No doubt a similar plan of treatment would also be applicable to many other so-called functional tremors and spasms provided it were undertaken early enough and the fundamental disorder of motility were not any more deeply conditioned upon a progressive deteriorating lesion or a part of a much wider syndrome. The main advantages of this plan of therapy are not only its apparent completeness of cure and its enduring character, but also the individual so recovered has gained a wider usefulness, personally, socially and economically. Many an obtruding and disabling character fault, such as are commonly removed by analysis, were swept out of existence in the process of the specific therapy. At least three of my patients were able to assume

the duties of married life and improve their economic standing in the community without exhibiting any tendency toward relapse.

II. PERIODIC OR RETARDED DEPRESSIONS.

While one may not say that the manic depressive syndrome is the manifestation of an organic lesion of the brain, numerous theories to this effect are in evidence. It has been held that the loss of weight, vasomotor changes, amnesia and gastrointestinal disorders that appear in the early stages of this syndrome are strong indications that the disorder has an antecedent physical or chronic basis. Hoch¹ has outlined the constitutional makeup of this mental syndrome in which he stresses the metabolic changes as being the predominant characteristic. One can hardly count such bodily changes as other than precipitants of the mental syndrome inasmuch as many of these are accompanied by such biologic epochs as pregnancies, childbirth and lactation which are as much psychic as somatic events of genetic moment. An interesting theory of the manic depressive syndrome is that of Ward,² in which he likens the illness to that of Raynaud's disease; here the disorder is a vasomotor disturbance of the frontal lobes and by an hypothesis of congestion or anemia of these parts of the brain induce overexcitation or depressions of the lower centers in the cerebrum and basal ganglia, thus accounting for the different phases of the syndrome in its physical and psychic characteristics. Unfortunately the hypothesis rests upon our slender anatomic and physiologic knowledge of the frontal lobes and still more unproven psychopathology of the mind as a psychologic entity independent of neurologic foundation. Finally one may say that there is no essential clinical substantiation that the vasomotor system is extra labile in this mental syndrome than in countless other psychoses the pathology of which rests upon quite other circumstances of derangements of circulation. There can be no doubt, however, that this psychosis has a very strong hereditary basis and in that sense may be considered a constitutional affection, in the same way as neurologic states, the spasmodic affections, epilepsy, and even dementia præcox. Undoubtedly brain lesions found in this psychosis when present must be considered in the light of a "pathologic symptomatology" of the disease; that is, the lesions are in the nature of results, or effects, rather than a cause. Of course it is well known that the episodic manifestations are commonly enough recovered from, but the real problem in this field of therapeutics is to discover a plan of treatment which shall so influence the fundamental makeup or constitutional inheritance that the episodic recurrences may be obviated. As is well known, the individual attacks cure themselves whatever the plan of treatment, but an enduring arrest in the cyclic episodes by different systems of therapy has failed in any large material. With this latter view largely in mind, I undertook, several years ago, a thorough analysis of a few selected cases. In all, about a dozen cases were requisitioned and carefully followed both in treatment and in after observation. A brief statement of the end results may be of therapeutic interest as some, and indeed most of the cases, have now been free for

several years from subsequent mental episodes. From the general nature of the cases relapses might have been expected. We may avoid undue criticism if we speak of these cases as states of arrest rather than cures.

In order to connote a working hypothesis in the study it was necessary to assume some more or less definite psychic rationality for the disorder. This is at hand in that which has been put forward by A. Hoch and which in turn was drawn from the teachings of Freud. In brief, this hypothesis is as follows:

For some time antedating Freud's work it was known that in so-called posthypnotic suggestion it was possible to experimentally create motives for action, and that they could be carried out without the motive itself entering into consciousness. It remained for Freud, however, to reveal to us a new world of such unconscious motives of which he had previously been comparatively unaware. He insisted that these motives of earliest life did not disappear from the individual's life, but underwent a further development, and from the very nature of their further development the original form of their existence ceased to be a reality to the normal adult consciousness. Freud found, on analysis, one of the greatest unconscious motives was a tendency for a strong attachment of the child to the parent, and particularly a great love for the parent of the opposite sex (Oedipus complex). One recognizes at once the possible rôle such a love attachment might play in the development of the love-instinct. But adult love contains sensual elements which are not present in the child, and can, therefore, play no part in that tender feeling toward the parent. As puberty approaches, however, these sensual elements appear. It has been shown that the great task of puberty is to dissolve the bonds of the home tie and to transfer a part of the affection shown previously for the parent to new objects, in the service of the instinct of propagation. This puberty-process is not possible to every individual, and the assumption is made that in such instances the trend of the sensual impulse then flows in the direction of the tender feeling formerly felt for the parent. But the conscious personality strongly opposes this process, hence this sexually intensified part of the attachment for the parent remains repressed and unconscious. One may say, therefore, that in the course of adult development certain normal steps remain undeveloped, or are arrested. Hence this defect of undeveloped instinctive desires—which later are the very core of the personality—results in a defective adaptation, in the sexual sphere especially, and, as has been carefully pointed out, when one states there is a sexual cause in every neurosis it does not necessarily imply a sexual cause in the adult sense, but in the sense that the cause lies in the imperfect development of the instinct. It has been shown that the unconscious has different depths, and that the infantile motives just mentioned are undoubtedly among the deepest repressed strivings. But in order to understand these infantile motives aright one needs to free himself from the ordinary adult logical way of thinking and meet the situation on the infantile level. Knowing that Freud has spoken of sexual causes and the child's longing for the parent, many laymen and also physicians

translated this statement into terms of adult sexuality. This is probably wrong, for adult sexuality has many qualities added at puberty which have no such formulation in the infantile life. Often the ideas of desire, expressed in the depressive psychosis in particular, are much more vague and not infrequently express a mere wish for possession. This is well shown in the so-called benign psychoses wherein the longing is often expressed as a wish to die with the father, or for the removal of the mother. For instance, a woman may become neurotic when she becomes engaged. After marriage she refuses to submit to the marriage relations and then develops a psychosis in which the ideas expressed are essentially that her marriage is annulled, her mother is dead, and that she herself is following her father into his grave and is united with him. In other words, it may be inferred in such a case that the woman was unable to adapt herself to her married life and therefore regressed to a union with the father. It can readily be seen that this psychotic setting is not sexual in the adult sense, though it is an evidence of imperfect adaptation of the sexual life. There still remains another important point, namely, the thoroughly illogical nature of the above example. On logical grounds it is absurd to wish—and we regard the delusions as expressions of unconscious wishes—that the mother should die, when all that is desired is to be united with the father in death. But the psychosis does not think logically, but autistically, as Bleuler has expressed it. The wish for the mother's death or removal exists, because to the child she is the rival in the affections of the father. We must not forget that the ideas expressed in psychoses are often, so far as we know, direct emanations of unconscious desires which cannot be understood by the observer or the patient when standards of logical thinking are applied to them. And, when we try to cast them into logical or adult form, we are doing something which is, strictly speaking, not possible, and the formulation is apt to become one-sided and artificial. To recognize this is important. The vagueness of these trends is not due to our imperfect knowledge of them so much as to their very nature, and we are not improving matters if we attempt to make them clearer than they really are.

CASE I* was that of a married woman who had passed the climacteric. She had attacks of simple retardation alternating with most marked depressed states for twenty-five years. The alternations were semi-annual. The depressions did not go so deep as to materially disturb the organic life nor did she more than vaguely contemplate suicide. She had no children. The precipitating cause was little in evidence, but there was a marked heredity to the disorder in temperamental makeup. After a fairly exhaustive treatment, lasting four or five months, she succeeded in reestablishing her home and social interests, and has almost uninterruptedly enjoyed good health since, now a period of ten years.

CASE II was that of a middle-aged widow with one grandson. She had just passed the climacteric. She had several slight depressive episodes and one very severe attended by organic reactions of suicide, refusal to eat, lost visceral sensibility, etc. She has been en-

*For detailed histories see "Mechanism of Periodic Mental Depressions as Shown in Two Cases and the Therapeutic Advantages of Such Studies," *Review of Neurol. and Psych.*, October, 1914; "Some Therapeutic Considerations of Periodic Mental Depressions," *MEDICAL RECORD*, February 9, 1918.

tirely well for six years. Her attacks at the time of treatment were occurring every five or six months. She fully regained her previous social and economic capacity.

CASE III was that of an unmarried man in the middle thirties who had attacks of simple mental retardation for thirteen years, the longest free period during that time being less than two years. Treatment has resulted in the patient's avoidance of any future attacks of depression now over seven years. There has been a steady improvement in his social and business conduct and elimination of previous alcoholic excesses.

CASE IV was that of a married woman who had passed the climacteric and who had her first attack of simple retardation at twenty years of age, accompanied by thoughts of suicide. She has had more or less severe attacks every few years until five years ago, when the state of depression was more or less persistent, with fluctuations of intensity in the depressive symptoms from time to time. Analytic treatment was carried on for a year, and its fruitful results are shown in her adaptation to home and community life, absence of vestigial symptoms of "blue spells," greater productive work, absence of irritability and fatigue, and less sensitiveness and inactivity. She takes a continuous interest in her household affairs and has been free from depressions for four years.

CASE V was that of a woman now in the late twenties who has had several classic manic and depressive episodes since her seventeenth year. The analysis was undertaken at the beginning of the sixth depression, following a manic excitement and continued for six months. The results were shown in the patient's complete readjustment to her mother, brothers, husband, and child. Three years ago the husband and mother reported that "for the first time in ten years she has been perfectly normal without nervous and physical symptoms." She has resumed her social and household duties with content and is quite serene and happy.

CASE VI was that of an unmarried woman in middle life who had for five years a circular type of mild depression and excitement, each lasting six months, the condition developing gradually out of the "natural" fluctuation of her mood for ten years before definite depressions and excitements occurred. During the latter part of this five year period of mental disorder, while in a hypomanic state, a type of paranoid ideas developed and she undertook analytic treatment during the depression which followed this period. The treatment was continued for several months. The depression promptly ceased after the first month's treatment; in the ordinary course of previous attacks such change was not due for at least two months later. The patient was able to continue at her rather complicated intellectual and literary work and at the time when the hypomanic period might have been expected it failed to appear. After three years' freedom from vestigial symptoms she returned for a short analysis of a mild depression, hoping to curtail it before deeper symptoms occurred; unfortunately her present state is sufficiently comfortable to make her unwilling to attempt further analysis. One may at least say here that this patient has undergone great mental reconstruction, but she is probably the least satisfactory as a clinical showing of all the cases of my series.

In applying analysis to these individuals, several difficulties are encountered. First of all is the strong hereditary inheritance which gives a more or less distinctive constitutional makeup. As might be expected, these strong trait tendencies make intense the infantile fixations or defect of primary instincts for adult adaptations. Even when these hereditary evidences are not strongly in evidence, the very earliest distortions of the instinctive life make it doubly difficult to bring these primary faults to mind so that the individual may get an experiential knowledge of them. For upon the degree of lasting insight must the final good results largely depend. The transference in such individuals is fairly easy, for the patient to the analyst, and vice versa. The permanency and con-

stancy of an enduring transference is, however, difficult. From the very nature of the makeup of the depressant one might easily expect this, hence they should be taken in hand at the very earliest age, as better results are forthcoming before they have become sophisticated or disillusioned, and moreover at a time when life itself holds its greatest reward. In the deepest condition of depression the state itself discourages analysis by the association method, and the patient bears up poorly under a strict manner of approach. Even though the dreams are fraught with death and despair, symbols which are common enough in such persons, one must persevere and adjust the analysis but not discontinue it. One may work upon less deep levels, in the conscious or foreconscious, having the patient keep in mind that such analysis is by no means final or conclusive. The best periods for analysis are when the patient is just entering, or just emerging from, a depressed state. Should the transference become too intense through faulty technique or otherwise, the work on the main problems should cease and analysis of the transference itself should succeed for a time. Of course the general bien-être of even the slightest grades of elation disestablishes the transference and no real analysis can be pursued. I have never been able to proceed with the analysis in a negative transference which is so frequently encountered; the state of tediousness and boredom seems to forbid of a sufficiently constant negative transference. While it may sound unsympathetic and also the facts may have been drawn from too few data, yet intense preoccupation with the manic depressive group as a whole gives the impression that such individuals do not take a deep-rooted grasp upon the foundations of life, and though usually pleasing in personality have not great staying qualities. Just as the epileptic has many of these stabilizing qualities even to excess, the depressant is more superficial and possesses too little tough fiber for life's stress and storm. It is interesting and at the same time discomfiting to the analyst to review what the members of this group indicate afterward what really helped them most as the result of treatment. They all state it was the transference, and none are able to give any accurate or precise statement of the main faults disclosed in the analysis. While this explanation may not be uncommon in even the simpler neuroses I find the depressant's attempts at explanations are cruder than the average analytic cases. Whether the analysis is really so painful as to require being repressed or whether the piecing together of the personality faults is too difficult, one may not say. Perhaps the hypothesis is of sole value to the analyst who, through his insight and mastery of the problem makes the patient's proper transference possible.

It is important to note that a whole series of accessory psychotic attitudes in the depressives were also remedied as in the torticollities. Those here specifically referred to are alcoholic excesses, jealousies and character failures including paranoid trends. The latter were so pronounced in two cases as to cause a diagnosis of true paranoia to be made, but the unsystematization of the trends of ideas and the general lack of a retrospective falsification of memory as well as the absence of the

paranoid character previous to the onset of the psychosis, made one doubt the true nature of the syndrome. The fact that the state was entirely removed in both cases though persistent long after the antecedent depression was positive proof of the benign character of the paranoid trend in both.

(To be continued)

ON GALLSTONES.*

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GALLSTONES are so common that it is well worth while to make them the topic of this evening's talk. They are frequently found at autopsies, some pathologists maintaining that they occur in about 10 per cent. of the cases. Not all persons affected with gallstones appear to manifest distinct symptoms during life. Some clinicians maintain that only about 5 per cent. of the gallstone carriers are troubled with mild or severe lesions due to the calculi. Kehr, one of the most eminent gall-bladder surgeons, asserts that but 1 per cent. of the gallstone carriers ultimately require surgical aid for relief. This view, however, is not shared by all, and some surgeons go so far as to say that all gallstones are pathological and are accompanied by symptoms, though these frequently fail to be recognized.

Gallstones are much more commonly found in women than in men, the relation being about two to one.

With regard to the etiology, Naunyn's theory of the infectious origin in the formation of stones is generally accepted. According to this clinician, the calculus is always preceded by an inflammatory process of the gall-bladder. Infectious diseases of a general nature frequently play a part and lay the foundation which later on leads to the development of a calculus. Thus typhoid fever, pneumonia, and influenza are often the instigators of a cholecystitis. Typhoid bacilli, various streptococci, and the *Bacterium coli* have been found in the gall-bladder and are believed to have originated the disease process there. Aschoff and Baccmeister, however, maintain that gallstones, especially the cholesterol variety, can form without the aid of bacteria through conditions favoring the stagnation of bile in the gall-bladder.

Gallstones are found either in the gall-bladder proper or in the various biliary ducts—cystic, choledochus, the common duct, and also in the hepatic duct. They are formed principally in the gall-bladder and, though rarely, in the biliary canals of the liver.

The symptoms will vary according to the place of location of the stones. The following possibilities can be discerned:

1. They are found permanently located in the biliary ducts or in the gall-bladder.
2. They may be movable, passing from the biliary canals or the gall-bladder through the choledochus into the duodenum.
3. They can become encapsulated, in which stage

they may cause inflammation, pus formation, or ulceration of neighboring organs.

4. Gallstones may be found in the intestinal tract, and may either be passed easily or become incarcerated and then cause severe symptoms, principally those of obstruction.

Stones in the gall-bladder proper cause either no symptoms or very vague and indefinite ones, such as a feeling of pressure in the region of the liver or reflex gastric symptoms. When, however, they have attained a certain size or are distending the gall-bladder in a pronounced manner, more definite symptoms appear, such as pains, chills, etc. When the stones wander and reach the cystic duct, they are apt to occlude this canal and cause severe colic.

The severity of the attack will depend upon the size and shape of the stone and the accompanying infections, because the walls of the mucosa of the duct are injured and exposed to different micro-organisms. Such a stone that has begun to wander may either successfully reach the choledochus and thence be expelled into the duodenum, provided its size permits, or it may be forced backward into the gall-bladder and then the attack will subside. The first alternative—the passage of the stone into the intestine and its subsequent exit through the rectum—is designated as a successful attack; while the retrogression of the stone into the bladder is termed an unsuccessful attack.

In some instances the stone may move up to the neck of the gall-bladder and close the cystic duct and become anchored there, so that no bile can enter the gall-bladder. This frequently leads to an enlargement of the gall-bladder, due, not so much to its bile content as to retention of its own secretion, mucus, etc., which accumulates there without the possibility of being emptied. This may proceed to such an extent as to lead to ulceration and ultimately to perforation of the gall-bladder.

Encapsulated stones, likewise, may remain quiet without leading to serious lesions, or they may at times cause various pathological conditions, i.e. pus formation, ulceration, and rupture or perforation into a neighboring organ. Thus a communication between the gall-bladder and the duodenum is not rarely found.

When the stones have entered the duodenum, as a rule they pass out without any further manifestation. In rarer instances, the stone which has reached the duodenum by a perforative process is too large to move further and it becomes lodged at some place in the intestinal tract; spasm of the muscularis of the intestine and irritation of the mucous membrane lead to incarceration of the stone and symptoms of obstruction. Under such conditions the disease may assume a critical aspect and terminate fatally in a few days, unless the ileus is relieved. Frequently, however, this type of obstruction undergoes a favorable change, the spasms letting up and the stone moving further on. Occasionally there are periods of grave conditions followed by remissions, the reason for these being that the stone in conjunction with the spasm causing obstruction becomes released from time to time, in such a manner that the fecal contents may pass by it, although with difficulty. In such cases ultimate recovery may take place through the successful

*An address delivered before the Lackawanna Medical Society on Tuesday, Feb. 1, 1921, at Scranton, Pa.

passage of the stone. If not, they offer a favorable prognosis when operated upon.

Patients afflicted with gallstones may present typical symptoms, as already mentioned, or the symptoms may assume an atypical course and simulate the most varied conditions.

Diagnosis.—A minute history of the progress of the disease will help greatly in making a correct diagnosis. If there have been typical attacks of severe colicky pains in the upper abdomen, especially toward the right, radiating upward toward the shoulder blade; lasting a short period of time—from half an hour to six hours or even a day or two, followed by an interval of well-being over a considerable period of time—say from a month to a year or so, the diagnosis of gallstone is quite probable.

Jaundice following the attack initiated by pain is another evidence of stone. Although these signs are quite conclusive, there are exceptions in which similar conditions may be caused by altogether different diseases. It is therefore of the greatest importance to have additional signs to aid us in clearing up the diagnosis. It is self-evident that these objective signs of which we are now going to speak are of even greater importance when the symptoms and history of the case are not so very typical of gallstones.

The physical examination frequently shows enlargement of the liver; occasionally the gall-bladder, as such, can be palpated and felt underneath the liver; it has then the form and character of a small pear-shaped elastic bag. This, of course, can occur only if the gall-bladder is filled with stones or fluid and so enlarged as to protrude from the liver. Very often the palpation of this organ elicits pain.

Within recent years the x-ray examination has enabled the physician to discover gallstones by the shadows cast in a considerable proportion of the cases. It is now assumed that from 15 to 25 per cent., or even more, of the gallstones can be recognized in this way.

The examination of the bile by means of the duodenal tube in the fasting condition of the patient is of great value. When stones are present in the gall-bladder or in the ducts, the bile is almost always turbid; usually, the more pronounced the degree of the turbidity, the more the color deviates from the normal golden yellow, the greater is the pathological condition associated with the stone.

Microscopically, the bile specimen obtained from a patient with stone shows cholesterol crystals of different shapes, either a few very large ones or tiny ones in great number. Bilirubin crystals are likewise found; occasionally, pus corpuscles and various bacteria are also encountered.

Lyon of Philadelphia has suggested the injection of magnesium sulphate into the duodenum before examining the bile. He thinks that by this method he can segregate those parts of the bile coming from the common duct, the gall-bladder, and also from the hepatic duct. In testing his procedure, however, I have come to the conclusion that the best results with regard to diagnosis are obtained from the fasting specimen, and that at present the segregation of the bile is not possible.

As an instance of the importance of the bile examination, I will mention just one case in which

a wrong diagnosis was made in a first-class hospital in this city. Briefly, the case is as follows:

A female patient, about forty years of age, was complaining for about six months of gastric distress and vomiting, accompanied by a loss of flesh of about forty pounds. After a thorough examination in the hospital, the diagnosis of cancer of the stomach and pylorus was made, and operation was advised for that malady. The patient then consulted me. I found her stomach quite dilated. Examination of the gastric contents showed no gastric juice, the contents after a test meal being almost neutral; the stomach in the fasting condition was empty. The string test showed that the pylorus was permeable, and that no ulcer was present, the end being tinged golden yellow and no blood stain above. The duodenal contents obtained in the fasting condition showed a dirty-looking bile, resembling pea soup, and containing bilirubin calcium crystals and numerous pus corpuscles. Pancreatic ferments were present. Based principally on the findings of the direct examination of the bile, I made a diagnosis of gallstones and advised operation for their removal. Dr. Willy Meyer operated upon the patient in the Post-Graduate Hospital and found a gall-bladder filled with tiny stones—two to three hundred or more. The patient made a rapid recovery and has since regained her forty pounds, and is alive and well now, some four or five years later.

Treatment.—The treatment is both medical and surgical. The medical treatment has for its purpose the relief of the suffering and, if possible, the elimination of the offending agent. In some instances, when the stone is small, this is feasible. Drinking of large amounts of water, leading a hygienic life, frequent eating, and drinking of some saline aperient water are all favorable for this purpose. In biliary colic of a severe character, the pain is best subdued by a hypodermic of morphine in conjunction with atropine. During and following the attack, rest in bed is essential.

If the attacks are frequent and perhaps accompanied by fever and a high leucocytosis with an increase of polynuclears, operation for the removal of the stones should be considered. Jaundice, which has developed after a biliary colic and has not subsided after a period of three to five weeks—showing that the common duct is occluded—is another indication for operative intervention. Operation is also indicated when an empyema of the gall-bladder is manifested by chills, high leucocytosis, and pain, and a perforation is suspected—sudden cramps, rigidity of the abdominal walls, etc. In the latter case, the sooner the operation is done the better.

While I am not of the opinion that all gallstones require operation, I would recommend that, in case the abdominal cavity is opened on account of some other condition, if gallstones are known to exist or are discovered at the operation they should be removed as a prophylactic measure, even if the patient has not presented symptoms from them.

Contraindications to Operation.—Severe heart or kidney troubles, old age, and jaundice of very long standing, are in themselves contraindications to operation, on account of the great danger to which the patients are exposed under such circumstances. The gravity of the disease will help to decide whether or not operation should be undertaken.

Dementia Precox Cured by Pluriglandular Opothérapie?—Marie and Fourcade claim that not only marked improvement but actual cure may follow the prolonged use of combined thyroid and testicular extract.—*Le Presse Médicale*.

TWO CLASSIFICATIONS OF BRIGHT'S DISEASE.

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It is the object of this paper to compare briefly Delafield's classification of kidney diseases with that of Volhard and Fahr. Delafield, working first at Bellevue Hospital and later at Roosevelt in New York, at a time when autopsies could be performed on nearly every fatal case, published his classification in a series of papers about 1882, later compiled to form two volumes entitled "Studies in Pathological Anatomy." In later articles on the subject his original scheme was a little amplified but never radically changed, and his last publication, "Lectures on the Practice of Medicine with Cases and Charts," 1903, gives his final views, still essentially in agreement with those of 1882.

Volhard and Fahr, working at Mannheim in collaboration, the former on the clinical, the latter on the pathological side, published their classification in a volume entitled "Die Brightsche Nierenkrankheit" in 1914, again on the basis of autopsies on almost every fatal case.

About a generation separates these two pieces of work, each focuses the previous work done on the subject by others and each constitutes a notable achievement in itself, so their comparison is of interest.

First Delafield's views, then Volhard and Fahr's are given, each as nearly as possible in their own language. Then a comparison is drawn between the two conceptions.

I. DELAFIELD'S CLASSIFICATION.—Delafield in his original article writes as follows:

Acute Bright's Disease.—There is a general agreement, at the present time, that there is certainly one morbid condition to which the name of inflammation can properly be applied. This condition is characterized by an accumulation of blood in the vessels and an escape of the plasma, white cells and red cells from the vessels into the surrounding tissues. The inflammation is, therefore, called an exudative inflammation.

It may be that the congestion and escape of the elements of the blood from the vessels will be the only morbid change; or there may be added degeneration or death of the surrounding tissues, or a growth of new tissue. It is evident, in such an inflammation, that it is the blood vessels which are principally concerned. How and why it is that their walls are so changed that they allow the elements of the blood to pass through them we do not know, but the ordinary production of serum, fibrin, and pus in this way is a matter of everyday observation.

The introduction of certain poisons into the body is regularly followed by changes in the cells of the viscera. The poisons which exert this effect are ordinarily mineral poisons, such as arsenic, mercury, and phosphorus; or the poisons of infectious diseases, such as diphtheria, typhoid fever, etc. According to the quantity and virulence of the poison received into the body, there are more or less marked changes produced in the cells of the viscera.

Small doses of such poisons, acting only for a moderate length of time, produce a simple swelling of these cells. The cells are swollen, more opaque, more coarsely granular. They are not dead, nor broken down, nor do they contain any new substances; the change in their appearance is due to the swelling of the network which forms a part of every cell. Under these circumstances there are either no changes at all in the blood vessels of the viscera, or a slight congestion, with, perhaps, a little exudation of serum.

Larger doses of such poisons, or more virulent

poisons, or a longer duration of the action of a poison, are attended by the deposition in the cell-bodies of granules of albuminous matter and globules of fat. At the same time there is a change in the nutrition of the cells, and they are often broken and disintegrated. Under these conditions there may be a considerable congestion of the vessels and an exudate of serum.

Very large doses of such poisons cause the death of the cells of the viscera, a death which may take the form of coagulation-necrosis or of disintegration and breaking down of the cells. With these changes there will often be an excessive congestion of the vessels and a large exudation of serum.

In many examples of acute exudative inflammation the only results of the inflammation are the inflammatory products and the death or degeneration of the tissues. Such an inflammation is regularly a transitory process; if it is not so severe as to cause death, it runs a limited course, the congestion subsides, the escape of the elements of the blood from the vessels ceases, and the tissues return to their natural condition. It may, however, happen that in an exudative inflammation there will be, from the very first, not only a production of serum, fibrin, and pus, but also a growth of new tissue. This new tissue, when once produced, is permanent and remains during the rest of the patient's life. Not only is this the case, but such an inflammation, instead of running a short and limited course, is apt to continue for months and years, with the continued production of more new tissue. The new tissue seems to originate in the connective tissue of the inflamed part. It is composed at first largely of cells, with but little basement substance; later it resembles more closely ordinary connective tissue. Such an inflammation may be called "productive" or "diffuse" inflammation.

The three morbid conditions just described are the morbid conditions which affect the kidneys in acute Bright's disease. All the cases of this disease are examples of an acute exudative inflammation, or of an acute degeneration, or of an acute or subacute diffuse inflammation.

We divide acute Bright's disease, therefore, into three classes and describe:

Acute Exudative Nephritis; Acute Degeneration of the kidney; Acute Diffuse Nephritis.

To these Delafield subsequently added acute congestion.

Chronic Bright's Disease.—The chronic forms of Bright's disease are of much more frequent occurrence than are the acute forms. The cases of the disease are very numerous, they present a good deal of variety in their lesions and in their symptoms, but they can all be conveniently grouped under the three heads of: Chronic Congestion of the Kidney; Chronic Degeneration of the Kidney; Chronic Diffuse Nephritis.

"Diffuse" here means with growth of new interstitial tissue. Here then are seven conditions which are defined as follows:

1. Acute Congestion, a temporary congestion of the blood vessels of the kidney which may be accompanied with exudation of serum and escape of red blood-cells. Causes: cantharides and turpentine, extirpation of one kidney, severe injuries, surgical operations especially on the genito-urinary system.

The cardinal symptom is diminished urine with albumin, casts, and blood cells in it, or complete suppression which may be fatal. Recovery is the rule.

2. Acute Degeneration of the Kidneys. An acute change in the kidneys, characterized by degeneration or death of the epithelial cells of the tubules to which may be added an exudation from the blood vessels. Causes: mercury, arsenic, phosphorus, poisons of infectious diseases, etc. The lesion varies according to the quantity and violence of the poison.

"The changes in the renal epithelial cells are: a simple swelling of the cell-body, causing it to look larger and more opaque and to take on irregular shapes; an infiltration of the cell-bodies with granules of albuminoid matter and fat; a death of the cells, which may take the form of coagulation necrosis or of a disintegration of the cell-bodies; a desquamation of the dead cells so that the tubes are filled with them;

a formation of hyaline masses in the cells; a growth of new cells to take the place of the dead epithelium. All these changes are most marked in the convoluted tubes. In the kidneys with extensive necrosis of the epithelium there may also be congestion of the blood-vessels and casts in the tubes.

Symptoms.—With the severe acute degeneration which follows the ingestion of large doses of arsenic, mercury, or one of the other inorganic poisons, the urine is diminished in quantity, or suppressed; it contains albumin, casts, and blood; its specific gravity is unchanged. At first the general symptoms belonging to the poison predominate, but as these subside the patients continue to live and suffer more or less severely from the degeneration of the kidney. They become feeble, pass into the typhoid state, and often die.

The acute degeneration which accompanies the infectious diseases such as scarlatina, diphtheria, typhoid fever, pneumonia, etc., is for the most part of mild type and gives no symptoms except the presence of a little albumin and a few casts in the urine. It is of importance to recognize the frequency with which this affection of the kidney occurs, the slight injury which it inflicts on the patient, and the completeness with which the kidney lesion disappears after the recovery from the primary disease. Much unnecessary anxiety is often felt by physicians because in a case of pneumonia or some other infectious disease they find albumin and casts in the urine. There are fears not only of death from the primary disease, but of the subsequent development of "Bright's disease." If the albumin and casts are due to degeneration of the kidneys, anxiety is needless. The course of the primary disease will not be changed. If the patients recover their kidneys return to their normal condition.

With yellow fever, with acute yellow atrophy of the liver, and occasionally with the other infectious diseases the degeneration is of intense type, with the death of a large part of the renal epithelium and exudation from the vessels. In such cases the urine is scanty or suppressed. It contains albumin, casts, and blood. The patients are very ill, they may have convulsions, delirium, or stupor; they often die. But it is hard to tell how many of their symptoms are due to the complicating kidney lesion.

3. *Acute Exudative Nephritis*.—"An acute inflammation of the kidneys characterized by congestion, exudation of the blood plasma, emigration of white blood cells, diapedesis of red cells, to which may be added changes in the renal epithelium and glomeruli." Causes: primary or secondary to any infectious disease, especially scarlet fever; occurs also with pregnancy.

"In a nephritis of this type we should expect that the inflammatory products, the serum, white and red blood-cells, and coagulable matter from the blood-plasma, would collect in the Malpighian bodies and tubes, or infiltrate the stroma between the tubes; and that of the inflammatory products in the tubes and Malpighian bodies a part would be discharged with the urine and a part be found in the kidney after death. We should also expect that the quantity of inflammatory products would be in proportion to the severity of the inflammation, and that an excessive number of pus-cells would belong to the especially severe forms of the disease. Still further, it is evident that with the milder examples of nephritis, with but little exudation, no inflammatory products might be found in the kidney after death, all having been discharged into the urine during life. As a matter of fact, the kidneys do present just such changes. When the patient recovers the kidneys return entirely to normal.

These cases show large amounts of albumin and casts and blood, subcutaneous dropsy, increased blood pressure, gastrointestinal and cerebral symptoms, and convulsions. They may be so mild as to be overlooked. They regularly recover unless death occurs with anuria or other severe symptoms early in the disease. They do not become chronic.

There is a special form with an exudate of pus either in the tubes or in the stroma which is very fatal.

4. *Acute Productive Nephritis*.—"An acute inflammation of the kidneys, characterized by exudation from the blood vessels, a growth of new connective tissue in the stroma and changes in the epithelium and glomeruli."

"This is the most serious and important of the forms of acute nephritis, for the reason that its lesions are from the first of a permanent character. It does not follow exudative nephritis, nor is it merely a modification of it; from the very onset it is a different form of inflammation. In the kidneys of persons who have been sick only a few days the characteristic lesions are already evident."

To the lesions seen in acute exudative, two more are added: (1) a growth of new connective tissue in all, often in wedges; (2) a development of the capsule cells of the glomeruli to form "half moons" in some. The kidney never can return to normal for the stroma and glomerular changes persist. Apparent recoveries are apt to be followed years later by further kidney disease.

The onset may be acute or subacute and the course is longer than in the exudative type. The dropsy involves the serous cavities as well as the skin.

5. *Chronic Congestion*.—"A persistent overfilling of the kidney capillaries and veins with blood due to some obstruction of the circulation such as valvular disease, myocardial weakness, aortic aneurysm, pleural effusion. The glomeruli show the most constant and characteristic change, their loops being thickened and dilated; the epithelium of the tubes is flattened, or it is swollen and its individual cells separated from each other. The pyramidal veins are dilated. There is no growth of new connective tissue. There are no renal symptoms. The urine is small in amount, of high gravity and contains a little albumin and a few casts. The importance of the condition is that it may lead to a chronic nephritis."

6. *Chronic Degeneration of the Kidney*, characterized by degenerative changes in the renal epithelium caused by the same circulatory disturbances which produce chronic congestion, by chronic wasting diseases, such as phthisis and cancer, and in some cases occurring primarily without known cause. The renal epithelium is swollen and coarsely granular but there are no changes in stroma, arteries or glomeruli. The urine shows little albumin; neither dropsy, increased blood pressure nor cardiac hypertrophy occur. The importance of the condition is that it may lead to chronic nephritis. The rare primary cases are difficult to diagnose. They may be the cause of death from inanition.

7. *Chronic Nephritis*.—"A chronic inflammation of the kidney attended with a growth of new connective tissue in the stroma, permanent changes in the glomeruli, degeneration of the renal epithelium, and sometimes changes in the walls of the arteries." It has been customary to hold that in one set of these kidneys the primary and most important changes are in the renal epithelium, while in another set of kidneys the primary and important changes are in the stroma.

"In other words, that the cases of chronic nephritis can be divided into two classes, parenchymatous nephritis and interstitial nephritis. I do not think that this classification is supported by facts."

In all the forms of chronic nephritis changes are to be found in the renal epithelium, the glomeruli, and the stroma. Whether the changes in the stroma, the glomeruli, or the epithelium are the more marked makes no difference in the clinical symptoms. But the presence or absence of exudation from the renal blood-vessels does correspond to a marked difference in the symptoms. The existence of the exudation from the renal vessels is easily shown by the presence of serum albumin in the urine. In this way we readily distinguish two forms of chronic nephritis, one with exudation and one without.

The way of looking at the matter, then, is this: we find after death from chronic nephritis a great many varieties in the gross appearance of the kidneys. Some are large, some are small, some are red, some are white, etc. There is no regular correspondence between these different gross appearances of the kidneys and the clinical symptoms.

We find in these same kidneys changes in the renal epithelium, in the stroma, in the glomeruli, and in the arteries. Sometimes one, sometimes another of these elements of the kidneys is the most changed. There is no regular correspondence between the predominance of the changes in one of the kidney elements over the other and the clinical symptoms.

The easiest working scheme is to admit that in

chronic nephritis all the elements of the kidney are more or less changed, but that the cases vary as to whether there is or is not an exudation of serum from the blood-vessels. The presence or absence of such an exudation does correspond to a well-marked difference in the clinical symptoms. In the present state of our knowledge and for clinical purposes, we divide all the cases of chronic nephritis into two classes; chronic nephritis with exudation and chronic nephritis without exudation. It is admitted that it is easy to divide up these kidneys according to their anatomical changes, into a number of fairly well marked classes. But as this division does not correspond to clinical divisions it is valueless for clinical purposes.

Although it is convenient to describe two forms of chronic nephritis—one with much albuminuria and dropsy, and one with little or no albuminuria or dropsy, yet it must be remembered that these are not separate lesions of the kidneys, but varieties of the same lesion. For in all these kidneys two changes are constant—productive inflammation of the glomeruli and stroma, and degeneration of the renal epithelium. The only real difference between the kidneys is whether, besides the growth of new tissue and degeneration of renal epithelium, there is or is not an exudation of serum from the blood-vessels of the kidneys."

A considerable number of cases of chronic nephritis follow an attack of acute or subacute productive nephritis. The conditions of chronic congestion and chronic degeneration of the kidney are not infrequently followed by a true nephritis. Syphilis, chronic tuberculous inflammation of any part of the body, chronic endocarditis, and chronic suppurative inflammations are often complicated with chronic nephritis. It is very difficult to find a satisfactory cause for the primary cases. There are many of these, especially in young and middle-aged adults. The nephritis is developed in a slow, insidious way in persons whose previous health has been good, and in whom no exciting cause is discoverable.

(A) *Chronic Nephritis with Exudation.*—Symptoms: Urine reduced in acute exacerbations, increased in later stages, even up to 100 ounces a day. Specific gravity of the urine and percentage of urea gradually fall. Albumin and casts vary in amount with the activity of the inflammation, in general they correspond to the dropsy.

Secondary anemia with a peculiar pallor is a very constant feature. Dropsy is almost a constant symptom, for it forms the basis of the clinical classification. Increase of blood pressure may be present or not, and cardiac hypertrophy also is usual but not constant. Chronic uremia with alternating delirium and stupor is an ordinary mode of death. Albuminuric retinitis may occur at any stage and is of bad prognosis. Dyspnea is a nearly constant symptom but arises in various ways: hydrothorax, edema of the lungs, contraction of the vessels, failing heart. Anorexia and vomiting are very frequent. There is hardly any limit to the variations of the disease but the "most constant symptoms are anemia, dropsy and albumin in the urine."

(B) *Chronic Nephritis without Exudation.*—This form belongs more to people over 45 and is apt to be associated with chronic inflammation of other organs. The symptoms differ from those in the above type in the following ways: albumin and casts are less constant and less in amount; dropsy is usually absent and more dependent on circulatory difficulties; acute uramia, dependent on vascular contraction, is more frequent than chronic uremia. The symptoms due to complications, such as cardiac hypertrophy and valvular lesions, arteritis, and emphysema, are more frequent and more prominent.

II. VOLHARD AND FAHR'S CLASSIFICATION.—Volhard and Fahr approach the subject as follows:

Pathogenesis and Classification.—The chief difficulty in a classification of Bright's that corresponds at once to pathological and clinical observations is that there is no agreement about the pathogenesis of the various forms.

At Meran in 1905 the pathologists expressed a certain resignation in this matter and the clinicians were

even less able to lead the way to a common viewpoint. Since then the clinicians have spoken loudly, questioning the possibility and also the necessity of such a unifying comprehension, a position which evidences a similar resignation on their part.

And still it seems to us that an agreement about the pathogenesis and a consequent pathogenetic classification is possible. Such an one has gradually developed for us in our work together as pathologist and clinician and is finally to be here presented.

With the greatest esteem for biological criticism and recognition of the importance of the principle of judging aberrations of normal function by functional standards, our ultimate objective is to bring clinical symptoms into correspondence with pathological findings; not so much for the purpose of standing the test of pathological anatomy, as from the necessity of understanding the abnormal functions, that is, in the final analysis, in order to be able to refer them back to pathological processes, to cellular changes, or definite chemical products of diseased cell activity.

A functional classification must not, under the pretext that functional changes have nothing to do with the microscope, lead away from pathological anatomy. On the contrary it should lead to increasing cooperation with and dependence on Pathology, and the failure of a histological method only demands further perfecting of technique but gives no license for any but an anatomical interpretation of disordered function.

For the sake of being better understood I shall begin with the generally used, though completely useless division into parenchymatous and interstitial forms. We have found that neither of these forms represents a pathogenetic unit.

The proper clinical criteria for classification are blood pressure and kidney function. We have found with the same "parenchymatous picture" two types, one with blood pressure and one without, and among the "interstitial" high tension cases again two types, differentiated by presence or absence of failing kidney function.

1. The so-called parenchymatous, nonindurative forms. Here the blood pressure is the important classifying feature, for it has been found to correspond to an anatomical difference. In the gross "large white kidneys" are found both without and with increased blood pressure and this has led to the false conclusion that large white kidneys were all the same lesion and the blood pressure an unessential complication. When the blood pressure fails, so do the evidences of inflammation, viz., hyperemia, stasis, exudation, proliferation. In this group degeneration of the epithelium is the essential change, the stroma and blood vessel changes sinking far into the background, though when fully established they do show leucocyte infiltration as well as stroma increase. Unquestionably these inflammatory changes, because of their meagerness and their absence in fresh cases, are to be regarded as secondary and stimulated, as Weigert interprets them, by the products of cell degeneration and as a replacement fibrosis that finally reaches a large diffuse development and may lead to contraction.

If now we turn to inflammation and its primary vascular changes it is evident that these must be present in, and characterize, any true nephritis. The degeneration cases in which inflammatory changes fail can then be called nephrosis in contradistinction to the inflammatory ones.

The etiology of primary degeneration types or nephrosis cases without increased blood pressure is unknown, but it is characteristic that they cannot be referred to any of the known agents that injure the kidney.

The evidences of nephritis are blood pressure and blood in the urine, and, under the microscope, an inflammation of the glomeruli as well as the extensive epithelial degeneration, which is common to both types of large white kidney and on which extensive dropsy chiefly depends. As a rule the damage to the epithelium is an anemic degeneration, the result of the glomerulitis, the inflammation of the vessels, occlusion of the capillary loops, and stopping of the blood stream and of the oxygen supply. In some cases, however, the severity of the epithelial changes are out of all pro-

portion to the glomerulitis, both in extent and degree, and such cases we regard as mixed forms, when nephrosis and nephritis coexist, probably due to a common poison.

We believe that increased blood pressure depends (except in cases of anuria) on diffuse involvement of the kidney vessels and that dropsy, on the other hand, is induced by changes in the tubular epithelium, a constant lesion in simple nephrosis, but also a frequent complication in nephritis.

The waxy kidney has been described as a separate type of disease, but it has been noted how often it gives the clinical picture of nephrosis without cardiac hypertrophy, retinitis and uremia.

We do not believe that a typical amyloid kidney can be differentiated from nephrosis without amyloid. We therefore regard it as an unessential complication of nephrosis and regard both the epithelial and vascular changes as due to the same cause. The same conclusion holds for the contracted nephrotic kidney with and without amyloid. Amyloid changes in no way alter the symptoms. For these reasons the amyloid kidney as a separate entity is omitted from the classification.

Though increased blood pressure never occurs in nephrosis it may also fail in some forms of nephritis, viz., embolic focal nephritis, interstitial focal nephritis, and focal glomerulonephritis. The focal cases bespeak a bacterial infection, rather than a soluble toxin as the causative agent. Rise in blood pressure thus differentiates diffuse and focal nephritis and the blood pressure is to be referred to the diffuse or general involvement of the glomeruli; that is to say, of the vessels.

The differentiation of nephrosis from focal nephritis depends on large amounts of dropsy and albumin in the former and hematuria in the latter.

The terms acute, subacute, and chronic are not good for classification, but useful in denoting stages of each type. They indicate prognosis, stage, duration, onset, and course. Chronic usually means not curable, but this does not apply strictly to nephrosis.

1. The "Interstitial" or Indurative Form.—The classical symptoms of these are cardiac hypertrophy and high blood pressure. These we have divided by a study of renal function into a benign group with good function and a serious group with failing function.

(a) The group with good function includes the "red atrophic" or "red granular" kidney, and also its developmental stages, in which there is no contraction and often no granulation. New connective tissue may or may not be present, varying numbers of glomeruli are diseased, but all these cases of the benign group have two common features: (1) elastic proliferation of the intima of the kidney vessels. (2) Absence of degeneration of the uninvolved parenchyma and of any considerable inflammatory reaction. The patient behaves as a simple cardiac with arterial symptoms referable to kidney, heart, brain, or peripheral vessels, depending on the location of the lesions.

(b) The second differs from the first in exhibiting renal insufficiency and shows a secondary contracted kidney, the scarring stage of an inflammatory process with extensive parenchymal changes. In early stages the contraction may be slight or lacking. "Secondary" may be applied also to contraction after nephrosis, and after diffuse and focal glomerulonephritis.

These cases show very high blood pressure and cardiac symptoms combined with renal insufficiency and, histologically, marked arteritis of the small and smallest vessels with an inflammatory glomerular change: a combination form. The smallest vessels are more often involved in this form than in the simple sclerosis. This may be the predisposing cause of the parenchymal changes. In any case in the combination forms the vascular change is primary and older; the inflammatory or parenchymal more recent and secondary. A group of "contracted kidney" is impracticable because contraction cannot be diagnosed in life. The disturbance of renal function is the important feature, and this depends on destruction of parenchymal secretory tissue quite independent of the degree of contraction, so we prefer to call these cases of hypostenuria and failing renal function "End stages."

We do not base our classification upon etiology because in part of the cases it is unknown and in another set it is the same for all.

The pathological significance of four cardinal symptoms in these conditions is then as follows:

(1) Dropsy depends on degeneration of the epithelium of the convoluted tubules.

(2) Hematuria depends on inflammation of the kidney especially expressed in glomerular and interstitial lesions.

(3) A large amount of urine of low and constant gravity (hypostenuria) indicates a failure of renal function and an extensive destruction of secretory renal tissue.

(4) High blood pressure and cardiac hypertrophy depend on arteriosclerosis of the renal vessels (in so far as they depend on the kidney at all).

Two tabulated classifications are given in the work, one by Fahr in the pathological portion, the second by Volhard in the clinical section. That of Velhard is here given, slightly amplified in detail to include all that appears in Fahr's scheme.

PATHOGENIC CLASSIFICATION OF BRIGHT'S DISEASE.

A. Degenerations, affecting principally the tubular epithelium. Nephrosis.

1. Genuine simple nephrosis of unknown origin.

Four stages, viz., (a) cloudy swelling, (b) epithelial degeneration, (c) growth of interstitial tissue (d) nephrotic contracted kidney with failing function, but no increase of blood pressure.

2. Secondary simple nephrosis of known origin. Above stages not so distinctly developed.

3. Characteristic nephrosis; presenting, in addition to common features, lesions peculiar to a special poison.

4. Necrotizing nephrosis, with death of epithelium. (A lesion may be at once "characteristic" and "necrotizing," as the bichloride kidney, and thus belong at once to 3 and 4.)

5. Complicated nephrosis; the amyloid kidney. Three stages correspond to last three of simple nephrosis.

B. Inflammations, affecting chiefly glomeruli and stroma. Nephritis.

1. Diffuse glomerulonephritis with increased blood pressure. ("Diffuse" here means that all the glomeruli are inflamed.) Three stages, viz., acute, chronic, and end stage with failing renal function.

2. Focal nephritis without increased blood pressure. (a) Focal glomerulonephritis, acute and chronic stages, (b) septic interstitial focal nephritis, (c) embolic focal nephritis.

3. Mixed forms of nephritis and nephrosis.

C. Arteriosclerosis—affecting primarily the renal vessels—always associated with hypertension.

1. Simple sclerosis.

2. Combination form, sclerosis plus nephritis, true contracting kidney with rapidly fatal course.

A. Nephrosis comprises all purely degenerative lesions and those whose inflammatory nature is not entirely beyond question. They are caused by poisons, either bacterial, mineral, or metabolic, and sometimes they arise without known cause and are then termed genuine.

1. Genuine nephrosis occurs in four stages.

(a) Cloudy swelling, in which the cells are enlarged and the Altmann granules are irregular in disposition and various in size. Glomeruli and stroma normal. This causes no symptoms except a trace of albumin and a few casts. It is very common and occurs as an incident in many infections.

(b) Epithelial degeneration, in which hyaline droplets and fat collect in the cells and some nuclei disappear. Glomeruli and stroma normal. This occurs under the same circumstances as cloudy swelling, causes no more symptoms, and like it, vanishes completely as the primary infection subsides. It also may produce the fully developed clinical picture of nephrosis with dropsy and much albumin in the urine, which occurs either in early amyloid kidney, in genuine nephrosis, or in the large white kidney with hypertension which we call the "mixed form."

(c) Inflammatory reaction in vasculo-connective tissue, in addition to epithelial degeneration. There is a definite growth of new interstitial tissue, some desquamation of the epithelium of the convoluted tubes, some dilatation of the tubes, and rarely some regenerating epithelium. Glomeruli are normal. (These observations are based on only two cases, all that the authors have seen at autopsy.) In these the complete clinical picture of nephrosis occurs. Marked oedema of skin and serous cavities due to permeability of the vessel walls is the most striking symptom. The transudates are milky and poor in albumin. Urine of very high gravity, small in amount, and containing large amounts of albumin and many casts and fatty cells, but seldom any red cells. Blood shows no anemia in spite of the pale skin, the serum is milky, like the transudates. Rest nitrogen is never much increased, values of 80 mg. are infrequent, and 100 mg. was only seen shortly before death or with anuria incidental to a complication.

True uremia due to failure of the excretory renal function never occurs.

Anorexia and watery diarrhea are regular symptoms. The absence of increased blood pressure and of cardiac hypertrophy are characteristic. "We only saw them when renal arteriosclerosis was present in addition." Eye ground changes are never observed.

(d) Cicatrization with destruction of both tubes and glomeruli by the contraction of the inflammatory interstitial tissue. A few glomeruli primarily inflamed. Tubal epithelium degenerated and sometimes regenerating. (This description based on one autopsy in a man dying of phthisis.) With this lesion there is polyuria and loss of urinary concentrating power, but no rest nitrogen retention and no increased blood pressure, cardiac hypertrophy, retinitis, or uremia.

The course of nephrosis is slow and discouraging: first a period of very marked general edema, then one when the edema is confined to the serous cavities, then a period with albuminuria without edema, haematuria, or increase of blood pressure, and finally, unless they get well before, a final stage of hyposthenuria without increase of rest nitrogen or hypertension.

2. Secondary simple nephrosis with known cause, essentially similar to 1, but stages are less distinct both as to lesions and symptoms.

3. Characteristic nephrosis, in which some special added feature occurs with some particular causative agent, thus lime deposit and regenerating epithelium in bichloride kidneys or glycogen deposits in diabetes.

4. Necrotizing nephrosis. The epithelium of the convoluted tubes is extensively necrotic, the glomeruli are normal. Bichloride given as an example.

5. Complicated nephrosis. The amyloid kidney. The authors consider this lesion nothing more than an ordinary nephrosis of known cause, in which waxy deposits occur. The amyloid, unless in large amounts, produces no modifications in the symptoms. This nephrosis may show simple epithelial degeneration or an interstitial growth of new tissue in addition, which latter may pass on to a condition of cicatricial contraction. The symptoms are those of simple nephrosis.

B. Inflammations. Nephritis, "in sharp contrast to nephrosis. The damaging poison in nephritis produces, from the beginning of the process, strictly inflammatory changes in the glomeruli and in the interstitial tissue. The heart and the vessels are involved in the later stage."

1. Diffuse glomerulonephritis. ("Diffuse" here meaning that practically all the glomeruli in both kidneys are inflamed, while Delafield uses the same adjective in quite another sense, namely, to

mean that the stroma is involved in the inflammatory process.)

This is caused by streptococci, pneumococci, and by tuberculous. It is especially apt to follow angina.

(a) Acute stage.

The glomerular lesion dominates the picture and establishes the diagnosis. This consists in a multiplication of the glomerular cells and an elongation and dilatation of the vascular loops. The increase of cells chiefly concerns those within the loops, polynuclears and endothelium, but a swelling, increase, and degeneration of the tuft epithelium occurs also. An exudate of red, white, and epithelial cells and of albumin appears within the glomerular cavity. There is little blood in the capillary loops.

Degenerative changes in the epithelium of the convoluted tubes as described in nephrosis is the rule, but varies greatly in amount. Casts, red blood cells, and coagulated albumin occur in the tubes.

There are a few small round cell infiltrations in the interstitial tissue. This condition often returns entirely to normal.

(b) Chronic stage shows more advanced glomerular and epithelial lesions and, especially, increased inflammatory reaction in the interstitial tissue.

The glomerular lesion may be that of the acute stage, intracapillary, or there may be in addition an extensive ingrowth of the capsular epithelium which compresses the tuft; "extra capillary" or "half moon form." The latter belongs to the severest cases.

(c) End stage—with profound alteration of kidney architecture through production and contraction of interstitial tissue: many tubes and glomeruli damaged beyond the possibility of functioning, others showing a compensatory dilatation and hypertrophy.

Clinically hypertension typifies the condition, though hypertension also occurs with arteriosclerosis, and with the anuria of bichloride kidneys. It is absent if the inflammation is focal instead of diffuse, in very mild cases, and in high fever and profound general weakness. Edema is very usual, but not constant; when excessive it indicates a degeneration of the tubal epithelium. Cardiac hypertrophy is the rule. Presence of blood in the urine is the surest sign of nephritis. Albumin and casts are nearly constant. Renal function and rest nitrogen are normal in the acute and chronic stages, but the end stage is marked by progressive renal failure. Such failure can supervene early, especially with the "extra capillary" lesion. Eye ground changes belong to the end stage.

Many cases recover after the acute stage, some go on into the chronic often with few symptoms, and most of these sooner or later come to a failure of renal function and the end stage which results in fatal uremia, unless death from some intercurrent condition, especially heart failure, anticipates it.

2. Focal nephritis, in which the lesion is not diffuse, but developed in foci, or patches, the intervening renal tissue remaining normal.

(a) Focal glomerulonephritis. Same lesion as diffuse, but not so extensively developed. Clinically evidenced by hematuria without increased blood pressure, dropsy, or increased rest nitrogen. Not a fatal condition, so this lesion is seldom seen. Probable that it can develop into a diffuse lesion with resulting changes in symptoms.

(b) Septic interstitial focal nephritis. The lesion consists of foci of round, plasma, and a few pus cells in the stroma, without glomerular or other changes. This gives no symptoms, even albumin is absent from the urine, or only occurs in traces. It forms part of a

general sepsis; renal symptoms only become prominent if anuria supervenes.

- (c) Embolic focal nephritis. The ordinary septic emboli that occur with an infectious endocarditis.

C. Sclerosis—primary lesions of the renal arterioles.

1. Simple sclerosis. A new growth of elastic lamellae in the intima, hypertrophy of the muscle coat, degeneration of the new elastic tissue, fatty degeneration, atrophy and replacement fibrosis in the muscle coat.

The cause is unknown, but it belongs to adults over fifty. Increased blood pressure averaging 200, and cardiac hypertrophy without hematuria, with little or no albumin, without any increase of rest nitrogen, and without neuroretinitis, make up the clinical picture. Arteriosclerosis of the heart and of the brain often complicate it.

This disease often causes no symptoms for long periods, and runs a chronic course, but always with the possibility of fatal arterial attacks.

2. Combination form. A sclerosis like the last but always involving the smallest renal arterioles, which is subsequently complicated by progressive inflammation of the glomeruli and interstitial tissue, finally leading to a destruction of secretory tissue so extensive as to cause failure of renal function.

As soon as this complicating inflammation develops the chronic course changes to a rapidly unfavorable one, albuminuria appears, the blood pressure rises, averaging 240, the heart becomes enormously enlarged, and tends to fail, arterial symptoms become aggravated, loss of flesh and strength is rapid, secondary anemia and cerebral symptoms appear, rest nitrogen accumulates and fatal uremia is the necessary conclusion. Neuroretinitis is especially typical of the condition and often appears before any other symptom.

III. COMPARISON OF THE TWO CLASSIFICATIONS.—

Both these classifications constitute a determined attempt to interpret renal symptoms in terms of renal lesions, which is the basis of their strength.

Both differentiate between degenerative changes in the tubular epithelium and inflammation of the organs as a whole.

Both consider the ubiquitous division of kidney cases into parenchymatous and interstitial as useless, invalid and misleading.

Both Delafield and Fahr describe almost precisely the same microscopic lesions of glomeruli, tubes, stroma and blood vessels, although their comprehensions of the pathogenesis and clinical significance of the varying combinations of these individual lesions differ, at times widely.

Volhard and Fahr have the advantage of more various and refined histological methods and of all the recent methods of studying renal function, hypertension, etc., an advantage which they improve to capacity. It is a little surprising that, in the matter of illustration, while their colored plates are excellent, they cannot compare with the microphotographs of Delafield's original work.

Delafield describes acute and chronic congestion as distinct pathological and clinical entities. Acute causes diminished urine or anuria, which leads him to the belief that diminished and suppressed urine in acute nephritis and in exacerbations of chronic are due to the concomitant acute congestion. Chronic congestion causes a definite dilatation and thickening of the glomerular loops but no changes in the stroma. It causes only minor clinical manifestations, but is important because it may be followed by a chronic nephritis, with the growth of cells in the altered glomerular loops and of new interstitial tissue.

Volhard and Fahr do not describe either of these conditions. They repeatedly describe the anuria of acute inflammation, but do not attribute it to congestion. They refer to the chronic congestion incident to cardiac difficulties, but do not describe the lesions and nowhere indicate that it may lead to a chronic nephritis. I have among Delafield's own slides excellent specimens of these glomeruli of chronic congestion, both before and after the incidence of the inflammatory cell growth, and there can be no question as to the lesions he describes.

Although in the degenerative changes the lesions described by both Delafield and Fahr are practically the same, it is here that the widest divergence in the conception of their pathological development and clinical significance occurs.

Both have seen cloudy swelling, vacuoles, and fatty deposits in the renal epithelium without glomerular changes as an incident in all sorts of infectious diseases and causing no symptoms or only a trace of albumin and a few casts in the urine.

Both have seen necrosis of the renal epithelium with mineral poisons, and Delafield has seen it in yellow fever and acute yellow atrophy as well.

Both have seen young people with dropsy, large amounts of albumin and casts, and pallor and prostration, without hypertension or cardiac hypertrophy, and found a large white kidney with extensive fatty and degenerative changes in the epithelium, new cell growth in the interstitial tissue, and little change in the glomeruli.

Both have seen the same clinical picture, but with hypertension and a big heart combined with a similar pathological picture in which Volhard and Fahr however see more glomerular changes.

Both have seen waxy kidneys, with new cell growth in the stroma and much albumin and dropsy, accompanying wasting diseases.

For Delafield, cloudy swelling, vacuoles, and fatty infiltration in the cytoplasm, failing nuclear stain, desquamation and wholesale necrosis of the cells are simply steps in one process whose severity depends on the degree of the poison. Regenerating epithelium he saw and described in bichloride. Necrosis he saw after mercury, arsenic, phosphorus, yellow fever, and acute yellow atrophy of the liver. In many cases, especially the more pronounced, a minor inflammatory reaction occurs in conjunction, but no glomerular or interstitial changes.

Clinically he found only traces of albumin and granular casts, except in the necrotic forms, and in none of them did he ever see dropsy.

For Delafield a kidney with definite new cell growth in the stroma, in addition to changes in tubes and glomeruli, without or with cardiac hypertrophy and hypertension, is a case of chronic nephritis.

Waxy kidneys, also, according to Delafield's conception just given, are a special type of chronic nephritis.

Volhard and Fahr have seen cloudy swelling, hyaline deposits, and fatty deposits and some loss of nuclei, with traces of albumin, a few casts, and no dropsy, as an incident in many infections. They assume, however, that hyalin droplets and fatty deposits and fading nuclei, with no other changes—in other words, a pure degenerative lesion—can

cause large amounts of albumin in the urine and extensive dropsy, but they have never seen such a case at autopsy, at least they do not report any.

It is just here that Delafield has the advantage of them, for he has seen many cases of pure chronic degeneration at autopsy. Some incident to heart disease and stasis, some to chronic wasting diseases, and some arising primarily and constituting the only important lesion at autopsy. In no such case did he see more than a trace of albumin or any renal dropsy.

Volhard and Fahr, perhaps because they have not seen such autopsies, consider kidneys with much degenerated epithelium, a growth of new interstitial tissue, and absence of hypertension and of cardiac hypertrophy the normal outcome or later stages of cloudy swelling, cytoplasmic degeneration and fading nuclei. They have only seen three such at autopsy.

Although, as above stated, they have seen these degeneration changes with acute infections repeatedly without dropsy (see page 12), they yet regard the epithelial degeneration as the cause of pronounced albuminuria and of dropsy, not only in all this group which they call nephrosis, but also when associated with definite inflammation, glomerular and interstitial lesions, and hypertension.

They further consider necrosis of the epithelium an aberrant form of degeneration instead of the natural final stage of the degenerative process, even in spite of having seen transitional lesions with early and partial necrosis.

In waxy kidneys they regard the epithelial degeneration as the one important change and the cause of albuminuria and dropsy, and regard the amyloid deposits, interstitial, and glomerular changes as comparatively negligible. The occasional hypertension they refer to complicating renal arteriosclerosis.

I have tried to state their view fairly, the more because I disagree with it. It appears unsound, for the reasons: (1) its autopsy support is altogether inadequate; (2) renal dropsy has not been shown to occur with epithelial degeneration alone; and (3) in other organs, such as the nose, colon, etc., large exudates of albuminous fluid have not been shown to be primarily dependent on epithelial degeneration.

Turning now to the inflammations, we find similar fundamental conceptions of the process; namely, that the blood vessels are always concerned, that exudation of blood elements is an essential part of it, and that new cell growth in the stroma may or may not occur. Practically, however, the two views present differences.

Volhard and Fahr regard glomerular inflammation as the pivotal fact in all nephritis, except a rare septic interstitial form and the cases with septic emboli that accompany infectious endocarditis. The two main questions for them are: (1) whether all the glomeruli or only part of them are diseased, and (2) whether the inflammation is of the intra- or extracapillary type. Only in diffuse glomerulonephritis, *i. e.*, where all the glomeruli suffer are renal symptoms developed to any extent. The extracapillary form is much the severer, but only appears late in the course of cases which have not been properly treated in the acute stages. In

their opinion no acute case of nephritis should become chronic if properly treated.

Delafield, on the contrary, draws a sharp distinction between two types of acute nephritis. In one, acute exudative nephritis, the inflammatory process consists of exudation of the elements of the blood, with or without glomerular changes and degeneration of epithelium. Recovery occurs in almost all, and with recovery the kidney returns entirely to normal. In the other, acute productive nephritis, in addition to the above changes, there is a growth of interstitial tissue from the outset, and the glomeruli are invariably altered. This lesion always leaves permanent damage. Delafield shows a microphotograph of such a kidney on the sixth day after acute onset of symptoms. These cases also often show the "extracapillary" type of glomerular inflammation from the outset, a fact which Volhard and Fahr fail to recognize. Altogether, Delafield's comprehension of acute nephritis is the more adequate and corresponds better to clinical experience.

It is interesting to note, in passing, that both observers recognize a rare acute septic form with a large exudate of pus in the interstitial tissue and unassociated with much albumin in the urine. Delafield also saw cases of the same kind but with the pus in the tubules, so he called the condition acute exudative nephritis with pus cells, while Volhard and Fahr, having seen only the interstitial type, call it septic interstitial focal nephritis.

When it comes to chronic nephritis, Delafield recognized the various lesions and also insisted on the fact that in every chronic case showing renal symptoms, such as dyspnoea, dropsy, hypertension and hypertrophy, uraemia, and so on, the changes in the secretory tissues were invariably accompanied by changes in the stroma, so that, for him, the absence of such stroma changes meant that the case was not one of chronic nephritis. Delafield, however, frankly confesses his inability to cope successfully with the classification of chronic nephritis.

It is this group, especially, that Volhard and Fahr attempt to analyze and subdivide. In the first place, they take out the cases with dropsy and albumin, but without hypertension, and call them nephrosis, a move that has already been discussed. Next they divide chronic nephritis into a chronic stage with good renal function and an end stage where this fails, unquestionably a valid and helpful distinction. Also the division of uremic symptoms into those due to failure of renal excretion (true uremia), to edema of the brain (elamptic uremia), and to spasm of the cerebral vessels (pseudo-uremia) is most enlightening and suggestive. In fact, the study of renal function as a whole with the results of various functional tests is a most excellent and valuable contribution and would, in itself, be enough to entitle the work to the highest consideration.

Finally they separate all the cases whose primary lesion is in the arterial walls, calling them sclerosis, and divide them, as above indicated, into simple forms, and those followed by a secondary inflammatory change in the secretory tissue not directly compromised by the sclerotic process. All the scleroses, except the earliest, having a stroma change, fall in Delafield's chronic nephritis group.

In support of their views concerning sclerosis, Volhard and Fahr cite numerous cases with autopsies and, to my mind, present a very strong and convincing argument. If their conception of renal sclerosis proves correct, as it promises, it is destined to greatly amplify our knowledge of a dark and difficult subject.

There is a joint in the armor, however, which, though it does not invalidate the sclerosis group, confuses their presentation of nephritis, and to this I wish to draw attention.

Just as they look at degeneration of epithelium as the cause of renal dropsy and albuminuria, so they regard sclerosis as the cause of renal hypertension. They state, however that hypertension is an obligatory and distinguishing feature of diffuse glomerulonephritis, but is absent in focal glomerulonephritis, in fact in focal nephritis of all types. They believe this invariable hypertension in diffuse glomerulonephritis to be due to the lesions in the glomerular loops, but these are not at all the same as those which they describe as occurring in the arterioles in sclerosis.

They expressly state elsewhere that mere occlusion of vessels, such as occurs in glomeruli, is not a cause of hypertension, and they do not claim that in sclerosis all the vessels are affected before hypertension arises. Sclerosis, in fact, is a typical "focal" lesion, according to their own description, and the surest cause of hypertension, yet when only part of the glomeruli are diseased a diagnostic distinction is absence of hypertension. On the other hand, they do not regard hypertension in glomerulonephritis as regularly dependent on sclerosis, for then they would have to demonstrate or assume the existence of sclerosis in all diffuse, and its absence in all focal glomerular lesions, which they nowhere attempt.

There are two evident inconsistencies here: (1) considering the changes in the glomerular loops in nephritis equivalent to the arteriole changes in sclerosis, and (2) assuming that hypertension does not result till all the glomerular loops are involved in nephritis, while it occurs when only part of the arterioles are diseased in sclerosis. It is also weak, it seems to me, to regard a single structure, the glomerulus, as the pivot of renal inflammation, instead of viewing the changes in all the kidney structures more in proportion.

In my opinion Delafield's comprehension of the whole subject is broader, his understanding of congestion, of degeneration, and of acute inflammation clearer and better defined. Chronic nephritis, however, was too difficult for him to solve without the aid of the recent knowledge of renal function. It is to this problem, especially, that Volhard and Fahr address themselves, dividing Delafield's chronic nephritis into nephrosis, nephritis, and sclerosis, and in support of their claims they make a most splendid and exhaustive study of renal function and all renal symptoms in the various subgroups.

The future only can determine just how much of their interpretation will be accorded the value of truth, but whatever the final verdict, their work is full of light and helpfulness to every student of kidney disease.

TEMPERATURE CONTROL AS RELATED TO IMPROVEMENT IN MILK, CREAM, AND BUTTER SUPPLIES, AND HOW IT SHOULD BE APPLIED.

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PROBABLY every one who has even an ordinary comprehension of the relation of bacteria to the food of man, in reading the heading of the present thesis, would be likely to think that no one could point out anything new in connection with the influence of possible incubating temperatures on the quality of milk, cream and butter. Nevertheless, the simple fact is that the whole world is suffering greatly because of a lack of adequate practical application of information in regard to this subject. Millions of babies are suffering in health and even struggling for their lives today, because of a lack of perception of the specific knowledge of how dairy products should be treated and preserved after milk is drawn from the cow, and how such practice is largely connected with unrecognized or unpracticed principles. It seems incredible to have to conclude that not only does the scientific world not adequately understand the matter from a scientific point of view; but that the principles involved are not applied anywhere by any one in such manner as to secure desirable results. Yet this is a plain statement of the situation that should be recognized and remedied.

The "clean milk" movement has only inadequately effected its aim. Not two per cent. of the public milk supply is of the relatively clean character of "certified" milk; and none of that high cost product is free from the suspicion of being pathogenically infected, while it, as well as other grades, is more contaminated with putrefactive ferment products than should be the case with such relatively clean milk; and simply because temperature influence plus special methods are not applied in assuring unquestionably good character in certified milk. Tuberculous cows are frequently found in even the best guarded herds. Something has been accomplished through the education of producers, and in adopting methods of producing cleanly milk; but the truth still pertains, that *all* milk produced today becomes more or less infected at the time of its production; and usually largely infected, and that all milk and consequently all butter made are contaminated with decomposition and ferment products.

There is not a package of milk or cream or a pound of butter sold today that is as good as it should be, or as good as it can easily be made, because: (1) of the *uncertainty* that exists in regard to the character of all such products as to infections and toxic contaminations; (2) of the *certainty* that all such products are more or less contaminated with putrefactive products; and (3) none of these products is of the highest attainable gustatory excellence. Furthermore, none of these products is sold at as low a price as that for which they should be sold.

The reason for the existence of this state of affairs is, more than anything else, due to a lack of applying specifically, corrective and preventive

temperature influences practically continuously between the times of the drawing of the milk, and the consumption of the milk, or of the cream and butter derived from the milk. This defect is unquestionably due to ignorance as to the real existing condition, and as to how to meet and overcome that condition.

Incidentally, let me here first refer to one basic reason why such foods are not sold at lower prices. This is owing to the fact of the reprehensible activities of the several cattle breeding associations, breeders, experimental stations, the trade press, and dairy farmers, in unwarrantably holding the idea that an unreasonably large amount of milk production in the cow is a virtue. The world does not need more milk; it needs a lesser amount of milk, but milk of better quality. Galactorrhoea in the cow is a disease, as well as in the human female, that results in a decrease of constitutional strength, depleted breeding ability, increased tendency to mammary and other troubles, and sensitivity to the invasion of bovine tuberculosis, and other troubles. To counteract even partly such tendencies in high power cows, they must be met by an increased uneconomic feeding of easily digested, high priced grain concentrates and other foods, if the tendencies are to be counteracted and constitutional strength maintained in the cow.

It is nonsensical to urge as a hygienic measure, a large consumption of fluid milk by adults, whose digestive apparatus should be strengthened in digesting solid foods. Public economies, as well as hygiene, call for a larger direct consumption of grains by man, that are now fed to high power cows to maintain constitutional strength, and increase milk flow in cows. A greater proportion of the milk supply should be produced from cheap, coarse, by-product farm fodders consumed by a larger number of cows. If one did not know there was so much ignorance in the world, there would almost seem to be a criminal, concerted action on the part of those interested financially in keeping up this illusion. Those thus interested are making money, although the farmer-producer loses money and the public suffers in health and pocket. This is one of the causes that must be removed, if the public is to secure abundant supplies of milk and milk products at lowered prices.

The world at large is unaware of its ignorance in this connection, and it seemingly will require superhuman effort to dispel that ignorance. This is the more strange because of the fact that some physiological writers at least point out that the fermentative putrefactive charges that take place in foods containing albuminous principles are due to bacterial fermentations in such foods, and are effectuated through favorable incubating temperature influences. In fact, such writers state the range of temperatures at which the growth of putrefactive bacteria is possible. Yet the whole dairy industry, including producers, manufacturers, holders, and distributors, conduct their operations with an apparent more or less lack of cognizance of the existence of such scientific information; and the scientific world at large does not yet realize the resulting condition.

The outcome is that all of these food products are more or less contaminated with putrefactive

products and the products of putrefactive decompositions. Yet it is known that in the metabolic life history of all living cells, absorption and excretion occur; that all cellular excretory products, including lactic acid, are more or less noxious, and that some of such products are virulently toxic.

Some Health Boards even prevent the reuse of melted ice creams. The occurrence of serious disease, and even death, from fermentive products in various foods, is well known to all doctors of medicine. But a rational remedy for this situation is not applied anywhere today, to correct such existing conditions and to protect consumers from this menace. I have all the data and evidence needed to convince the minds of those whose scientific endorsement I want; but I am held up by a lack of scientific interest on the part of those whose endorsement would be of the speediest benefit to the whole world; and because I have not the physical ability personally to incite such interest, and to correct the preconceptions due to absorbed old general information and unsound conclusions of a personal nature that are usually held by those who have made a study of this tremendously large and complex subject. This writing is an appeal to the world, to open its mind to the attainment of something new in this connection that is of aggregate, immense importance.

After giving a dozen years of intensive study to this matter, I am more than ever astonished to find the commercial world is lacking in scientific information relating to such details, and is ignorant of the seemingly simple matter of how a remedy should be applied, and that even the most prominent authoritative research workers and instructors are lamentably ignorant of such matters. I have been personally in touch with a number of the most prominent scientists in the United States; and I have yet to find the first one who apparently knew all that he ought to know about this matter. Of course, there may be those having a higher grade of knowledge whom I have not met. A dozen years ago, I now know that I was then lamentably ignorant in this connection; but I did not know then that all of the world was so ignorant in this connection as it still is regarding a very few, simple propositions. I am herewith trying to present those propositions as simply and clearly as I can.

Infections of milk *always* occur at the time of the drawing of the milk, and usually are large. Seemingly, *Bacterium termo* and mould spores are omnipresent, and are ever acting in decomposing milk products. Even condensing and canning milk in which the milk is kept separate from atmospheric influence, does not seem to destroy infective matter and to prevent, in time, decomposition in the can. Of course, slight exposure to the atmosphere results in rapidly increased infections. Putrid volatile, diffusive, foul-smelling fumes are always being evolved in and around cows' stables. Some of this putrefactive matter is elaborated in the sebaceous glands of the hard hides of cows. The stench from a large number of cows congregated in "certified" milk producing plants, sensibly pollutes the atmosphere of a large area around such establishments. It is usually in considerable concentration in the stable atmosphere, and is inhaled by the cows. It impregnates the food in the stable, and is found

in the milk at the moment of its drawing from the cow by the milker's hands, which are always infected. Such volatile matters, which to say the least cannot be wholesome, may be eliminated through simple temperature influences; but the general practice is to cool the milk before this putrid matter is sufficiently eliminated from the milk. In the cooling of the milk, atmospheric infections occur, and the volatile putrefactive matters are more or less hidden by the cooling temperature, but are retained in the milk.

The bacterial infections from the milker's hands, the hairs of the cow, the dust in the barn, etc., are usually all more or less allowed to proliferate in the milk *before* the milk is pasteurized, and this proliferation is due to a lack of temperature control. This proliferation evolves more or less metabolic excretions during such growth, and before the bulk of bacteria in the milk are destroyed by heat. It should be noted that there is always an undestroyed residue that resists pasteurizing heat, and it seems that this undestroyed residue may be of a vicious type. What occurs when the large proportion of bacteria that have undergone proliferation is destroyed by pasteurizing heat? If the conclusions of Vaughan and his students of the Michigan University and others are acceptable, the destruction of bacteria in milk liberates protein split poisons.

I believe that the bad effects presumably produced by pasteurization are due to inherent bad qualities in the milk prior to its heating, and to disruption of the proliferated bacteria in the milk; and that if good milk is heated moderately, no bad effects of the heating will be observed; though I theoretically believe that the less milk is heated, the better; still because of the danger of pathogenic infections, all milk should be heated. I am told by pediatricists, who have been compelled to use dried milk because good fluid milk was unavailable, that they do not see scurvy following dried milk feeding, and notwithstanding that orange juice is omitted. Now all dried milk has been subjected to a very high temperature influence, but has had its volatile constituents driven off in the heating process. It all depends upon the nature of the temperature influence when applied, whether such influences are beneficial or otherwise.

In general practice, the undestroyed residues of bacteria and spores in milk are allowed to grow, because of the temperature at which milk is generally held during its distribution; and this is merely due to lack of temperature control. What occurs when milk gets into the hands of consumers, we all know; but I imagine that very few fully understand the nature of the changes in the milk, and the results on health, from a purely sanitary point of view. Many would disclaim that assertion; but back of it is the fact that those who should know all about such changes in milk are relatively ignorant as to many points.

Is it any wonder that even the most accomplished of our pediatricists have so little "luck" in feeding bottle fed babies? The truth is that they cannot get cows' milk of basically entirely good character to use in their prescriptions and modifications. If the babies of this day are not still being fed poisons in their cows' milk feeding, my powers of deduction and observation are senile, or undeveloped.

Briefly outlined, the evidence that is conclusive to my mind is: the symptoms exhibited by bottle fed babies that have died by the millions, and are still dying in lesser numbers, are homologous with the symptoms produced by other poisons; that the toxins directly produced in the body by pathogenic bacteria require a stage of incubation after infection; that the symptoms are more or less like those of intestinal autointoxication, and of ferment-producing blood irritants of dietary origin; that in artificial feeding, milk that is subjected to such heating influences as will drive off the volatile, putrefactive products has a lesser malign influence; that babies do better in cold weather when there is a lessened fermentation in market milk; that the experience of a hundred or more years shows even the fatal influences of putrefactive products; that botulism and other putrefactive conditions in cheese and other substances have deadly effects; that the latest findings as to the lethal power of protein split poisons have been conclusively demonstrated; that the less milk is subjected to the influence of putrefactive fermentation, the better are its effects as a food; that periatrists have found by experience that even dried milk, in which the process of fermentation has been entirely stopped, and notwithstanding its obvious disadvantages, may act better than much of the public milk supplies; putrefactive volatile matters attach themselves very freely to organic tissues, and assumably, their absorption into the body is not followed quickly by their elimination from the body; all excretory principles exercise a depressive influence upon the vigor of bodily actions, either as pure depressants, or indirectly, through vagus irritations. Powerful toxins are produced in other foods through putrefactive, bacterial action. Even toxic ferments may be recovered, and if injected in the body, produce symptoms that are common to poisoning by many toxic agents. Immunization of the body against toxications due to bodily infection is largely dependent on the longevity of the producing bacteria; tuberculin in the cow's blood can be transferred to the milk, as well as other blood contaminants in the cow. There are probably non-volatile products formed in milk, and there is no evidence in hand showing that mere ordinary heating will destroy them. In fact, nothing but complete decomposition by heat, or the destruction by digestion, could be expected to remove such possible products. Hence, the need of preventing absolutely their formation. Infants are more sensitive to poisons than adults, who have become addicts; but even adults will show lethal symptoms from poisons produced by bacterial fermentations. Change from an infected and contaminated to a clean milk will produce beneficial results. Can any one in the light of such evidence, to which many other confirming data can be added, question the advisability of treating all milk in such a manner that all possible or real menacing character in it will be eliminated, and which is all practically possible through intelligently applied temperature influence?

What new practices then should be adopted? I think that some day in the distant future all milk will be preserved by holding it in insulated containers at temperatures sufficiently high to inhibit bacterial activity. In some warmer climates, milk

is heated twice a day to preserve it. But in the present undeveloped stage of public intelligence, it will be better to hold on to intensely cold temperatures in controlling ferment action in milk, as well as in butter. One of my latest evolved ideas is a solution of the troubles incident to lack of uniformity in the production of milk throughout the year. This is merely to condense milk surpluses during flush times, and coincidentally drive off volatile contaminants, deeply refrigerate and hold the milk until periods of shortage, and then reconstitute the milk by adding sterile water, and distributing the milk at a temperature only slightly above freezing. This simple idea would greatly improve the character of milk, cut down its cost to the consumer, and eliminate friction between producer and dealer.

There is no butter sold today that is not more or less teeming with living germs of uncertain character, though small quantities of good quality butter may be produced that are *relatively* free from living germs. Our National Bureau of Animal Industry reports that butter that the Bureau has bought on the open market, if injected into guinea pigs, results in their death from tuberculosis in three days. Butter made from pasteurized cream, that is infected to ferment for flavor after the pasteurization of the cream, is *not* pasteurized butter. Most of the butter sold is not even made from pasteurized cream. It may be that some "process" butters are free from live pathogenic and other germs, and have had volatile putrid matters eliminated; but in every case requiring "processing" to make it endurable to the human palate, there remains a suspicion that non-volatile products of putrefaction and of decomposed split proteins are present. There is no evidence in hand that such toxic matters are destroyed by the heat applied in processing butter, condensing milk, or drying milk. In fact, it is practically impossible to get rid of some of those products, and the processed butters have usually to be heavily salted to hide their presence. So far as I know, nothing is being done today to meet and overcome this butter situation.

All that needs to be done to relieve the situation, is to prevent all fermentations in milk through temperature influence, before it is pasteurized, drive off volatile contaminations by heat, pasteurize in a final container that has an efficient closure, and hold the milk in a non-fermentative temperature during its distribution. This presumes reasonable cleanliness in production. Strange as it may appear, this simple program is not carried out anywhere today. Very much the same plan should be effected in treating cream, and butter after it is made. Of course, there are numerous novel details to be applied in carrying out the principles involved, that may be desirable. The reason why such desirable practice is not carried out, is largely because scientists at the top have not perceived the need; the general idea being unwarrantably held that the milk publicly purveyed is good enough.

Probably this state of general ignorance and apparent lack of interest, is because few research workers have given sufficient time and study to collecting and estimating the value of the enormous amount of data and evidence that is attainable. I do not know of any one but myself who has done

the required, laborious work. Heineman, in his 700-page book, published in 1919, has accumulated almost all other knowledge, and gives it in his book, but he also states that there is still further information to be had in regard to this subject matter, open to research investigation. My beliefs in this matter came to me a dozen years ago, before I undertook the research work I did, which was initiated at the suggestion of the late Professor A. Jacobi, who had informed me several years ago that my conclusions as to toxic products in milk were in harmony with his clinical experience, which the medical world knows was vast and successful.

That the character of the public milk supplies is not good enough, is particularly evinced by the fact that so many pediatricists are prescribing dried milks for infant feeding, and in some cases, with apparently fairly good results. But I have a new little granddaughter who was nearly killed from feeding her a dried milk product that was prescribed by an unusually intelligent general medical attendant. A change of doctors was followed by the new-to-me prescription of a thickened gruel of farina and milk boiled for an hour, with an immediate beneficial effect. The trouble with dried milk is, that the milk is subjected to a very high heat in its dehydration, which through albuminous coagulation becomes more difficult of digestion, especially the larger particles that must pass undigested into the intestine and there set up irritation mechanically and from putrefactive fermentation. Furthermore, butter fat in dried *whole* milk quickly undergoes rancid decomposition, while a reasonable amount of butter in the food of infants is a harmless but concentrated source of constitutional force, and contains the mysterious growth principle of recent discovery. It is true that sugar may be sometimes used instead of fat as a force creator; but it is also true that germs do not thrive in pure butter fat that is not associated with protein principles of milk, and that sugar in the intestine is an excellent food for acid-forming germs, and may be difficult of disposal when absorbed into the blood.

All of the present existing troubles due to an inadequately abundant supply of milk of sufficient high character can be easily eliminated in the simplest manner through the influence of temperature intelligently applied; but I have not been able to transfer that seemingly elementary knowledge through literature alone, to the minds of most of the advanced students of the milk problem; probably because the minds of such individuals are so strongly and variously impressed with many preconceptions and personal conclusions that they have little or no interest in investigating new ideas in this connection. I have not yet solved the problem as to how I can personally get in touch with such individuals in a widely spread territory, especially in the United States, and to arrest and hold their attention long enough to displace their old impressions with those that are newer and of more value. A year or more ago, I asked a Humanitarian Foundation as a disinterested body to appoint and pay a commission of experts, to whom I could personally present my conclusions and supporting evidence, and explain the numerous details of the plan I have evolved, whose findings, when published, would be

generally accepted. So far my appeal has not been granted, on the ground that my plan includes the basic feature of making the money that is absolutely necessary to be expended in securing a preliminary public education, that would dominate the action of Health Boards, and of those engaged in the milk and butter trades. I hold that this was an unwarranted rejection on the part of a humanitarian agency working for the general good. There can be no advance practice in this connection that is not commercialized. The certified milk movement necessitated the investment of large amounts of capital, and because of those and other invested interests, further advance by the "certified" interests and on the part of other interests engaged in the milk and butter trades, is prevented.

In the meantime, if I stick to ineffective work, my seed-sowing may proliferate and influence in time this world of ours that is ignorant in so many matters. One confrère thinks that this matter should be left to an aroused conscience on the part of dealers. He does not say who is to arouse the conscience. Furthermore, individual selfishness is the outgrowth of the instinct of self-preservation that exists in all animal life. Milk dealers are not in business because of their health or for humanitarian purposes. They must be prodded up to do their duty through the action of health boards, or through the domination of self-protecting consumers, which in either case involves educating the public, with a preliminary interest and study on the part of scientists. Hence, these lines, which urge a general recognition of the fact that all of the present uncertainties, objectionable certainties, and menacing possibilities and probabilities, can be eliminated through intelligent application of temperature influences in a manner not now applied.

94 PROSPECT STREET.

MALFORMATIONS OF THE ANUS.

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IMPERFORATE anus is one of those conditions that is only occasionally seen, but if complete it must be promptly and fully appreciated and quickly remedied or we lose the baby. The frequency of its occurrence varies with different statisticians. Moreau saw four cases in over forty years' experience in the maternity hospital at Paris; Couty in Havre saw three cases in 3,500 confinements, while Zohre in Vienna saw but two in 50,000 maternities (Tuttle).

The embryonic intestine is developed from the hypoplast and mesoblast. It consists of the foregut in the head fold, the midgut in the body, and the hindgut or rudimentary rectum which at first ends blindly. The hypoblast forms the mucous membrane while the mesoblast forms the muscular, peritoneal, and glandular structures. The blind end of the hindgut, the cloaca, receives through the allantois the secretions of both urinary and digestive tracts. Later the cloaca is divided into two parts, the anterior and larger part becoming the genital and urinary organs, the posterior portion being the enteron or rudimentary rectum which is still

closed. In normal development this separation is completed by the twelfth week of gestation. Imperfection of this septum causes many of the abnormalities of the rectum.

The anal canal forms about the fourth week by an involution of the epiblast which is called the proctodeum which compresses the outer and inner layers of the mesoblast until they are absorbed, and the hindgut and the proctodeum thus meet. The absorption of this septum fuses the rectum and anus. Sometimes this involution of the epiblast does not occur and there is no anus or it fails to connect with the rectum.

This fusion of the anal and rectal canals occurs on the anterior portion of the hindgut and thus leaves a cul-de-sac which is later absorbed, leaving the coccygeal gland or gland of Luschka, which remains in adult life. Imperfect absorption of the cul-de-sac leaves a congenital posterior rectoceles. It is also from this posterior cul-de-sac that dermoid cysts about the coccyx develop.

Many minor malformations of the anus go unobserved until later life, if found at all. The rectum and the anus are developed from different layers of the blastoderm and have different blood supplies. Arrest of development of one, therefore, is not necessarily associated with malformation of the other. Malformations of the anus (meaning the whole anal canal) are divided into:

1. Entire absence of the anus (failure of the proctodeum to invaginate).
2. Abnormal narrowing of the anus.
3. Occlusion of the anus: (a) Partial. (b) Complete.
4. Abnormal opening of the anus upon the skin.
5. Opening of the anus into vulva, perineum, or scrotum.

Entire Absence of the Anus.—Entire absence of all external evidence of the anus is very rare and is promptly noticed by the accoucher, but when the anus is imperfectly developed the defect may be easily overlooked. Sometimes only a few signs mark the location, as a depression or protrusion of the skin at this point, discoloration, or the peculiar puckering rugæ. Very rarely the raphe extends from the scrotum to the coccyx without a break. The presence or absence of skin markings of the anus, however, bear no relation to the point of termination of the rectum above. In fact, there is no way of determining beforehand which case can best be reached through the abdomen, and therefore all must be subjected to a careful perineal dissection. When the anus is occluded the rectum may terminate anywhere above the skin or open into some other viscus.

Very frequently we find associated with rectal malformations other abnormalities of the pelvis and genito-urinary organs, *i.e.* narrow pelvis, atrophy of the vagina, extrophy of the bladder, or hypospadias.

The *diagnosis* is simple at times and again very difficult. Where there is no trace of an anal opening the condition is at once recognized and, even if not, the failure to void meconium must attract attention by even the most careless nurse. The child soon becomes restless and constantly strains as if at stool. The abdomen distends and is tense, the skin is cyanosed, and in a couple of days the child

vomits its food and feces. In other words we have the picture of acute intestinal obstruction.

Abnormal Narrowing of the Anus.—Sometimes the anal canal is patent throughout and the anus may appear normal on the inspection, but the canal will be found constricted in some portion between the rectum and anal opening (a distance of one-half to one inch). This narrowing may be annular (diaphragm), a few fibers extending across the canal, or it may be lengthwise and extend the full last inch or more of the bowel. Such a malformation differs from the strictures of the rectum and anus that occur later in life, the result of inflammation or disease, in that there is no scar tissue. Connective tissue hypertrophy may be added later because of the trauma caused by the feces being driven through the narrow passage. Many individuals go through life with a partial occlusion of the anal canal and complain of chronic constipation, the real conditions being never discovered.

The *diagnosis* of the condition is much more difficult than the preceding, the total occlusion, because liquid feces and gas have exit and it is only later, when the feces are formed, that any disturbance is noted. The diagnosis is made by seeing the size of the fecal mass voided and by digital examination. Serremone, quoted by Tuttle, says that these people both in childhood and adult life are subject to anal fissures. It must, however, be remembered that fissures in infancy are frequently syphilitic.

Membranous Occlusion of the Anus.—This consists of a diaphragm across the anal canal. If at the outside of the anus, it will consist of the skin and appear as a continuation of the raphe. When above the anus, it is composed of mucous membrane or connective tissue. If the obstruction is only partial, it will appear as a crescentic band and the channel left may vary considerably in size. This partial occlusion is frequently met.

Complete obstruction is rare and of course demands immediate attention. When at the anus, the diaphragm resembles the hymen and is composed of fibrous or mucocutaneous tissue. It is thin and flexible. If the rectum is normal above, this membrane will bulge with meconium.

Opening of the Anus at Some Abnormal Point in the Perineum.—This is usually an abnormal opening of the rectum, although there is no other anus present. This abnormal orifice may be anywhere on the perineum, buttock, or to one side of the sacrum.

30 NORTH MICHIGAN AVENUE

A CONCEPT OF X-RAY PATHOLOGY.

X. DISLOCATIONS.

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DISLOCATIONS may be defined as the complete displacement of articular or other surfaces that comprise a joint. When the displacement is only partial, some of the joint surfaces still remain in normal apposition, the condition is called a subluxation. A dislocation may be open or closed; open, when the joint cavity is torn through and communicates with

the outside air. It is a closed dislocation when no outward communication occurs. Dislocations may be accompanied by pathological complications such as local injuries of the bones, vessels, nerves, viscera and soft parts. Symptoms and signs of dislocation are not separately distinctive, but are very closely interwoven. The x-ray is useful in distinguishing between dislocations and conditions which affect joints, more particularly the arthropathies. Tabes is an especial stumbling block.

Deformity in most dislocations is apparent and together with the patient's position is sometimes diagnostic; but the x-ray is necessary to establish either the presence or absence of concomitant fracture.

Dislocation of the Lower Jaw.—These form about two per cent. of the clinical observations though few are referred to the roentgenologist. They are practically unknown in infants and are extremely rare in the older ages. Luxation commonly is forward, though it may be backward or outward. The most common form is forward bilateral dislocation. It is generally accompanied by fracture of the mandible. Dislocations in directions other than forward, that is, backward, upward, inward and outward, are quite rare though readily recognized on the x-ray plate.

Dislocations of the Clavicle.—Either the sternal end of the clavicle may be dislocated forward, upward, inward or inward and backward; or the acromial end may show complete or incomplete dislocation which may be supra-acromial, subacromial or subcoracoid; or both ends of the clavicle may be dislocated at the same time.

In studying the sternoclavicular arthroidal articulation the x-rayist must be exceptionally careful of the posturing of the patient in order not to confuse the distorted projection of the sternal end of the clavicle onto or away from the sternalmanubrium. Presternal dislocations are the most common. The condition may be complete or merely a subluxation. When subluxed the bone is partly raised out of the sternoclavicular joint, the edge of its cartilage impinging against the sternum.

Upward dislocation is rare and is better detected by the x-ray than by the clinical examination.

Backward dislocations, especially backward and inward, are the rarest forms of inner-end dislocation. The condition is readily recognized by the x-ray and also by clinical methods. In three of eleven cases of backward dislocation emphysema was elicited by the x-ray, apparently incident to lung puncture and fracture of the ribs.

The acromioclavicular articulation is an arthroidal joint formed between the acromial extremity of the clavicle and the acromial process of the scapula. It is surrounded by the capsular ligament and is strengthened by the superior and inferior acromioclavicular ligaments and articular disks of cartilage and coracoclavicular ligament. The coracoclavicular ligament does not enter into the joint proper; but it is exceptionally important in acromial dislocations of the clavicle. The articulation slants and presents a flat surface, the clavicle lying on a level higher than the acromion. The normal separation in the acromioclavicular joint is equivalent to at least one centimeter. The joint may be completely or incompletely dislocated. When it is incomplete it is significant that the coracoclavicular ligament is intact

through the capsular ligament and perhaps the acromioclavicular ligament may be torn. When dislocation is complete the normal centimeter displacement is exaggerated. In x-raying the acromioclavicular joint to decide the presence or absence of dislocation it is exceptionally important that the joint be placed on the plate as nearly flat as anatomical conformation will allow, and that the central ray strikes the joint very nearly perpendicularly. If this is not done distortion may be produced and misinterpreted for dislocation.

Acromial end dislocations may be supra-acromial or upward, subacromial and subcoracoid. Of these, upward dislocation is the most common. For the x-ray detection of upward acromial end dislocation the patient is best posed in the upright position, both arms hanging freely at the sides. The exposure is made dorsoventrally. The plate is viewed with particular reference to the relative height of both clavicular acromial ends, usually there being great displacement upward on the side showing the dislocation. When the displacement is great the acromion will be overridden by the clavicle. Subacromial dislocation, though rare, is readily recognized by the downward and somewhat inward pointing of the acromial end of the clavicle. Subcoracoid dislocation is an extreme rarity and needs little comment.

Double dislocation of the clavicle and total dislocation appear to be confusing terms. It would seem that double dislocation should be used to describe that occurring in symmetrical joints only; while total dislocation might better be reserved for the simultaneous dislocation of both ends of the clavicle. Total dislocation is more readily detected than double dislocation by comparison of the injured with the uninjured side.

Shoulder Dislocations.—Shoulder dislocations may present four forms; anterior, posterior, downward and upward. Each form may be named in accordance with the degree of displacement as follows: (Speed)

1. Anterior dislocations.
 - (a) Subcoracoid complex—common form.
 - (b) Subcoracoid incomplete (*subluxation*).
 - (c) Intracoracoid.
 - (d) Subclavicular.
2. Posterior dislocations.
 - (a) Subacromial.
 - (b) Subspinous (scapular spine).
3. Downward dislocations.
 - (a) Subglenoid.
 - (b) Erecta.
4. Upward dislocations.

(a) Supraglenoid.	} Both very rare and accompanied by fracture.
(b) Supracoracoid.	

X-ray examination of the shoulder joint should be stereoscopic in order to eliminate the possibility of error in interpreting the type of dislocation. It is well, too, to ray the companion shoulder for comparison; although in this the roentgenologist must exercise utmost caution in obtaining as nearly identical posture of both shoulders as skill will permit in order to eliminate the exaggeration of anatomical displacement incident to the distortion of malposture.

Subcoracoid dislocation is the most common at the shoulder. It is unfortunate that the serious complications sometimes accompanying subcoracoid dislocation, including capsular tears, periosteal strip-

ping or splitting off of the glenoid cartilage can not at the time the injury is sustained be revealed with any precision by the x-ray. Detached tuberosities are readily apperceived. When the greater tuberosity is separated the bone formation may remain appearing in position owing to the attachment of periosteal shreds, or it may be greatly retracted and take the position high up behind the acromion. Blood vessels and nerves may be injured. The x-ray is useful in differentiating between cases of fracture of the anatomical and surgical neck of the humerus and dislocation. It is difficult clinically to diagnose a double condition of dislocation and fracture; and, unfortunately in some cases the x-ray is equally uncertain unless a most careful stereoscopic scrutiny is made.

Elbow Dislocation.—In studying the pathology of dislocations at the elbow it is essential to recall that the external condyle of the humerus articulates with the head of the radius by means of the capitellum and that the elbows of the trochlea, together with the aid of the lateral ligaments, guard and direct the movements between the ulna and the humerus. Clinically, the points of the external and internal condyle and olecranon assume practically a straight line with the arm in full extension; and in antero-posterior view of the fully extended arm its straight line can also be traced on the x-ray plate. If the swelling that may sometimes accompany a dislocation (or fracture) be so great as to impede the examination for the alignment of condylar and olecranon points, the x-ray may be used instead of palpation.

There are three general classes of elbow dislocation commonly met: those in which both bones (radius and ulna) are dislocated backward, laterally, forward, or divergent; dislocations in which the radius alone is misaligned; and, dislocations affecting only the ulna.

Backward dislocation of both ulna and radius is the frequent condition. The x-ray is immediately diagnostic and in addition may demonstrate certain complications, particularly fracture, that oftentimes accompany elbow luxation. When injury of the condyles accompanies backward dislocation of the elbow it is practically clinically impossible to make definitely certain of the complication; but the x-ray at once reveals the complicating fracture. The remaining types of both bone dislocation are readily recognized, though less frequently occurring.

Dislocation of the radius alone may be forward, backward or outward. Dislocations of the ulna are exceptionally uncommon and may be backward or forward. In the x-ray elicitation of these dislocations both elbows should be studied and if necessary stereoscopic examination should be made.

Dislocations of the Lower End of the Ulna.—Dislocations of the lower end of the ulna may be backward or forward. In comparison with the number of wrist injuries noted concomitant dislocation of the ulna is rare. It affects children more often than adults. The forward dislocations are even rarer than the backward. X-ray interest in these dislocations lies in detecting the possibility of an accompanying or complicating fracture.

Madelung's deformity, a progressive curvature of the radius, probably of rachitic origin, may be confused for a traumatic deformity of the wrist. It

is interesting to note that in Madelung's deformity the "law of multiple variations" is especially accentuated in regard to the carpi. The significance seems to lie in the fact that Madelung's deformity is associated with an imperfection of the joint cartilages and carpal development.

Carpal dislocations are readily observed. A convenient classification for dislocations of the hand and wrist is that which groups under (1) dislocations in the radial carpal joint; (2) dislocations in the intercarpal joint between the two rows of carpal bones; and (3) dislocations in the carpometacarpal joint.

Metacarpophalangeal dislocations of the fingers are readily recognized and require little review.

Dislocations of the Hip.—A discussion of Shenton's line has already been advanced. It is particularly in the question of hip dislocations that Shenton's line offers inestimable x-ray aid. Hip dislocations may be posterior or anterior and should be studied through the use of stereoscopic plates. In addition, there should also be used one large, plain plate in order to obtain a gross comparison of both hips.

Dislocations of the Patella.—These conditions are as interesting as they are rare. They may be classified as acute when they are divided with reference to the position of rest assumed by the patella, or chronic or recurrent when they may be redivided into congenital and other forms. Acute dislocation of the patella is generally accompanied by swelling sometimes due to hemorrhage from the capsule which fills the joint. The dislocation may be confused with fracture or other injuries to the knee joint; but the x-ray usually indicates the fundamental pathology. Dislocation of the knee remains an uncommon observation by reason of the unusual stability of the joint. The x-ray interest, aside from the rarity of the condition, rests with the possible injury to the vessels that pass through the popliteal space.

In a properly posed joint the popliteal space may be demonstrated with the suffusion of blood made plainly evident in addition to the anatomical separation of the tibia and femur.

The semilunar cartilages have elsewhere been discussed. The x-ray, contrary to general opinion, may furnish a very satisfactory aid. It is true that the cartilaginous disks rarely cause a distinct shadow in their normal condition; but in dislocations, owing to the continued unnatural irritation that is thrust on these bones, calcific infiltration is promoted and they may pass from radiopaque to radiolucent; so that with properly controlled technique it is sometimes possible definitely to indicate the abnormal position of these bones. In addition, the x-ray investigation may aid in differentiation by exposing other lesions of foreign bodies and fractures of tibial spine and other portions of the bones.

Ankle and Foot Dislocations.—True ankle dislocations are uncommon. There may be forward or backward, or inward and outward dislocation of the tibioastragalar joint. Dislocations of the great toe, when pronounced, are readily detected. In hallux valgus the position of the tarsal phalanges may be such as to suggest dislocation; so that in this condition the x-rayist must be careful not to express an erroneous opinion.

Medicolegal Notes.

County Board May Employ Physician to Examine Patients During Smallpox Epidemic, and Is Liable for His Fees.—In an action against a county in Nebraska on an alleged contract made between the county and the plaintiff, a physician, it appeared that the plaintiff was requested, at the instance of the board of health, to diagnose and examine the ailments of a number of persons, residents of the county, during a smallpox epidemic. There was evidence tending to show that the physician on the board of health was unable to diagnose the disease and called it "Cuban itch." No quarantine had been established, and many persons afflicted with the disease walked about the streets and in public, so that the epidemic got well under way before it was discovered what the ailment was. The plaintiff undertook the work, in this emergency, at the instance of the county board of health. Each of the specific examinations was made at the request of the board. There was evidence also that the chairman of the board of county commissioners requested that the county board of health take this action. The plaintiff made extended trips over the county, examining cases, so that quarantine might be established. When he made these examinations he also instructed the persons afflicted how to care for themselves and, in some cases, prescribed for them. These first trips were the only ones charged against the county. When his services were completed he filed a claim. The claim was disallowed by the board of county commissioners and he appealed to the district court, where the matter was tried without a jury and judgment was rendered in his favor for the full amount of the claim. But the county contended that the individuals receiving the services should be required to pay for them, and not the county, since these people, with one exception, were not paupers and not a county charge. The Nebraska Supreme Court, affirming the decision of the circuit court so far as concerned services rendered within the jurisdiction of the county board, found authority for holding the county liable in the Statute, sections 2737 and 2738, Rev. St. 1913. By these sections the county board is directed to make and enforce regulations to prevent the introduction and spread of contagious diseases within the county, and, to that end, to establish a county board of health, which is given jurisdiction over the matter throughout the county, except in incorporated cities and villages, where the local board fails to act with sufficient promptitude and efficiency in any emergency, it is expressly provided that the State board of health shall step in and enforce its own regulations in that county, and that the necessary expenses so incurred shall be borne by the county. It would seem to follow that when the county itself acts in an emergency it was not intended that it be limited in its powers more than the State board, and that the necessary expenses incurred should, in that event, also be chargeable to the county. Though it is not expressly provided that when the county acts in providing regulations to prevent the spread of disease the necessary expenses so incurred shall be a charge against the county, that liability must necessarily be inferred. If that were not true, then the county would, by law, be required to perform a duty and at the same time be prevented from using the means necessary to its performance. The county board could not quarantine without learning, through the services of a physician, whom to quarantine, and such services of a physician could not be procured without pay. The right of the duly constituted county authorities to employ a physician in an emergency of this kind seemed to the court to come clearly within the express authority given to the county to provide and enforce regulations in order to prevent the introduction and spread of contagious diseases, and that the examination and diagnosis necessary for purposes of quarantine of contagious diseases is one of the regulations contemplated and intended to be covered by the statute. When a person performs services of such kind for the county he, of course, ought to be allowed to recover from the county though the individuals examined and quarantined were not paupers nor a county charge.—*Bartlett v. Dahlsten et al.*, Nebraska Supreme Court, 178 N. W. 636.

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THE EFFECTS OF CHRONIC INTESTINAL STASIS.

THE products of digestion and the bacteria and toxins which accompany them are absorbed in the small intestine, cecum, and ascending colon. By the intermediary of the portal vein, they then pass into the liver, which plays in relation to these products, a modifying, antitoxic, and antiseptic part; a certain number of bacteria and toxins are destroyed or transformed into inoffensive substances for the tissue they are to circulate through. They are then eliminated or destroyed without danger to the excretory organs—kidneys, lungs, skin, thyroid—but the overwork put upon these organs finally ends in irritation, inflammation, destruction of the glandular elements, and their functional insufficiency. Thus a portion of the colon bacilli eliminated by the bile infect the biliary tract, hence catarrhal and calculous cholecystitis. The calculi are due to the precipitation of the bile salts which collect around the desquamated epithelial cells. Injection of the embryonal radicles around the canaliculi, an embryonal tissue which may change into fibrous tissue, explains the origin of biliary cirrhosis without either alcohol or malaria playing any part in the process. This chronic irritation of the liver and gall-bladder may end in cancer of these viscera in susceptible individuals, since cancer, here as elsewhere, is prone to develop in chronically irritated organs.

Like the liver, the thyroid transforms a portion of the toxins coming from the intestine and if the gland is overworked, irritated, or inflamed as a result of chronic stercoræmia, its secretions either diminish or become exaggerated in quantity, hence hypo- or hyperthyroidism. Lane assures us that chronic stercoræmia exercises a marked influence on the pathology of the thyroid and he considers that the goiter of Basedow's disease, as well as parenchymatous goiters are frequently the consequence of chronic intestinal stasis. He has shown that colectomy or ileosigmoidostomy modifies the evolution of exophthalmic goiter. This opinion has been corroborated experimentally by MacCarrison. The endocrine glands—suprarenals, hypophysis—have an action on the intestine; on their side, the intestinal

toxins exercise an action on the parenchyma of these glands whose function thus becomes excited or is rendered insufficient by chronic stercoræmia. The skin is pigmented in the flexor folds of the limbs, around the base of the neck, eyelids, perineum, etc.

Chronic stercoræmia may produce chronic mastitis and cystic disease of the breast, according to Pauchet and others, these processes in turn favoring the development of cancer, and this observer states that he has found these women with chronic mastitis or adenoma of the breast suffered from chronic intestinal stasis. Therefore in surgical affections of the female breast it is well to radioscope the digestive tract. It would appear that chronic pancreatitis is frequent in chronic intestinal stasis and often coincides with angiocholitis, and simple or calculous cholecystitis. This chronic pancreatic process, readily recognized at the time of operation on the digestive tract, may at length lead to cancer of this gland. It is probable that carcinoma of the head of the pancreas is, in most cases, preceded by a period of pancreatitis. The skin eliminates sweat overlaid with intestinal toxins, with the result that it becomes thickened in certain areas and as hard as leather. The posterior aspect of the forearms especially is covered with acne, the hair grows in excess on the limbs, and on the contrary falls out on the scalp. The sweat of the axillæ is offensive. There is no question but that dysmenorrhea, amenorrhea, and sterility are common in women with chronic intestinal stasis. Agnèsia is the rule, especially in brunettes. It is difficult to say whether this is due to a direct action of the toxins on the ovaries or to the action of these toxins on the thyroid whose physiological relations with the genital system are so intimate. What is clear is the disturbing action of chronic intestinal stasis on the sexual life of women.

Do the intestinal toxins act directly on the nerves, producing neuralgia, psychic depression, fatigue, or is this general asthenia the consequence of the intestinal stasis on the thyroid, suprarenals, and other endocrine glands? It is possible that both modes of action exist, but what is certain is that treatment of the stasis will cause the patient to regain his vitality.

INFECTION CONVEYED BY MANICURES.

WE are unable to recall any published cases of infection at the hands of manicures in this country, although the aseptic precautions carried out by the manicure of to-day rather suggest that infection following the act was formerly common enough. But Doctor Körbl of Vienna (*Wiener klinische Wochenschrift*, Feb. 5, 1920, xxxiii., 6) has recently made notes of thirty-two cases of the type that may at times constitute a menace to life. As his practice is not a very large one, he thinks that so many cases must argue for the great frequency of such infection, despite the precautions which the manicure is supposed to take. The material was as follows: Two cases of simple felon which readily yielded to treatment; four cases of

paraungual felon which required somewhat longer to heal but were not dangerous; two cases of subungual felon which naturally were long in healing; seven cases of felon involving the tendons, requiring an average of five weeks for healing; five cases of bone felon in which three ended in necrosis of the phalanx with tedious healing, and four cases of joint felon with more or less ankylosis and the loss of one finger. In addition there were two cases of phlegmon of the hand with general septic phenomena, one case of phlegmon of the arm ending in recovery, another case of the same requiring amputation of the forearm, one case of erysipeloid and three of general erysipelas. Naturally in all of these cases the infection began as a phlegmon. This brief summary gives an imperfect idea of the actual amount of suffering and disability, temporary and permanent, which resulted from these infections. In the absence of prompt and timely treatment the outcome would have been far worse. The ordinary felon does not pursue so serious a course and the material was decidedly atypical.

The author asks why this unusual course came to pass and finds the answer ready—it results from pushing down the delicate membrane at the base of the nail with the orange stick and from the attempts to trim it with scissors. In this way a pocket is furnished for the reception of infected matter. Numerous very small punctures are made through the nail and into these are rubbed the pastes and powders of the craft, during which considerable force is used. Deep infection is therefore favored and this accounts for the subungual and tendinous cases. The infection was so virulent that the author made bacteriological studies and found that the staphylococcus was seldom present, but instead a mixture of streptococci with anaerobes including the *B. coli*. There were several cases of pure streptococcus infection, not counting the cases of erysipelas. Primary and secondary infection may be isolated, of which the first is directly chargeable to the manicure. She sometimes passes an infection along from person to person, evidently through imperfectly sterilized instruments. There was a small series of such transmissions and four were simultaneously infected by the same tools. This phenomenon has also been seen in self-manicuring. But since alcohol is freely used in sterilizing the instruments, the author examined the nail ointment of one operator and found in it a pure culture of the streptococcus.

THE TREATMENT OF EPILEPSY BY BORON MEDICATION.

MARIE, Crouzon and Bouttier have methodically studied the results obtained in the treatment of epilepsy with the salts of boron, which suggest the advisability of reviving this form of treatment. This medication has been found by these observers to be quite as effective as the classical bromide treatment from the viewpoint of decreasing the number of seizures, as well as their intensity. Among the

salts of boron they particularly recommend as giving the best results, sodium borate and potassium tartrate—cream of tartar—which until recently has had the reputation of being a purgative drug. They exhibited it in doses of three grams in a watery solution in twenty-four hours.

The decrease in the number and violence of the seizures is already notable after eight or ten days' treatment and continues to become more and more accentuated. Thus, in the more serious cases treated by these observers, the number of seizures was reduced to about thirty-three per cent. during the first three months of treatment, and ultimately completely disappeared with continued medication.

The great advantage of sodium borate and potassium tartrate in epilepsy appears to the absence of all the untoward effects which are so common in bromide medication. There is no mental depression, and there are no gastrointestinal disturbances or cutaneous eruptions, such as acne. Even when this salt is exhibited for months, the patients do not complain of any distress, and for this reason, they willingly continue the treatment.

Marie and his collaborators do not, unfortunately, give any data in respect to the *modus operandi* of borax and cream of tartar, they merely affirm that the action is different from that of the bromides. Now, it is known that the latter salts act especially by decreasing the reactions of the central nervous system and hence results the weakening or disappearance of the tendon, cutaneomucous, and even the pupil reflexes. Nothing like this is to be noted during treatment with the boron salts. And these observers add that the doses of boron or bromine contained in three grams of the salt are very different. Three grams of borax and potassium tartrate contains fifteen centigrams of boron, while the amount of bromine in three grams of potassium bromide is at least two grams.

Boron medication also offers the advantage of being easily given without any trouble to children and elderly subjects, while the epilepsy is quite as favorably influenced in them as in adults.

BASELESS CRITICISM OF THE U. S. P. H. S. HOSPITAL AT FOX HILLS, STATEN ISLAND.

RECENTLY, for some unknown reason, the *Evening Post* of this city has published a number of attacks on the administration of this hospital, on the resident staff, and particularly on Dr. J. C. Cobb, the medical director. These attacks have been so persistent as to cause one to wonder what their origin might be, and the members of the consulting staff, Drs. Robert Kingman, S. Adolphus Knopf, Alexander Lambert, and Arthur McGugan, have now issued a statement declaring them to be malicious and unjust and without foundation in fact. These gentlemen assert that during their visits to the hospital and on interrogating the patients there, they have not heard a single complaint justifying such statements as lack of surgical or medical attention, insufficient or bad food, cruel or harsh treatment on the part of orderlies, guards, nurses, or physicians. The sanitary conditions are such as are found in

all well equipped and well managed military hospitals. In regard to the present condition of the Hospital, it should be borne in mind that Fox Hills was constructed in 90 days by the Army as a temporary evacuation hospital, and when a time was appointed for giving it up no attempt was made to leave the place in a general state of repair. There were about 3,000 panes of glass broken when the U. S. Public Health Service took possession of the hospital, and it has cost close on to \$5,000 merely to replace the broken beaver board in the walls and ceilings. In spite of the lack of repairs, the Public Health Service had no alternative but to take the plant as an emergency hospital pending the construction of a permanent hospital in the metropolitan zone, for which Congress has now made a suitable appropriation. In reference to the complaint of an insufficient staff of nurses and doctors, the physicians mentioned assert that there has never been a time since the hospital became a part of the U. S. Public Health Service that a ward was without the supervision of a trained nurse, regardless of the great and unexpected influx of patients, and this notwithstanding the shortage of nurses all over the United States, not only in Army, Navy, and Public Health Service hospitals, but in civilian hospitals as well. The nurses at Fox Hills are well paid, receiving \$80 to \$85 per month, including board, laundry, etc., and those in the service are satisfied and contented. There are always 40 to 45 resident physicians in attendance. In view of the fact that the 1,200 ex-service men are no longer under military discipline, it is inevitable that there will occasionally be disturbance caused by men coming in late, and even once in a while coming in intoxicated. Such matters are usually satisfactorily settled by the morale officer. The assertion published in the *Evening Post*, that Dr. Cobb had said the patients at Fox Hills are drunkards, thieves, and dope fiends, is characterized in the statement of the consulting staff as willfully false. Other statements criticising the treatment of shell-shock and other nervous cases, venereal cases, and the tuberculous are also shown to be without any foundation in fact.

A EUNUCH ON TESTICULAR GRAFTING.

REGNAULT reproduces in *La Presse Médicale* of February 2, 1921, xxix, 10, a letter from a prominent eunuch of Constantinople in which the latter mentions the work of Regnault and Hikmette, published in 1901 in the transactions of the Anthropological Society on "The Eunuchs of Constantinople." After a word of praise for this work, the correspondent refers to the recent book entitled "Moyens de relever l'énergie vitale et de prolonger la vie." This latest Parisian novelty had been recommended to him by his book seller. Having read it he pronounces it a mixture of fact and fiction, in which the errors predominate over the truth. The similarity between the Brown-Séquard doctrine and the present one is startling. The theory is one thing and the practical application another. Some who injected saline solution as testicular extract got the same result as when the real thing was injected. In other words suggestion plays a rôle. The eunuch admits that by the newer implantation method

castrates have acquired beards and a deepening of the voice—in fact all of the secondary sexual characters of the male have been made to appear or return; but it is a far cry from these changes to increase of vital energy and longevity. The results of grafting on the sexuality are often short-lived. On the other hand does the castrate really lose energy? How about the draught horse and the ox who pull heavy loads all day? How about the energy of the worker bee, which has no sexuality? In regard to eunuchs they are not all soft and effeminate; often they are men of great executive ability. In old Byzantium the executive and administrative offices, including military, the diplomatic positions, etc., were held by eunuchs. Absence of sexuality allows them to concentrate on their work and they are proof against feminine intrigue, while at the same time having an intuitive knowledge of the feminine mind. As for longevity, the correspondent said he could show the new longevity experts many eunuchs over 80 years of age in his home city.

News of the Week.

Dose-fixing by Layman.—Dr. Donald McCaskey of this city, who has been cited by Federal Prohibition Director Charles R. O'Connor to appear on April 7 and show cause why his permit to prescribe liquors should not be revoked and canceled, has announced his intention of carrying the contest to the highest court in the event of adverse action on the part of the judges in Director O'Connor's office. Dr. McCaskey will base his contest on the ground that the limiting of the amount of whiskey a physician might prescribe to one pint every ten days is not authorized by the Eighteenth Amendment. Whether one regards the prohibition amendment with favor or otherwise is aside the question, for it is intolerable that a lay person should presume to limit the dosage of a drug which the physician may find indicated in any particular case.

France Makes Physical Training Compulsory.—The French Chamber of Deputies unanimously adopted a bill on March 22, making physical training compulsory for young people of both sexes. Boys over sixteen years of age must continue physical training, consisting of gymnastics, running, tennis, and other athletics, according to choice, until they are incorporated into the army or navy. Girls in the primary and secondary tuition grades must also adopt physical culture, according to special rules to be issued by the Ministry of Public Instruction.

Influenza Hits Rhine Army.—A severe type of epidemic influenza has broken out among soldiers belonging to the United States occupational army stationed near Coblenz. The Second Battalion of the Eighth Infantry has been quarantined by the medical authorities. Forty-five cases of the disease have been reported.

Medical Service By Airplane.—The French Government has just built six airplanes for use in the colonies, where the distances that doctors have to travel are enormous and where there are no railroad facilities. The planes carry complete medical and surgical kits, and are constructed like ambulances, so that patients seriously ill or injured may

be conveyed from remote regions to hospitals. Most of these planes will go to the African colonies.

Pneumonic Plague Adds to Famine Horror.

Pneumonic plague has recently made its appearance in twenty villages along the border between the provinces of Chihli and Shantung. The epidemic is being controlled by stopping all traffic through infected areas and the isolation of persons who have been stricken. There was a small outbreak in Shantung, but strict measures were enforced in four villages where the plague appeared which seem to have been effective in averting an epidemic. Chihli is in a famine district, where it is estimated that deaths from famine average from three hundred to one thousand daily.

Smallpox Epidemics in the United States.—A smallpox epidemic is causing considerable excitement in Athens, Ga., and has aroused the people to much concern as to the necessity of having someone directly in charge of the situation. The commissioners of Limestone county, in which Athens is located, have voted \$5,000 for the purpose of employing a regular health officer for the county, provided the city of Athens votes \$2,500 for the same purpose. A number of cases of smallpox in light form have been reported from Geneva, Wis. West New York, lying west of Union Hill, N. J., where eight cases of smallpox were reported during the week ending March 19, reports two additional cases. The New Jersey State Health Department is continuing its campaign to have the people of the community consent to vaccination.

Small Banknotes Carry Millions of Germs.—A demand that the French Government replace small banknotes put in circulation some months ago, and which have reached a stage of dissolution and filth, has led to a laboratory examination of a few of these bills. The laboratory reports that a one franc note carried 236,900,000 germs, and two fifty-centime notes 69,480,000 and 90,880,000 germs, respectively.

Dr. Hubert Work of Pueblo, Colo., president-elect of the American Medical Association, has been appointed by President Harding first assistant postmaster general.

Gifts to New Sydenham Hospital.—The fund for the rebuilding of the Sydenham Hospital on its present site in East 116th Street has been increased by a pledge of \$100,000 from an anonymous donor. A gift of \$25,000 has come from Leon Schinasi. The new hospital is to have one hundred rooms, and will receive patients without regard to race, creed, or color.

Violent Deaths Decrease in New York City.—In his annual report to the Mayor, Dr. Charles Norris, Chief Medical Examiner, shows that there was a decrease last year in the number of violent deaths in the city compared with the totals in 1918 and 1919. The total number of violent deaths in the five boroughs in 1918 was 6,200, of which 1,415 were autopsied; in 1919 the total was 4,709, with 1,462 autopsies; in 1920, the total was 4,519, with 1,688 autopsies. Automobiles and automobile trucks caused 692 deaths, 50 per cent. of these being children under thirteen years of age. More than 50 per cent. of all these accidents were due to carelessness in crossing streets. The number of deaths from wood alcohol decreased from 54 in 1919 to

19 in 1920. Dr. Norris in his report asks that a special judicial clearing house, or homicide court, be founded in connection with cases of death by criminal violence or by casualty or highway accidents.

Vital Statistics in New York State for 1920.—The February *Bulletin* of the New York State Department of Health reviews the records of 1920, which show that there were registered in the entire State of New York 233,016 births and 143,767 deaths, these giving a birth rate of 21.1 and a death rate of 13.0 per 1000 total estimated population. The average death rate for the five-year period 1913-1917 was 14.7. Among the important causes of death, those which show rates above the 1913-1917 average are influenza 59.2, measles 9.9, whooping cough 9.1, cancer 94.6, and automobile accidents 12.6. This death rate from automobile accidents is more than double that of the five years 1913-1917. Among those causes of death which show a decrease in rate below the five year average are infantile paralysis 0.6, lobar pneumonia 80.7, bronchopneumonia 67.8, typhoid fever 3.3, cerebrospinal meningitis 1.8, cerebral hemorrhage 60.5, organic heart disease 203.2, diarrhea and enteritis (under two years) 41.9, cirrhosis of the liver 6.9, acute and chronic Bright's disease 104.9, congenital malformations and debility 63.9, and pulmonary tuberculosis 99.1, these rates being per 100,000 of the population. The infant mortality rate for 1920 is 86.9, a decline of more than 10 per cent. from the five year average. The death rate of 99.1 for pulmonary tuberculosis is 30 per cent. below the five year average.

Seventh Day Adventists Hold Medical Meeting.—Officials and attendants at Seventh Adventist sanatoriums east of the Rocky Mountains held a six-day medical convention at the Washington Sanatorium, in Takoma Park, beginning on March 22. The president of the conference, Elder A. G. Daniels, in his opening address, emphasized the importance of the medical feature of the Seventh Adventist movement and of the relief of physical suffering as a part of their work for the betterment of humanity.

Soldier Hospital Board Appointed.—Secretary of the Treasury Mellon has appointed the following board of medical men to determine the type and location of hospitals to be established to care for disabled ex-service men: Dr. William C. White of Pittsburgh, Dr. Frank S. Billings of Chicago, Dr. Pierce Bailey of New York, and Dr. W. G. Bowman of Pittsburgh.

Dr. William A. Bryan, formerly assistant superintendent of the Danvers State Hospital, has been appointed superintendent of the Worcester (Mass.) State Hospital to succeed the late Dr. Ernest V. Scribner, deceased.

Dr. B. G. Burden has been appointed chief resident physician of the University Hospital, Philadelphia.

Dr. C. B. Hussey of Franklin, Mass., has been elected to the managing board of the Milford Hospital.

Madame Curie Honored.—The National Institute of Social Sciences announces that its gold medal has been awarded to Madame Curie in recognition of her discovery of radium and its subse-

quent benefit to humanity. Nine medals have been awarded since the founding of the institute in 1912. These have been bestowed upon Dr. William C. Gorgas, Dr. Abraham Jacobi, Dr. Michael I. Pupin, Dr. George W. Crile, Dr. William J. Mayo, Dr. William H. Welch, Dr. Alexis Carrel, Herbert Hoover, and Vice-President Calvin Coolidge.

The Norwegian Lutheran Hospital Association, at its annual meeting at Minneapolis, Minn., March 10, 1921, elected the following officers for the ensuing year: *President*, Dr. A. O. Funkalsrud, Fargo, N. D.; *Vice-President*, Dr. E. O. Gjere, Watertown, S. D.; *Secretary*, Miss B. S. Anderson, Austin; *Treasurer*, J. E. Haugen, St. Paul.

To Broaden Scope of Gorgas Institute.—Plans to broaden the scope of the Gorgas Memorial Institute in Panama into a research and teaching institution of international scope are being developed by a provisional board of directors for the United States. Admiral Braisted announces that, in accordance with instructions received from President Porras of Panama, the cooperation of American Medical colleges as well as foreign countries is being enlisted. Permanent headquarters of the American Board of Directors have been established at the Pan American Union building in Washington, D. C. When the preliminary organization is completed, three American physicians will be sent to Panama to put the plans into effect. One medical officer of the Army, one of the Navy, and one of the United States Public Health Service will be stationed first at Santo Tomas Hospital in Panama, where they will begin research work in tropical medicine under the superintendency of the hospital. Later the institute will have its own buildings adjoining the hospital.

Kelly-Butte Has New Hospital.—A new municipal isolation hospital has been erected at Kelly-Butte, Ore., at a cost of \$56,000. The hospital has sixty beds and provides for the care of all contagious diseases except smallpox.

Cancer Increasing in Paris.—Statistics recently made public in Paris show that deaths from cancer have increased from 3,073 in 1910 to 3,619 in 1919, and since that time the death rate from cancer has continued to rise. In view of these facts the Municipal Council of Paris has purchased two grams of radium for 2,500,000 francs, which will be used in fighting the ravages of cancer.

Measles in Greenwich.—Reports from Greenwich, Conn., state that this town is leading all others in the State in point of the number of cases of measles. A total of sixty-six cases are at present under treatment for the disease.

Appeal for Soldiers' Hospital.—Cornelius W. Wickersham, chairman of the American Legion investigating committee which has been holding hearings in New York City in the matter of caring for wounded and disabled soldiers, has written to Governor Miller urging that the State of New York proceed to the erection of a State Military Insane Hospital at Creedmoor. An appropriation of \$3,000,000 was made for the purpose last year by the Legislature. Provision was also made for the Federal Government to reimburse the State in ten annual instalments, but the Secretary of the Treasury under the Wilson administration refused to sign the contract, and a Senate committee later

refused to report favorably upon it. As a consequence the hospital project has not progressed.

Buy Paris Hospital Site.—The Board of Directors of the American Hospital in Paris has bought a site for a new building near the present hospital. Plans for a new hospital building with one hundred beds are being drawn by C. C. Knight, an American architect. The building fund, which now amounts to 3,750,000 francs, will be increased to 7,000,000 francs, and an endowment fund of 4,500,000 will be provided.

Government Plans War on Port Rats.—Surgeon-General Hugh S. Cumming of the United States Public Health Service has appointed a commission headed by Dr. H. J. White to visit New York and Boston for the purpose of studying and reorganizing the quarantine service in these cities. After an investigation recommendations will be submitted to the United States Public Health Service. Special attention will be given to the matter of rat proofing. Other members of the commission are Dr. Glover, Dr. A. J. McLaughlin, and Assistant Sanitary Engineer E. C. Sullivan. The New York City Department of Health will cooperate with the Federal authorities in its war on rats.

Medical Society Elections.—THE LENOIR COUNTY MEDICAL SOCIETY, at its meeting in Kingston, N. C., March 15, 1921, elected the following officers: *President*, Dr. Zebulon V. Mosely; *Vice-President*, Dr. M. L. Carr; *Secretary and Treasurer*, Dr. Charles P. Mangum.

THE UTICA (N. Y.) MEDICAL SOCIETY, at its annual meeting, March 7, 1921, elected the following officers: *President*, Dr. E. R. Evans; *Vice-President*, Dr. D. E. Pugh; *Secretary-Treasurer*, Dr. A. M. Johnson.

THE JACKSON COUNTY MEDICAL SOCIETY, at its meeting in Newport, Ark., March 12, 1921, elected the following officers for the ensuing year: *President*, Dr. O. A. Jamison, Tuckerman; *Vice-President*, Dr. H. O. Walker, Newport; *Secretary and Treasurer*, Dr. Ira H. Erwin.

THE SOUTHWESTERN RURAL MEDICAL ASSOCIATION and the Lafayette Medical Association, at its meeting in Lafayette, La., March 13, 1921, elected the following officers for the ensuing year: *President*, Dr. A. R. Trahan; *Vice-President*, Dr. J. P. Franquez; *Secretary and Treasurer*, Dr. R. D. Voorhies.

THE PANHANDLE MEDICAL SOCIETY, at its meeting in Amarillo, Tex., March 16, 1921, elected the following officers: *President*, Dr. J. D. Hutchinson, Lubbock; *First Vice-President*, Dr. A. H. Lindsay, Amarillo; *Second Vice-President*, Dr. Everett Jones, Wichita Falls; *Secretary*, Dr. J. J. Crume, Amarillo.

THE CARROLL COUNTY (TENN.) MEDICAL SOCIETY, at its meeting in Huntingdon, Tenn., March 11, 1921, elected the following officers: *President*, G. C. Bryant, McMoresville; *Vice-Presidents*, Dr. A. T. Dennison, McKenzie, and Dr. Roy A. Douglas, Huntingdon; *Secretary*, Dr. H. J. Williams, McKenzie.

THE YUKA (CAL.) MEDICAL ASSOCIATION reorganized on March 3 and elected the following officers for the ensuing year: *President*, Dr. Roy Jones; *Secretary-Treasurer*, Dr. Robert Heaney.

Obituary Notes.—Dr. JOSEPH J. FERGUSON, a graduate of the University of Nashville Medical

Department in 1903 died at his home in Greenville, Miss., on March 18, at the age of sixty-three years.

Dr. JOHN H. SPITLER, a graduate of the Medical College of Ohio, Cincinnati, 1879, died on February 21, at the age of sixty-nine years.

Dr. HENRY BENJAMIN WILSON, at one time professor of physiology in the Chattanooga (Tenn.) Medical College, a graduate of Bellevue Hospital Medical College, in 1887, died from heart disease, on February 27, at the age of sixty-four years.

Dr. CHARLES WAAGE, the oldest resident of Pennsburg, Pa., and the oldest alumnus of Jefferson Medical College, died of uremia on March 7 at the age of ninety-three years. Dr. Waage was graduated from Jefferson Medical College in 1849.

Dr. WILBUR A. BUMPS, a graduate of New York University Medical College in 1879, died after a lingering illness at his home in Dexter, Me., on March 11, at the age of sixty-seven years.

Dr. ERNEST LLEWELLYN WRENTMORE of Chagrin Falls, Ohio, a graduate of the Western Reserve University in 1900, died of heart disease on February 23, at the age of forty-seven years.

Dr. DANIEL P. WHITLEY of Albemarle, a graduate of the University of Maryland School of Medicine in 1889, died on March 7 at the age of fifty-five years.

Dr. N. M. PALMER, a graduate of Vanderbilt University, Nashville, Tenn., in 1907, died at his home in Shreveport, La., on March 7, at the age of 41 years.

Dr. HENRY OSBORNE BEATTIE of Pittsburgh, Pa., a graduate of the Royal College of Physicians and Surgeons of Dublin in 1883, died on March 14, at the age of sixty-one years.

Dr. GEORGE H. DAVIS of Upton, Wyo., died of typhoid fever in New Mexico, where he had gone to superintend the construction of hospital of which he was to be superintendent on February 27. He was a graduate of the Sioux City College of Medicine in 1905.

Dr. DAVID M. CURRIER of New Port, N. H., died at his home on March 1 at the age of eighty-one years. He was graduated from the Medical Department of Dartmouth College in 1867.

Dr. JESSE H. HUGHES of Nanticoke, Pa., a graduate of New York University Medical College in 1892, died of pneumonia on March 5.

Dr. B. R. O'CONNOR, a graduate of the Philadelphia University of Medicine and Surgery in 1867, died at his home in Petaluma, Kan., on February 26 at the age of eighty-four years. He formerly practiced medicine in Grenola, Kan.

Dr. JOSEPH CONN of New Orleans, La., a graduate of Tulane University in 1897, died suddenly on March 4 at the age of fifty-one years.

Dr. G. E. MUIR, a graduate of the University of Louisville Medical Department in 1894 died at his home in Pawnee Rock, Kan., on March 12, at the age of fifty-two years.

Dr. ROBERT H. CHASE died suddenly at his home near Wyncote, Pa., on March 13, at the age of seventy-five years. He was graduated from the University of Pennsylvania in 1869. He was formerly connected with the Government Hospital for the Insane at Washington, D. C., and later was superintendent of the State Hospital for the Insane at Norristown, Pa. He was a member of the Amer-

ican Medico-Psychological Association, the Neurological Society of Philadelphia, the Philadelphia Medico-Legal Society, and the Philadelphia Medical Club. He was the author of several books on insanity.

Dr. CHARLES A. ELLIS of Denver, Colo., a graduate of the University of Buffalo Medical Department in 1891, died on March 7, at the age of fifty-three years.

Dr. JOHN M. FULLER, the oldest physician of Uniontown, Pa., died at his residence on March 12, at the age of seventy-seven years. He was a graduate of Jefferson Medical College in 1864.

Dr. G. H. POST of Fithian, Ill., a graduate of the Eclectic Medical College, Cincinnati in 1875, died on March 9.

Dr. HENRY C. CARROLL of Chicago, Ill., retired died at Canandaigua, N. Y., on March 6 at the age of seventy years.

Dr. JULIUS C. EGEGER, assistant chief surgeon of the San Francisco Emergency Hospital, a graduate of Cooper Medical College in 1905, died on March 8 at the age of forty-five years.

Dr. JULIUS SCHOENITH of Detroit, a graduate of the old Michigan Medical College, died of cerebral hemorrhage on March 6 at the age of seventy years.

Dr. HENRY W. A. PACHMANN of Hurlburton, N. Y., a graduate of Bellevue Hospital Medical College in 1894, died suddenly of heart disease on March 5, at the age of fifty-nine years.

Dr. W. E. MORGAN of LaGrange, Ga., a graduate of the Atlanta College of Physicians and Surgeons in 1898, died from pneumonia on March 9, at the age of forty-five years.

Dr. HAYDON ROCHESTER, a graduate of New York University and Bellevue Hospital Medical College in 1902, died in San Francisco, Cal., on March 13, at the age of forty-two years.

Dr. PETER P. VAN VLEET, a graduate of Bellevue Hospital Medical College in 1872, died at his home in Stamford, Conn., on March 12, at the age of seventy-four years.

Dr. JOSEPH TABER JOHNSON of Washington, D. C., and Georgetown, died at his home in Cherrydale, Va., on March 13, at the age of seventy-five years. He was graduated from the Georgetown Medical School in 1867, and became professor of obstetrics in Howard University. He became president of the faculty of Georgetown University Medical School in 1874. He was president of the American Gynecological Society in 1898 and also a president of the Southern Surgical and Gynecological Association.

Dr. E. L. LEONARD, a graduate of the Starling Medical College, Columbus, Ohio, in 1892, died at his home in Fulton, Ohio, on March 7, at the age of fifty-seven years.

Dr. AUGUSTUS W. TURNER, a graduate of the College of Physicians and Surgeons, Boston, died of heart disease in that city, on March 10, at the age of sixty-seven years.

Dr. LUTHER M. HALSEY of Williamstown, N. J., died from uremia on March 22 at the age of sixty-three years. He was a graduate of Jefferson Medical College, Philadelphia, in 1880. He served as president of the New Jersey State Medical Society in 1918, and was also president of the Gloucester County Medical Society.

DR. PETER M. VANDENBERG of Grand Haven, Mich., a graduate of the Michigan Homeopathic Medical College, Lansing, in 1894, died at his home on March 18.

DR. ADELBERT ALLEN JOHN of Oregon, Ill., a graduate of the Northwestern University Medical School, in 1898, died from carcinoma in a Chicago hospital on March 1 at the age of sixty-five years.

DR. REGINALD STONESTREET, a graduate of Vanderbilt University Medical Department, in 1891, died after a long illness at his home in Nashville, on March 18, at the age of fifty-six years.

DR. JOSEPH H. MACDOUGAL of Middletown, Conn., a graduate of the New York Homeopathic Medical College, in 1877, died suddenly of heart disease, on March 21, at the age of sixty-six years.

DR. FLORA L. S. ALDRICH, a graduate of the Minneapolis Hospital Medical College, in 1887, died after a brief illness at her home in Anoka, Minn., on March 19.

DR. WILLIAM A. KOHLMAN of New Orleans, a graduate of the University of Würzburg, Germany, in 1891, died of heart disease, on March 22, at the age of fifty-six years.

DR. HERBERT J. KNAPP of Brooklyn, N. Y., a graduate of the New York Homeopathic Medical College in 1884, died in a local hospital, on March 25, at the age of fifty-six years.

Correspondence.

THE PROFESSIONAL GUILD OF KINGS AND QUEENS COUNTIES.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—I have read with great interest the MEDICAL RECORD of March 12, with especial reference to the various notes on medico-legislative matters, as well as the editorial supporting the Lord Bill and the communication of Dr. John J. A. O'Reilly, a distinguished advocate of sane legislation in medical matters.

Specifically, the Burlingame bill was mentioned as having had a hearing with but very little opposition. The facts are that the Burlingame bill was designed to restore to the working man of this State *free choice of doctor and druggist* and that the opponents of the measure outnumbered the proponents in the ratio of 3 to 1. The encouraging phase of the hearing was that the State Federation of Labor endorsed and, through its representative, Mr. O'Hanlon, supported the bill. Insurance carriers and corporate interests opposed it as well as the State Industrial Commission through Commissioner Sayer, who stated that those active in behalf of the measure were undoubtedly "lodge doctors and ambulance chasing doctors."

The truth is that the Professional Guild of Kings and Queens Counties introduced the bill, and the Guild is not an organization of "shysters" but one of doctors, druggists and dentists, endeavoring so far as they can not alone to prevent further oppressive and restrictive legislation but to undo the wrongs of the past. The Guild will introduce the bill again at the next session and hopes to enlist the cooperation of all the scientific societies in the State, together with other lay organizations.

The Lord Bill, in the support of which your editorial displayed a keen insight into the whole narcotic question, was also introduced by the Guild. The mass meeting at which the Deputy Commissioner of the State Narcotic Commission was present was referred to by Dr. O'Reilly, who omitted mentioning that it was held under the auspices of the Guild.

May I further state that the Guild has begun proceedings seeking to enjoin the Commissioner of the State Narcotic Commission from enforcing the regulations issued in December, 1920? As to the success of the action there is some doubt, but we feel that the time has come for a show down.

The issue is plain, the conclusions inescapable. The practice of medicine and its allied professions, pharmacy and dentistry, hangs in the balance. In one form or another we are called upon to face legislative forays each year and the answer to them is *Organization*. The Professional Guild is the answer of Kings and Queens Counties. How long will it be before the other counties of the State join us in the effort to save the public from the kind of medicine which will exist if legislation, present and threatened, becomes statute?

FRANK D. JENNINGS, M.D.

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RUPTURE OF THE UTERINE ARTERY.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—In No. 3, Vol. xcix of the MEDICAL RECORD I read with great interest the case described by Dr. John C. Major, "Spontaneous Rupture of the Uterine Artery During Confinement." These cases of hæmatoma vulvæ et vaginae are usually caused by the bursting of *veins*. In the formation of the thrombus, particularly in the formation of the pelvi-abdominal hæmatoma, one of the big peri-uterine venous plexuses gives way. This is the explanation given by the French obstetricians, among them Blot, Cazeaux, Brindeaux and P. Bar. It would be very interesting to know if the normal uterine artery could rupture during spontaneous labor.

HUBERT M. BOSHOUEWS, M.D.

VALPARAISO, CHILE.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, March 10, 1920

The Influence of Diet on Dentition.—At a meeting of the London Association of the Medical Women's Federation held in London on February 15, Dr. Eva Handley-Read read a paper on the influence of diet on dentition (1) on teeth during the prenatal period (2) on dental caries, (3) on pyorrhea alveolaris. The speaker dwelt upon the importance of accessory food factors as absolutely essential to growth, and of the anti-rachitic fat-soluble A vitamine as a necessity in diet if the hardest tissue of the body and the one requiring the best nourishment, *i.e.* the enamel of the teeth is to develop properly. Owing to the fact that the temporary teeth are fully formed in the jaws before birth and that calcification begins in the sixteenth week and continues through the existence of the teeth, it is evident

that the mother's mode of living during pregnancy and lactation must influence the teeth of the child. Even at the worst war period the diet of the poorest working woman in Great Britain had just enough of essential vitamins to produce bone and tissue fairly well calcified, and observations at baby clinics show that the teeth of all babies erupt fully formed with apparently good enamel, but if the diet is poor in the antirachitic vitamin the enamel is found carious within a few months. It has been shown that the absence of fat soluble A vitamin influences the development of teeth and jaw in puppies, causing (1) Poor growth of bone and alveolar process, the tissue being osteoid. (2) Irregularity of lower incisors. (3) Delayed eruption and shedding. Delay in calcification, poor enamel and dentine and lessened resistance to diseases such as distemper and bronchopneumonia. Pregnant and nursing mothers should have a liberal supply of fat-soluble A in the diet as well as the other vitamins. In reference to pyorrhea alveolaris Dr. Read pointed out that this condition was rampant all over the world among white and colored races and was also common in animals kept in captivity. It seemed probable that an excessive carbohydrate and deficient antiscorbutic diet largely accounted for this. In true scurvy acute periodontitis was a marked symptom and the teeth dropped out if antiscorbutic treatment was delayed. Probably modern diet contained sufficient antiscorbutics to prevent actual acute scurvy but not to prevent a chronic periodontitis. Pyorrhea was present because in the mouth there was damaged tissue in the shape of inflamed gums, due to pap foods; bacteria were always present and with a diet deficient in antiscorbutic vitamins pyorrhea supervened. That many vegetarians suffered from pyorrhea was probably explained by the fact that they were mostly large consumers of carbohydrates and that their vegetables or fruit were rarely eaten raw. In Asiatic races, caries was rare, but the teeth dropped out at middle age in those parts of the country where the antiscorbutic factor was deficient in the diet. Points which led to the conclusion that chronic general periodontitis was really connected with diet were its universality, its development among wild animals brought into captivity, the fact that no specific bacteria had been isolated, and the further fact that some persons who might be considered food cranks had effected their own cure. Dr. Read went on to describe several cases in which she had found acute pyorrhea completely cleared up on a diet of raw vegetables, salads and fruit, and very limited carbohydrates. An "intensive vitamin" diet such as this would produce astonishingly good results. While firmly believing in the efficacy of such treatment for chronic pyorrhea, local treatment by drugs, vaccines, and ionization should not be neglected.

Mental Tests.—Dr. W. A. Potts read a paper at the Section of Psychiatry of the Royal Society of Medicine on February 8, 1921, on mental tests. In referring to such tests the speaker said that one of the strongest arguments for tests came from the American army. Dr. V. V. Anderson of the Municipal Court at Boston, U.S.A., first stated that 10 per cent. of all civilian prisoners were mentally defective and of those 10 per cent. were responsible for 50 per cent. of all crime. When the Americans

came into the war they decided to raise an army of 3,000,000 men. On inquiry into the arrangements necessary for an army of that size, they were informed that experience in previous wars showed that provision must be made in military prisons for 50,000 cases. It occurred, however, to their psychologists that this number might be reduced if all recruits were given a special examination with the object of excluding mental defectives. This was done with the result that there never were as many as 5000 in the American medical prisons, or less than one-tenth of the number expected. The American psychologists, however, did more than that. They extended their examination so that they analyzed the intellectual capacity of the men, and so could estimate what work they were fit for in the army. Having found out previously what amount of intelligence was necessary for any particular line, they were able to point out the men best suited for promotion to commissioned work, and for undertaking work requiring special skill. They also saw to it that each unit had an adequate number of men with more than average intelligence, instead of allowing an accumulation of such men in one place, with a corresponding lack of capable men elsewhere. Not only did they make the best use of their good material and prevent the bad from being a handicap, but they actually made use of many of the defectives by enrolling them in labor battalions and putting them to simple tasks which they could do as well as anyone else. Dr. Potts compared the American methods with the haphazard methods adopted by the British War Office although he thought that many of the American army tests were open to criticism. In discussing the paper of Dr. Potts, Dr. W. H. Coupland said that the great development of tests in America was important, even if the Americans were somewhat too enthusiastic with regard to them. In time the various tests would be more accurately evaluated.

Spahlinger Treatment for Pulmonary Tuberculosis.—Recently the lay papers have been full of eulogistic accounts of a reputed cure for consumption thought out and practised by a Swiss lawyer by the name of Spahlinger. In answer to a question asked in the House of Commons regarding this method of treatment Dr. Addison, Minister of Health said that he had made full inquiries with respect to this supposed remedy for tuberculosis, but that it was clear that much further investigation and experience would be necessary before accepting the claims made for it. It appeared that so long ago as 1913-1914 the serum in question was prepared. It was tried by several hospital physicians, but there was not as yet sufficient evidence of its therapeutic value, nor had the trials of it been sufficiently extensive to justify any definite or reliable conclusions. He understood that a report on the method of treatment had been presented to the French Academy of Science and when supplies of the serum became available for investigation in Great Britain Dr. Addison would be prepared at once to facilitate and cooperate in an exhaustive examination of its efficacy from both the laboratory and the clinical points of view. He understood that a supply of the serum was not likely to be available for some months, and that on account of the secrecy maintained as to its constitution and method of

preparation it had hitherto been found impracticable for the recognized British research laboratories to investigate its properties and effects.

An Appeal by British Pharmacists.—A large number of the old established British Pharmaceutical houses have issued an appeal to medical men of the British Empire to support British industry to the utmost of their power. The following are some of the facts presented and published in the British medical journals: (1) In all fairness it should be realized that international trading is not on a reciprocal basis, that is to say, foreign chemical and pharmaceutical preparations are now admitted into Great Britain, practically speaking, duty free, whilst goods exported from Great Britain to countries abroad are subject to an exceedingly high ad valorem duty. One vast country we have in mind directly prohibits the import of pharmaceutical preparations of other countries, while other immense States do so indirectly by means of the high duty already referred to. (2) It should be remembered that, although much has been done during the war and since in the direction of promulgating British chemical industry, a great amount of work has yet to be done to consolidate the fine chemical and allied industries at home, and an obvious point is that the factories in Germany are for the most part absolutely intact and she retains secrets which are the outcome of laborious, painstaking investigation. (3) We desire to respectfully impress on the readers of the journals in which the appeal is published, that we do not advertise to the public, nor "prescribe," nor in any way trespass on the rightful province of the medical practitioner; on the contrary, we rely on the position that chemistry, so far as the medical use of chemicals is concerned, is the handmaid of the medical man, and we might add rather bluntly, we do not recommend foreign medical men and health resorts; why should the medical man recommend foreign pharmaceutical preparations? (4) The scientific staffs in the laboratories here welcome suggestions from the medical profession and will carry out investigations to elucidate problems connected with chemistry, materia medica, and the like which may prove of assistance in the art of healing. (5) We have in our employment men who have been through the hell of the recent war. We have also with us young pupils and apprentices who had never even heard the name of Lister and who knew nothing of his teaching until we taught them what he did for suffering humanity. Those two types of men in our opinion need every support, encouragement and protection which the medical man can give.

Encephalitis Lethargica.—The Ministry of Health has issued recently a memorandum on encephalitis lethargica. Referring to the diagnosis of this disease it is pointed out that this is very difficult and that various nervous diseases and nervous sequelæ present a clinical picture of close resemblance, but with experience medical practitioners are steadily gaining the necessary acquaintance and insight. As for precautions to be taken to prevent the spread of contagion attention is drawn to the fact that with regard to persons in contact with cases, although the disease has a low infectivity, the patients should be isolated as far as possible and association limited to the needs of nursing. It is stated that there is no necessity to

place restrictions on the movements of other occupants in an infected household save in the case of school children, when, as a precautionary measure, it is recommended that they should be kept from school for at least three weeks after the isolation of the patient. Further, all contacts are advised to use the simple sprays, douches and gargles which were found valuable in influenza.

Treatment of Phthisis.—Sir Richard Douglas Powell gave the Emeritus lecture at the Middlesex Medical School on March 4. In the course of his remarks he said that within the past sixty years there had been a decline of more than one-half in the death rate. The principle of sanatorium treatment, in its attention to food and its insistence on complete rest or different degrees of exercise was right, and if one sometimes heard abuse of sanatoriums, it must be remembered they had been so boomed that too much had been expected from them. He was inclined to think it was a mistake that they should not take in patients except in the early stages of the disease, for it was necessary to deal with instances of it which were beyond the incipient stage; where the disease was active it was not hopeless. What was needed was that hospital should be linked with sanatorium treatment. They had that to a limited extent at the Brompton Hospital, where cases sufficiently favorable to require different measures were passed to Frimley, and in three or four months a man could often do a considerable amount of work and go back to the salary waiting for him. But these patients often required further treatment and the promising scheme was a country village colony on the lines of that at Rapworth Hall, in Cambridgeshire, where men could be given work suited to the stage of their complaint.

National Baby Week Council.—An English-speaking Conference on Infant Welfare will be held at the Kingsway Hall, Kingsway, London, W.C., on July 5, 6 and 7, 1921, from 10-1 and from 2.30 to 4.30 each day. The following will be the main subjects under discussion. (1) Residential provision for mothers and babies. (2) Inheritance and environment as factors in racial health. (3) The supply of milk: Its physiological and economic aspects. Papers will be submitted by a number of authorities from all parts of the world on the above subjects. Their names will be announced in the detailed program which will be available shortly. The papers to be discussed at the Conference will, as far as possible, be printed in advance.

Obituary.—Sir Felix Semon, K.C.V.O., M.D., F.R.C.P., the well-known nose and throat specialist died on March 1, last. Born at Dantzig, the son of a Berlin stockbroker, he began his medical studies at Heidelberg and took his medical degree in Berlin. He then came to London and in 1883 was appointed physician in charge of the department for diseases of the throat at St. Thomas' Hospital and held the post for fifteen years. He soon became a leader of the young men in London interested in diseases of the throat, and when the question arose of founding a society on laryngology, they met at his house where all the arrangements were made for the foundation of the Laryngological Society, of which he was president for three years. During the war Sir Felix Semon was outspoken in his condemnation of the methods of barbarism employed by Germany.

Progress of Medical Science.

Boston Medical and Surgical Journal.

March 17, 1921, LXXXIX, 11.

1. Bone Setters, Osteopaths, and Physical Therapies. E. H. Bradford.
2. Primary Syphilis. C. Guy Lane.
3. Rectal Abscesses and Their Treatment. T. Chittenden Hill.
4. The Energy Requirements of Girls From 12 to 17 Years of Age. Francis G. Benedict and Mary F. Hendry.

1. **Bone Setters, Osteopaths, and Physical Therapies.**—E. H. Bradford advances the view that perhaps the belief among the laity that physicians are bigoted, prejudiced, and not ready to receive the ideas of untutored minds who claim to get results by unacademic methods, may account for the vogue of the bone setter and the osteopath. Owing to the remarkable development of surgery, the demand upon the surgeon for serious operative undertakings has been so great that he is forced to turn from many minor methods of relief. In the days of Ambrose Paré the surgeon dressed wounds empirically. To-day he operates on shielded tissue and leaves repair to the *vis medicatrix nature*. Perhaps the chiropractic practitioner may be right in claiming his title in thinking that the work of the hand properly directed may be of service in restoring function. Of all the unacademized practitioners the "bone setter" enjoyed the best name. There may be surprise that bone setters have been ephemerically supplanted by those using as their appellation the badly coined word, "osteopath." A practice which has been accepted in many communities to the extent of recognition in some States as an authorized method of treatment must have some reason for its existence and acceptance other than novelty. Perhaps the vogue of osteopathy may be, in part, due to a tendency to polysurgery, i.e. excessive operation. A sufferer from rheumatic pains, for example, may naturally prefer to be manipulated by nonmutilating methods than to have all his teeth extracted or his tonsils removed. It is natural that the medical profession should regard irregular methods of practice with some suspicion, for there is much ignorant error in medical matters which is injurious, but to regard the unacademic with contempt is irrational as well as narrow; successful popular remedies may contain a grain of truth. Homeopathy meant that the medical profession should avoid heavy, nauseous, and needless drugging. Christian Science indicates that psychology and a knowledge of the working of subconscious thought are needed in medical practice. The catarrh cures preceded laryngology, cancer cures without the knife pointed the need of cancer research and radium study. A prevalence of osteopathy and bone setting means a need of a more scientific study of physical therapeutics.

New York Medical Journal.

March 16, 1921, cxlii, 10.

1. Telangiectasis of the Face and Mucous Membranes of Nose and Throat Associated with Severe Epistaxis. Wolf Prandenthal.
2. Stenosis of the Esophagus. Thomas Edward Carmody.
3. Double Mastoid Operation—Acute Thyroalrenal Exhaustion. James G. Callison.
4. Malignant Diseases of the Nose and Throat. Walter J. M. Wurtz.
5. Fluoroscopic Bronchoscopy, Esophagoscopy, and Gastroscopy. Robert Clyde Lynch.
6. Six Cases of Foreign Bodies in the Esophagus and the Bronchi. Charles Imperatori.
7. Suppurative Submaxillary Adenitis. Benjamin Lipshutz.
8. Focal Infection Iritis. Claude G. Crane.
9. General Versus Local Anesthesia in Operations on the Nose and Throat. W. R. Watson.
10. Aid to Diagnosis of Suspected Foreign Body in the Esophagus. Ellen J. Patterson.
11. Gilies' New Method in Giving Support to the Depressed Nasal Bridge and Columella. J. Eastman Sheehan.
12. Qualifications Which a Peroral Endoscopist Should Possess. John W. Murphy.
13. An Unusual Catarrh of Operation. Homer Tuttle.
14. Gunshot Wound of Lateral Sinus. Robert H. Fowler.
15. Resection of the Tarsus and Conjunctiva. Arthur S. Tenner.
16. Intranasal Operations. Joseph W. Miller.
17. Tumor of the Hypopharynx in a Child. D. J. G. Wishart.
18. Sinus Disease. Robert E. Rebuth.
19. A Broncholith and Pneumonic Material Removed from a Bronchiectatic Cavity by Means of Peroral Bronchoscopy. Chevalier Jackson and William H. Spencer.

20. Traction-Pulsion Live Culture of Esophagus. H. Arrow-smith.
21. A Case of Laryngocoele. Samuel Tglauer.
22. Diseased Tonsils in Focal Infection. Harry Rodman.
23. Endocrine Gland Extracts. Spencer G. Strauss.

5. **Fluoroscopic Bronchoscopy, Esophagoscopy, and Gastroscopy.**—Robert C. Lynch holds that fluoroscopic bronchoscopy is of the greatest aid in the successful removal of long retained opaque foreign bodies from the bronchi or abscess cavities, and it likewise helps as a guide to the site of abscess even when the foreign body cannot be seen. It is an aid in selected gastroscopic cases, and an assistance in establishing a pathway in an impermeable stricture of the esophagus. Seven illustrative cases are briefly reported.

7. **Suppurative Submaxillary Adenitis.**—Benjamin Lipshutz emphasizes the importance of radiographic study in all cases of cervical, facial, and submaxillary adenitis. The external appearance of the teeth gives unreliable evidence of the existing pathological condition. The cooperation of the dental surgeon is indicated for the successful and expeditious treatment of submaxillary, cervical, and facial abscesses which have their origin in dental and periodontal infections.

12. **Qualifications a Peroral Endoscopist Should Possess.**—John W. Murphy places first among the necessary qualifications the possession of a mechanical turn of mind. No two cases are alike, and unless one is quickly able to make changes in one's armamentarium and technique, failure will result. The next important qualification is normal vision. Even a slight error of refraction is somewhat of a handicap, and the presence of a considerable error makes the task almost impossible. A third and very essential qualification of the up-to-date bronchoscopist is that he should have a good surgical training. He should feel as much at home in doing a tracheotomy or an external esophagotomy as he would in doing a tonsillectomy. The fourth and last qualification mentioned is contained in the scriptural injunction: "Now abideth faith, hope, charity: these three; but the greatest of these is charity." One who goes into this work with the expectation of reaping adequate emoluments from it is doomed to disappointment.

Journal of the Americal Medical Association.

March 19, 1921, LXXVI, 12.

1. The Achievement of the Army Medical Department in the World War in the Light of General Medical Progress. Merritt W. Ireland.
 2. The Cerebrospinal Fluid in Treated Syphilis. Joseph Earle Moore.
 3. The Intravenous Use of Corpus Luteum Extract in Nausea of Pregnancy. John C. Hirst.
 4. The Ambulatory Patient with Cardiac Disease, with Especial Reference to Digitalis Therapy. Emil J. Pellini.
 5. A Case of Epidemic Encephalitis with Unusual Features. Edward A. Strecker and F. B. Marsh.
 6. Lipoma of the Corpus Adiposum Buccae: A Review of the Literature and Report of a Case. Angus L. Cameron.
 7. An Aid in the Diagnosis of Tumor of the Urinary Bladder. David R. Melen.
 8. A Duodenal Diverticulum. Dean Lewis.
 9. Influence of Respiratory Movements on the Formation of Pleural Exudates. Everts A. Graham.
 10. Congenital Dorsal Scoliosis Due to Spinal Defect: Report of a Case. Carroll L. Storey and Carl C. Birkelo.
 11. Palpitation and Its Classification in Certain Cases. Louis Faugeres Bishop.
 12. The Neurasthenic Patient and the Internist. William J. Mallory.
2. **The Cerebrospinal Fluid in Treated Syphilis.**—Joseph Earle Moore states that in the routine study of cases in the syphilis department of the Johns Hopkins Hospital, lumbar puncture is regarded as especially indicated in three groups of patients: (1) those presenting on admission evidence suggestive of or permitting a diagnosis of neurosyphilis; (2) all other patients accepted for treatment; and (3) treated patients about to be discharged as presumably cured. The findings are summarized as follows: 1. The cerebrospinal fluid of 642 syphilitic patients in all stages of the disease, but without demonstrable physical evidence of neurosyphilis of any type, has been examined after the administration of from two to six months of antisyphilitic treatment. 2. Of thirty-four patients with primary syphilis in whom treatment was begun before the appearance of secondary symptoms only one (2.9 per cent.) showed an abnormal spinal fluid. 3. After the appear-

ance of secondary symptoms the incidence of abnormal spinal fluid findings was about the same (from 12 to 15 per cent.), no matter how long the disease had existed, or by what lesions it was apparent. 4. Only 12.7 per cent. of these 642 patients showed spinal fluid abnormalities, showing that the amount of treatment administered had been successful in clearing up at least half of the early changes noted by other workers in untreated cases. 5. Asymptomatic neurosyphilis is approximately twice as frequent in white as in colored patients. 6. As minor signs of value in predicting the probability of neurosyphilis are a persistently positive blood Wassermann reaction after treatment, slight pupillary abnormalities, and certain complaints of the patient, namely, headache, nervousness, lassitude, and generalized neuralgic pains. Of 173 patients who showed such signs the spinal fluid was abnormal in forty-nine, or 28.3 per cent. On the other hand, of 469 patients in whom neither these nor other more serious neurologic damage was demonstrable, only thirty-three, or 7.03 per cent., showed abnormal spinal fluids. 7. In general, the serological evidence of symptomatic neurosyphilis can be caused to disappear by prolonged, intensive, routine antisyphilitic treatment. 8. In the syphilis department of the Johns Hopkins Hospital more than 20 per cent. of all patients are clinically, or because of the serological evidence, potentially outspoken neurosyphilitics. The writer maintains that study of the spinal fluid should be carried out as a routine in all syphilitic patients, as an essential to intelligent treatment. Spinal puncture should be performed after the first or second course of arsphenamine, and should be repeated at least once before the patient is discharged as presumably cured. If this is done in every case of syphilis, and treatment intelligently administered according to the results obtained, the incidence of clinical neurosyphilis may be reduced to an absolute minimum.

3. **The Intravenous Use of Corpus Luteum Extract in Nausea of Pregnancy.**—John C. Hirst first began the use of corpus luteum extract by hypodermic injection in the treatment of the nausea of pregnancy in 1915, basing its use on the theory that every woman, during the period of sexual activity, is constantly absorbing corpus luteum. With the onset of pregnancy this absorption ceases. The corpus luteum of pregnancy increases in size, until it reaches its acme about the third month. From this time on it is gradually absorbed. The nausea of pregnancy, beginning during the period of nonabsorption, disappears about the time that the corpus luteum begins to decrease in size. Preparations of the corpus luteum available are: (1) A compressed tablet, containing about 5 grains of the dried substance; (2) powdered extract, and (3) ampules for hypodermic administration, containing 0.2 gm. of the dried substance in solution in 1 c.c. of physiological sodium chloride solution. Corpus luteum may be administered by mouth, by subcutaneous injection, by deep intramuscular injection, or by intravenous injection. The writer considers intravenous injection the ideal method for the following reasons: 1. The material used is carried directly into the circulation, giving the most rapid absorption possible. 2. It is possible and advisable to use a considerably larger dose (two or three ampules) than is possible with the intramuscular injection, in which more than 1 c.c. causes considerable local reaction. 3. Each ampule contains only 0.2 gm. of the extract, and in this way the necessary total quantity can be introduced more easily and quickly. 4. There is no local reaction or discomfort of any kind after the injection. 5. Intravenous administration often controls the vomiting promptly, in cases in which intramuscular use has failed. The dosage varies with the type of case. Anaphylactic reactions need not be feared. The presence of a goiter in early pregnancy absolutely contraindicates the administration of corpus luteum extract, either intravenously or intramuscularly, for the control of nausea. In not a single case, in the writer's experience has there been any rise of temperature or any evidence of infection following the intravenous use of the extract. The results are more gratifying, more prompt, and more lasting than by any other method.

12. **The Neurasthenic Patient and the Internist.**—William J. Mallory emphasizes the point that the

neurasthenic syndrome is a type of reaction which may modify and partly obscure the symptoms of serious physical or psychic disease. Congenital and acquired physical inferiority should be considered important predisposing causes. The immediate cause of such a reaction may be psychic or physical, or both combined. In the treatment, physical deficiency and organic disease should be recognized, and relieved as far as possible in order to aid readjustment on the psychic level.

The Lancet.

February 26, 1921, cc. 9

1. An Address on International Organization and Public Health. G. S. Buchanan.
2. The Cerebrospinal Fluid in Disseminated Sclerosis. Douglas Kinchin Adams.
3. Analysis of the Gastric Contents Obtained by the Fractional Method. Sydney W. Cole and W. J. Adie.
4. The Skin and Its Reactions. Arthur J. Hall.
5. Two Cases of Congenital Hypertrophic Pyloric Stenosis Saved by Early Operation. W. G. MacDonald.
6. The Standardization of Tuberculin. A. J. Eagleton.

2. **The Cerebrospinal Fluid in Disseminated Sclerosis.**—Douglas Kinchin Adams gives a résumé of a preliminary report to the Medical Research Council on work done in an experimental investigation into the etiology of disseminated sclerosis. The present communication deals only with the first part of the work, consisting of observations upon the cerebrospinal fluid. It is summarized thus: 1. The cerebrospinal fluid picture in disseminated sclerosis is as follows: a normal cell count, a negative Wassermann reaction, a leucic or paretic reaction to colloidal gold, and in most cases (83 per cent.) a normal protein content. 2. The absence of a positive Wassermann reaction in the great majority of cases and the absence of pleocytosis are in accordance with the view that this disease is not of syphilitic origin. (3) On the supposition that the origin might be spirochetal treatment was carried out by spirocheticidal drugs. In practically every case under treatment modifications toward a negative result of the colloidal gold reaction were noted. 4. As regards clinical effects of such treatment, no improvement resulted in advanced cases of the disease, but prolonged treatment produced amelioration of early cases, and in one or two instances the results were marked. 5. With reference to early diagnosis, emphasis is laid on the evidence of the cerebrospinal fluid picture and the absence of abdominal reflex.

4. **The Skin and Its Reactions.**—Arthur J. Hall, after discussing briefly the duties of the skin outside the body and inside the body, considers the relation of skin diseases to internal disorders. In this connection it must always be borne in mind that the skin is not merely a covering, but itself an important organ; that its duties relate chiefly to events occurring outside the body; that while some of these reactions are local processes in the skin, the bulk of them are controlled and regulated by the central nervous system, and are of the nature of reflex actions; that like all other reflex actions they are capable of excitation from places other than the outside, and of being modified by the condition of the central nervous system resulting from changes in the internal organs. In this sense they must depend upon the condition of the body as a whole at any given time. Greater progress may result if one bears in mind this individuality of the skin as an organ, studying more closely its reactions, than if it is regarded as a kind of screen upon which the clinician views what is going on in the organs beneath. The writer believes that many changes in the skin now attributed to internal disorders are capable of explanation as natural reactions of the skin to definite stimuli. Under this head he considers (1) widespread dermatitis developing during local treatment, as when a patient who is being treated for a trivial local eruption suddenly and unexpectedly develops a widespread acute weeping dermatitis, and (2) acute vesicular dermatitis induced by wearing a necklace, a specific case of which is cited. Under the second category the history is given of a patient who developed a localized dermatitis from wearing an imitation pearl necklace. Investigation revealed the fact that the dermatitis was not caused by friction, but by the irritant action of the wax-like substance with which the individual beads

were filled, and which, when warmed by the body, exuded through the holes where the beads were strung.

British Medical Journal.

February 26, 1921, 1, 3139.

1. The Function of the Kidneys in Enlargement of the Prostate Gland. By J. F. Dobson.
2. Diseases of Infants Due to Prolonged Feeding with Excess of Carbohydrates. C. E. Bloch.
3. Sæmremic Glycosuria. Charles Gaskell Higginson.
4. Self-inflicted Injuries in Civilian Practice. A. Rendle Short and Cyril H. Walker.
5. Notes on One Thousand Cases of Bilharziasis Treated by Antimony Tartrate. F. O. Lasbrey and R. E. Coleman.
6. Stenosis of the Internal Meatus After Suprapubic Prostatectomy. Andrew Fullerton.

1. The Function of the Kidneys in Enlargement of the Prostate Gland.—J. F. Dobson, in this Arris and Gale Lecture, passes over the discussion of prostatectomy for simple enlargement of the prostate, which, in many cases, gives most satisfactory results. Outside of the select cases, as in Freyer's recent series in which the mortality is given as 3 per cent., complications arise which induce a mortality of 15 to 25 per cent. These complications are placed in the following categories: 1. Impaired renal function due to back pressure without infection of the urinary tract. 2. Infection of the urinary tract. 3. Infection with definite impairment of renal function. 4. General organic disease. Brief histories of fifteen patients are given, from which the following conclusions are drawn: 1. The blood urea concentration corresponds very closely with the clinical symptoms. In those cases where the patient was becoming uremic the blood urea concentration was high. 2. Impaired renal function occurs in patients who have no infection of the urinary tract, the renal impairment being due entirely to back pressure. 3. Severe infection of the urinary tract (confined to the bladder) may be present without impaired renal function. 4. The majority of cases of serious infection had impaired renal function. 5. A decided fall in blood urea concentration occurs after cystotomy, in the majority of cases the blood urea figures falling practically to normal. 6. The seriousness of those cases in which the blood urea figures remained high after cystotomy. From the entire consideration of the subject it is held that: 1. Blood urea estimation is a reliable guide to the functional capacity of the kidneys. 2. Its estimation should be carried out in every case of enlarged prostate before operation. 3. Blood urea figures over 25 point to the desirability of a period of preliminary treatment, with drainage of the bladder either by catheter or through a cystotomy wound. 4. If the tied-in catheter is used further blood urea estimations will show whether improvement is taking place. 5. If not, a cystotomy should be done and further estimations carried out. 6. When the blood urea figures fall to under 30 prostatectomy may be done, the general condition of the patient being in other respects satisfactory. 7. In preliminary cystotomy and regular antiseptic instillation we have a method of dealing with cases of impaired renal function, whether due to back pressure only or to back pressure and renal infection. We can estimate the impairment in renal function by estimating the blood urea; we can only estimate the improvement in the infection of the kidneys by ordinary clinical observation. If the blood urea figures are normal, with a badly infected bladder, it is probable that one may assume that the kidneys are not yet infected.

3. Sæmremic Glycosuria.—Charles Gaskell Higginson considers the word "transient," as applied to glycosuria, of the lowest practical and scientific value, for, on the one hand, one could never know that the glycosuria was transient until it was gone, and, on the other hand, the cause of the glycosuria was left undesignated in the teaching that there was such a condition as "transient glycosuria." The words "sæmremic glycosuria," however, have a high value: in diagnosis, for the cause is named; in prognosis, because an early, happy result—life instead of death—is soundly predicted; and in treatment, because common diet may be used and the modern starvation and starch-free diet (a great nuisance) is forbidden. He believes that carbuncle or gangrene secondary to diabetes is not very common, but he readily sees why so debilitating a

disease as diabetes can be, like other forms of debility, a real predisposing cause for carbuncle or gangrene.

(1) In sæmremic glycosuria the sugar is relatively small in quantity. The largest quantity recorded in this paper as having been passed in twenty-four hours is 1,400 grains (or 3 oz.). In diabetes the patient commonly passes from half a pound to three-quarters, say, 4,000 to 6,000 grains daily. (2) Consequently, in sæmremic glycosuria one finds an absence of the great diabetic symptoms—namely, no hunger, no thirst, no emaciation, no polyuria. (2) In the case of sæmremic glycosuria associated with gangrene there will probably be found enough arterial degeneration in the patient to account for the gangrene without it being necessary to fly to the hypothesis of diabetes. As the sæmremic products of gangrene, carbuncle, erysipelas, etc., differ considerably from each other, it is probable that one sæmremia will differ from another in its power of lowering the saturation point for sugar. At present gangrene and carbuncle are the most striking and misleading agents in the causation of sæmremic glycosuria, but further investigation will doubtless reveal a long series of such agents differing from each other very much in the power of causing sæmremic glycosuria.

Indianapolis Medical Journal.

January, 1921, xxiv, 1.

1. Hypophyseal Insufficiency: Diagnosis and Non-surgical Treatment: Report of Twenty Cases. E. N. Kime.
2. Non-surgical Treatment of Hyperthyroidism. M. C. Sexton.
3. When Did Disease Begin? J. N. Hurty.

2. Non-surgical Treatment of Hyperthyroidism.—M. C. Sexton cites two cases in which treatment was directed toward both the thyroid and the gastrointestinal tract. The drug used is the yellow or protiodide of mercury, which is administered in $\frac{1}{4}$ gr. doses, three times a day. The patient is also given complete rest in bed and is placed upon a light diet consisting chiefly of milk. The proteins are restricted to one piece of lean meat a day, and the patient is encouraged to drink plenty of water. After the bowels have been thoroughly cleaned out with saline cathartics, alkalies are administered in the form of bicarbonate of soda and lithia waters until the urine is distinctly neutral to litmus. Insomnia is treated by doses of one of the bromides or chloral hydrate per rectum. If improvement follows the patient is allowed up after ten days, the diet is increased, but the patient continues the use of the protiodide as before.

Le Progrès Médical.

January 15, 1921, xlix, 3.

Epidemic Hiccough.—Blum of the Strasburg faculty reports seven personal cases of this malady and sums up the latter in ten dicta, as follows: The hiccough always appeared abruptly after the patient had developed a common cold, and never lasted over a few days; its appearance corresponded with anorexia, coated tongue, eructations, and at times emesis; radioscopic had always shown an air pocket in the stomach and some interference with the play of the diaphragm; mostly there was tracheobronchitis as well as rhinopharyngitis; the cough might precipitate the hiccough or the converse could occur; fever never went above 38° save in one patient who had angina; there was no other phenomenon at any time which could be called nervous save slight and transitory headache; the disappearance of the hiccough was distinctly connected with the disappearance of the gastric symptoms; the author's patients were all males; hiccough was never seen in connection with other diseases than those above mentioned. Most of the subjects showed an asthenia comparable with that in the course of influenza. The author discusses theoretically the part played by the prolonged warfare on the atmosphere, which was filled with foreign matter in very fine subdivisions and which he thinks may have been an important factor in lowering the resistance of the lungs. This might explain the pandemic of 1918, and the author regards the epidemic of hiccough as due to the same factor. Since the hiccough appears to be due to gastric disturbance purely, he is inclined to accuse swallowed air.

Book Reviews.

DIE PATHOLOGISCHE BIOLOGIE (IMMUNITÄTSWISSENSCHAFT). Eine kurzgefasste Uebersicht über die biologischen Heil und Erkenntnisverfahren für Aerzte und Studierende. Von Professor Dr. HANS MUCH, Direktor des Universitätsinstituts für Immunitätswissenschaft und des Tuberkuloseforschungsinstituts in Hamburg. Dritte Auflage. Leipzig: Curt Kabitzsch, 1920.

THE third edition of this work appears six years after the second and has undergone quite radical changes. Since the appearance of the second edition Much has developed his theory of partial antigens and his belief in the truth of this theory runs like a thread through the entire book. The experimental evidence upon which this theory is based is not presented, but from what he says about it the possibility of some confusion of hypersensitiveness reactions and true antigen-antibody reactions is apparent. Immunologists generally are not yet prepared to accept the dictum that lipoids and neutral fats may produce antibodies, and in the absence of generous experimental evidence it is necessary to withhold an opinion on the question. The text throughout is brief and is characterized by the epigrammatic style which Much affects. There is at least one serious omission, his neglect to mention toxin-antitoxin injections in the prevention of diphtheria. His discussion of the Abderhalden and Wassermann reactions is good, but the presentation of the technique of these and other tests is so brief as to be almost valueless. The book has many points of interest, but will hardly prove an essential one to American immunologists.

PRÄTIKUM DER KLINISCHEN CHEMISCHEN, MIKROSCOPISCHEN, UND BAKTERIOLOGISCHEN UNTERSUCHUNGSMETHODEN. Von Dr. M. KLOPFSTOCK, San-Rat und Dr. A. KOWARSKY in Berlin. Sechste Auflage. Berlin und Wien: Urban & Schwarzenberg, 1920.

THIS is a much larger volume than the third edition, which was the last previous one to reach this country. Much of the added material is naturally that developed as a result of the lessons learned during the war, but the endeavor has been made to bring the subject up to date in all respects. This effort has not been wholly successful, for the authors have apparently not been familiar with the development that has taken place, especially in this country, in methods for chemical examination, especially of the blood. There is other ample evidence that they have not had access to our medical literature during the past five years or else have not chosen to notice it. The work is comprehensive, but is of but limited practical value in this country.

HISTORY AND BIBLIOGRAPHY OF ANATOMIC ILLUSTRATION. In Its Relation to Anatomic Science and the Graphic Arts. By LUDWIG CHOLANT, translated and edited, with notes and a biography by MORTIMER FRANK, B.S., M.D., Secretary, the Society of Medical History, Chicago; Attending Ophthalmologist, Michael Reese Hospital, Chicago. With a biographical sketch of the translator and two additional sections by FIELDING H. GARRISON, M.D., and EDWARD C. STREETER, M.D. Chicago, Ill.: The University of Chicago Press.

THE classical work of Choulant, "Geschichte und Bibliographie der anatomischen Abbildung," published in Leipzig in 1852 has been so long out of print that its very existence was unknown to any but anatomists and students of the history of medicine, and even those who had access to the work in public or private libraries found the task of deciphering the antiquated, lumbering German text in which it was written too formidable, and contented themselves for the most part with looking at the quaint illustrations. But there was a great deal of meat hidden in the book, as this translation shows us, and the medical and artistic public owe a debt of gratitude to the late Dr. Frank for the gift he brought them in this English version. The English edition is a vast improvement on the original German one, for the translator simplified the language, so that the reading of the book, originally so toilsome, has now been made easy and pleasurable in its English dress. The work is also larger than the origi-

nal, being supplemented by notes made by Choulant, probably in anticipation of a revised edition, and enriched by additions written by the translator and by Dr. Fielding H. Garrison and Edmund C. Streeter. Before the work could be published Dr. Frank was called by death, and the many friends whom his untimely taking away had bereaved determined to publish the volume as a fitting memorial to their late associate. The book is handsomely printed in the best style of the University of Chicago Press, and is an invaluable contribution to the growing literature of the history of medicine. It emphasizes the irreparable loss to the same science in the premature death of its translator.

THE AFTER-TREATMENT OF SURGICAL PATIENTS. By WILLARD BARTLETT, A.M., M.D., F.A.C.S., and Collaborators. Two volumes. St. Louis: C. V. Mosby Company, 1920.

THERE are many good books on the after-treatment of surgical patients, but this work by Bartlett and a considerable number of collaborators is by far the most pretentious and best that we have seen and covers much more ground than the bare title indicates. The work is divided into two volumes, the first of which deals with general subjects, such as the ideal postoperative room, anesthesia, artificial feeding, wound treatment, bandaging, exercises and massage, hydro-, x-ray, and radium therapy, special symptoms and conditions such as headache, hiccough, shock, hemorrhage, postoperative ileus, acute dilatation of the stomach, fat embolism, postoperative psychoses, hemophilia, thrombophlebitis, postoperative pneumonia, and numerous others. The second volume deals with the measures in after-treatment as they are applied following operations in various regions and upon various organs. Bartlett has been assisted by quite a corps of collaborators, many of whom are specialists who have covered the after-treatment as applied to cases in their particular field.

This work should be of great service, not only to members of house staffs but to experienced surgeons as well, not one of whom can fail to find many suggestions for the better treatment of his cases. The work should be of especial value to the occasional operator and those who by force of circumstances operate only in emergencies; for these men usually operate in sanatoria and private houses and have seldom had sufficient hospital training to have developed adequate rules for postoperative care.

GRUNDRISS DER PSYCHOLOGIE. By Prof. CARL OPPENHEIMER and Prof. Dr. OTTO WEISS. Volume I, BIOCHEMIE. Leipzig: Georg Thieme, 1920.

DR. OPPENHEIMER'S work is a complete biochemical analysis of the human body and its functionings. The chemical composition of all body material is given in a clear and concise way, yet the book strikes the reader by its thoroughness. The chemical and bacterial action of the ferments is well given. The chapters on metabolism, while not detailed, are extremely complete. There are some pages on the regulation of body functions by the liver and the glands of internal secretion. The book is highly recommended as a hand reference book for medical students and laboratory workers.

AIDS TO OSTEOLOGY. By PHILIP TURNER, B.Sc., M.B., M.S. (Lond.), F.R.C.S.; Assistant Surgeon, Guy's Hospital; Teacher of Operative Surgery in the Medical School. Second edition. New York: William Wood & Co., 1920.

THIS pocket volume contains, in condensed form, the anatomy of the bones. Though small in size, there is a large amount of information packed into the book, and it probably contains as many details as are to be found in such standard works as those of Gray or Cunningham. There are no illustrations, and the condensed style makes the book rather difficult reading. For the beginner in anatomy, the easier plan would be to study the bones from some large (and illustrated) textbook, and then to use this little volume for purposes of review. The book differs very little from the former edition, but there is less change to be expected in a book on osteology than in any other book used by the medical student.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held February 3, 1921.

THE PRESIDENT, DR. GEORGE DAVID STEWART, IN THE CHAIR.

Measles Experimentally Produced.—Dr. FRANCIS G. BLAKE presented this paper in which he said that it was a familiar fact that measles occupied a prominent position among the acute infectious diseases that led to severe and often fatal diseases of the respiratory tract. This was particularly true of children under five years of age and of children in institutions. Strict quarantine had been largely inadequate because measles was most contagious during the prodromal stage. That the disease might be prevented by prophylactic inoculation was by no means a new idea. Many such attempts had been made by cultural studies and animal inoculation. The former method had not up to the present time yielded positive results, and whether the disease could be communicated to animals was still an open question. The present study was undertaken to determine whether more evidence might not be brought to show whether animals were susceptible to inoculation with the virus of measles. Inasmuch as the virus in a human being infected with measles was present in the secretions of the respiratory tract and the mucous membranes of the respiratory tract were the path of entry for the infection, the method employed was to inoculate monkeys with nasopharyngeal washings collected by saline irrigation of the nasopharynx, using 5 to 10 c.c. of the nasal washings inoculated intratracheally. This method was open to the objection that other organisms besides the virus of measles were present in the washings and were injected into the trachea, but he believed these organisms were mostly saprophytes which were readily disposed of by the mucous membrane. To overcome this objection the washings were subsequently filtered and the filtrate injected and the blood from infected monkeys shown to be free from other organisms was also used. The attempt was made to transmit measles to 12 monkeys. Of these 10 after five or six days came down with the group of symptoms characteristic of measles. One monkey died of an intercurrent pneumonic infection and another failed to show evidence of infection. Seven were inoculated with unfiltered washings and three with washings passed through a Berkefeld filter. Several control monkeys were inoculated with filtered and unfiltered washings not containing measles virus, and none of these animals showed any evidence of measles infection. The symptomatology induced in the monkeys by the inoculations of washings containing the measles virus consisted in listlessness, drowsiness, loss of appetite, and a diminution of the leucocyte count; the conjunctive became inflamed, and small discrete, hyperemic macules appeared over the lips and inside of the cheeks. One to five days after the onset a red maculopapular rash appeared, usually coming out first on the face, and spreading to the chest, abdomen, and inner side of the thighs. The exanthema reached its height in three or four days and then faded. The acute catarrhal inflammation persisted throughout the infection. The exanthem in the mouth began with the onset of symptoms or within twenty-four hours afterward. These were typical Koplik spots. These spots were few at first and might pursue one of two courses; they might either disappear or a confluent rash might develop. The incubation period was quite uniform, being from six to ten days. The rash went through the regressive stages characteristic of measles in the human being, going on to desquamation; it was rarely as thick or widespread as measles rash in man. The fever might go up to 105° or 106° F. or the animal might go through the disease with little or no fever, or again the fever might be present only in the prodromal stage before the appearance of the exanthema. The white blood counts showed a constant diminution below the normal. This began before the symptoms were recognized and continued for several days, the leucopenia being sometimes as low as 4,000 for several days. In only one respect had the reaction differed from the

course of measles in man and that was that none of these monkeys had exhibited any evidence of rhinitis or bronchitis. The regularity with which this group of symptoms developed and its close resemblance to measles in man were presumptive evidence that the symptoms were due to the virus of measles and not to the ordinary organisms present in the mouth. Furthermore it had been shown that the reaction occurred when monkeys were inoculated with filtered washings containing none of the ordinary mouth flora. The possibility that the reaction might be due to some filterable toxic substance rather than to the living virus of measles suggested itself, but such possibility had been excluded by the successful transmission from monkey to monkey. The reaction had also been successfully transmitted by tissue emulsion and by blood through a considerable series of animals. Dr. Blake described experiments which indicated that the blood was not infectious during the early part of the incubation period. Experiments were carried out with the blood through twelve successive passages. During these experiments it was shown that as small an amount as 1 c.c. of blood was infectious when injected subcutaneously and also when injected intravenously. The infective virus was shown to be present in the plasma and not in the blood cells. Other experiments indicated that one attack conferred immunity against subsequent infection and that this immunity was effective against heterogeneous as well as homologous virus. Finally histological studies were made of the lesions in the skin and mucous membranes. Tissue consisting of small pieces of skin and mucous membrane, excised under anesthesia, and skin and mucous membrane from monkeys killed after transmission, were studied microscopically. The slides shown demonstrated a multiplication of endothelial leucocytes and moderate exudate about the capillaries in the corium. The greatest cellular reaction was that of the endothelial leucocytes. The leucocytes showed occasional mitotic figures. The lesions were in the upper part of the corium close to the epidermis, hair sheaths, and sebaceous glands. The lesions in the epidermis were in the Malpighian layer which showed minute foci of serous exudate, vacuolation of epithelial cells, and infiltration with large mononuclears. Minute vesicles developed in the cornified layer. The slides illustrated three stages in the development of the Koplik spots. The skin and mucous membrane lesions of measles had been well described by Ewing and Mallory, and Mallory had expressed the opinion that the lesion in the monkey was essentially the same as that in man. The conclusion was therefore warranted that the monkey was susceptible to measles and that the reaction produced in monkeys might with justification be called experimental measles.

Dr. JAMES EWING said that in accepting the Chairman's invitation to discuss Dr. Blake's paper he wished to make it clear that he was conscious of no particular qualifications which fitted him to discuss the paper, although he confessed to a long interest in this disease which once led him to spend considerable time in a careful histological study of the lesions of measles. He had enjoyed Dr. Blake's description of the careful, logical, and systematic experiments which seemed to him model of precision and accuracy, and for which reason the results were not a matter of chance but a certainty. If heretofore any one had doubted the possibility of the transmission of measles to monkeys he would not leave the hall with any further doubt. Dr. Blake and his associates were to be congratulated on the type of work and on their results. There was little to be said except to express the hope that they would continue their experiments. He thought it would be interesting if Dr. Blake would discuss the characteristics of the pneumonia observed in these animals and compare it with the types of pneumonia following measles which they had seen in the army. He would like to know whether Dr. Blake had made any histological studies on the animals dying of bronchopneumonia. With regard to the lesions of the skin he had spoken of the proliferating endothelial cells about the capillaries. Dr. Ewing said he had spent many hours trying to find a specific structure, possibly a pathogenic protozoan. In this he had been unsuccessful though he had found a number of other interesting things in the

endothelium and epithelium. It would be interesting to know whether Dr. Blake had observed any bodies in the stratified epithelium that might be lined up with those observed by Dr. Wolbach in typhus. We needed no new experimental evidence to show that measles could be transferred from one individual to another. The work of Hektoen in 1905 had demonstrated this. Since the time of Horne in 1770 many had used inoculation as a preventive against the disease. Then more recently Anderson and Goldberger had shown that measles could be transferred to animals. However, he had no criticism but only admiration for the work presented, since it was more detailed and convincing than any previous study. But satisfactory and convincing as this study was, he would like to point out a further duty for Dr. Blake and his coworkers in the attempt to make the work of practical benefit. One characteristic of modern science was that it did not concern itself sufficiently with practical results. Jenner's work was not conducted in a way that we to-day would consider strictly scientific, yet he was successful in transforming smallpox from a lion into a cat, though its cause was still undiscovered. So while we knew a great deal about measles, the first step was to find how by harmless inoculation the disease could be prevented. No doubt that was the reason Dr. Blake had taken up this work as a preliminary step. It was a matter of congratulation that the work was being done by a man as competent as the report had shown Dr. Blake to be.

Dr. LOUIS I. HARRIS said that when he heard Dr. Ewing confess himself rather nonplussed to find something to add to Dr. Blake's presentation, it was a relief to him as he felt utterly unprepared to discuss the paper from the standpoint of the laboratory worker. He took it that his presence here was testimony to the fact that it was desired to make this work not merely of academic value, but a study that would have a practical application to the problems of those who were endeavoring to cut down the mortality from measles and the complications that followed this disease. The facts regarding measles were no doubt familiar to all present, but it might perhaps be well to recall them. Measles was often regarded by physicians as an extremely trivial disease, but it was not so trivial when one escaped from the provincial standpoint which was inevitable if one was guided by personal experience alone. During the twelve year period, from 1900 to 1911, in twenty-two countries 32,000,000 cases of measles were reported, with 366,000 deaths attributed to measles. It must be remembered that many cases of measles were not reported and that many deaths due indirectly to measles had not been recorded as due to this cause. In New York City, where for the past twenty years we had had fairly reliable statistics, there had been 547,482 cases of measles reported to the Department of Health, on an average of 27,374 annually. The total number of deaths from measles was 13,651. There was, however, no record as to the number of cases in which death was attributed to other causes, but in which measles was the direct or indirect cause. The average number of deaths annually reported was 683, or about 1 per cent. of all deaths was attributable to measles. It would be extremely valuable to discover by some means how many deaths from bronchopneumonia and other diseases which were directly due to measles were missed in this statistical summary as a result of incomplete statement of cause of death on death certificates. This work of Dr. Blake's brought us one step nearer the goal of prevention and control such as we reached in the case of smallpox long ago. The problem was one that concerned particularly the children of preschool age—those under five years. It had been found that in communities in which measles was prevalent that 93 per cent. of all cases occurred in children under five years of age. It was an important problem, not only in so far as it concerned measles but in relation to tuberculosis as well. The statement had been made that measles was a direct cause of tuberculosis. If it were it was highly important that opportunity should be given to drive home that fact by experimental and other demonstration. It was well known that in the army measles created havoc by causing a predisposition to infection by the *Streptococcus hemolyticus*. Had it not been for the sequence of measles, the streptococcal infection, and finally pandemic "influenza,"

there might not have been such a serious tale to tell. At all events it seemed evident that measles bore a direct relation to the high mortality that ensued in the influenza pandemic. This was especially evident at Camp Beauregard where there were large numbers of men from rural communities who had not had measles and who therefore offered a large amount of susceptible material. Among these, the mortality and morbidity from measles were extremely high, it being estimated that measles contributed 31 per cent. of the deaths. The complications due to the *S. hemolyticus* was the most potent cause of fatal sequelæ. Measles was equally important in industrial camps. Dr. Harris referred to various attempts that had been made to vaccinate against measles, and stated that the public health workers were watching for something to take the place of bungling and contrary methods for the control of measles that were now prevalent throughout civilized countries. In one country there was no provision at all for dealing with measles in another a bonus, or money premium, was placed on the reporting of measles. It would seem that the Hippocratic oath and the ethical traditions of the medical profession should make unnecessary the giving of a bonus for the reporting of disease. In many countries the enforcement of the law requiring the reporting of measles, as indeed the public health measures employed for its control, were ineffective. It seemed that all these facts argued for the continuance of such methods of research as had been presented this evening, in the hope that some method of dealing with measles comparable to the Schick test and active immunization in diphtheria might be discovered which could be applied before exposure to measles, and which would prevent the disease or delay it until that age at which it produced little or no disastrous effects.

Dr. WILLIAM P. NORTHRUP said he could truthfully say that he had not expected to discuss this subject, but he would not do justice to his feelings if he did not express his appreciation of the paper of the evening. He did not think it necessary to argue for the importance of measles. At the Foundling Hospital they had always been punished with measles in fearful epidemics, and that institution was no exception. If there was anything that would make a sister of charity turn pale it was to hear the doctor say "measles." If there was an epidemic in any institution it was something fearful. The same was true of camps and jails and in public institutions of all kinds. It was one of the worst things that could happen. In the Foundling Hospital they had been able to control diphtheria and smallpox, but when it came to measles they were helpless. He was accustomed to think that there were two diseases that children had that should be watched very closely—measles and whooping cough. After a child had had measles one should always ask whether it had made a good recovery, and ascertain some of the details in reference to recovery, as how long the child had been in bed and how quickly it made a good recovery after measles. The same was true of whooping cough. It was a fearful thing not only in its immediate effects but in the possibility of tuberculosis, particularly in those glands at the bifurcation of the trachea and at the root of the lung. The complications and sequelæ of measles and whooping cough were worse than those of scarlet fever or of any other disease. Dr. Blake spoke of the monkey having no rhinitis. He thought that was rather peculiar. There was an eruption of the mucous membranes and of the cutaneous surface, on every part of the mucocutaneous surfaces in contact with the atmosphere. He did not see how the monkeys escaped the rhinitis unless it was that the monkey's nose had a good vent and did not show the rhinitis. Dr. Northrup said that in a long time he had not heard such a beautiful paper, one possessing such logical perfection, such dignity, such beautiful simplicity. He wished all students could hear it for those beautiful qualities and also for its summary and ending, and the dignity and clearness with which it was delivered.

Dr. RUFUS COLE stated that he had had nothing to do with Dr. Blake's work but to be interested in it and to support it. His great interest in measles had been aroused by his experience in Southern camps where he discovered for the first time what a dreadful disease it was when complicated by streptococcus pneumonia,

It was the worst experience he had ever had although he had had some experience with smallpox, so it seemed to him that measles was an extremely important disease to be studied in the Hospital of The Rockefeller Institute. Dr. Blake's experience had been similar to his and he had come back to the Rockefeller Institute to undertake these studies, the results of which he had presented. Both Dr. Blake and Dr. Cole, being clinicians, were naturally much interested in the practical aspects of the question but he felt that little could be accomplished in a purely empirical manner and that first it was necessary to obtain scientific experimental evidence upon which to base practical preventive measures. He hoped that with the results already obtained Dr. Blake could now proceed to the practical applications of his work and that later he could report upon the results of these endeavors.

Dr. WARFIELD T. LONGCOPE said that he felt very much as the other speakers had expressed themselves, that one might go on speaking indefinitely with admiration but it was quite impossible to discuss a paper so logical in its sequence and so convincing. Dr. Ewing and others had mentioned that the disease had previously been transmitted to animals and many had attempted to transmit it without success. The thing Dr. Blake had done was a perfectly original piece of research. He had attacked the problem from a new standpoint and by new methods and had obtained entirely new results. He had developed a method by which this disease or virus could be cultivated in animals in a definite way which brought similar results to those reached in bacterial diseases studied in a similar way. This piece of work constituted a wonderful basis from which to proceed further. One need not suggest the important possibilities which were obvious to all. He supposed Dr. Blake had gone ten years ahead of other investigators in devising methods of inoculation.

Dr. CHARLES HERRMAN said he agreed that this piece of work was the most thorough that had been done on this subject. It was much more complete and the number of animals was larger. The results agreed in the main with those of Anderson and Goldberger but their work was not so extensive and this work was very much more conclusive. The negative results obtained by some investigators were due to the fact that they did not use active material for inoculation, or the material was not obtained at the right time, or the subject of the experiment was already immune to measles. Frequently an individual had had a milk attack of measles when there was no statement in his history showing that he had had measles. It was well known that an individual might have measles in such a mild form that the disease could not be recognized unless there was another case of measles in the same family. As the infecting agent was present in the filtrate, it was improbable that the diplococcus isolated by Tunncliffe was the cause of the disease. Dr. Herrman stated that he was interested in the question from the practical side. A method of immunization to be of practical value must be similar to that used in immunization against smallpox and must be one that could be used early in life. His method was crude, but it had yielded some rather convincing results. Since practically all mothers in New York City had had measles, all children under five months of age were relatively immune; those under two months were absolutely immune, those between two and five months were relatively immune. The easiest method of inoculation was by the way the disease was usually transmitted, that was from mucous membrane to mucous membrane. All that was necessary was to take some of the secretion of the nasal mucosa from a measles patient just before or just after the appearance of the eruption, and transfer it to the nasal mucous membrane of the susceptible animal or human being. Three per cent. of all individuals were naturally immune, otherwise the disease was transferable, and a relative immunity in infants from three to five months might be changed from a temporary to a permanent immunity. If the immunity thus conferred lasted only a few years a great deal would be gained because practically all the deaths in measles, due chiefly to bronchopneumonia, occurred in children under five years of age. Dr. Herrman stated that he had carried out this method in 150 infants, but, as all knew, it was extremely difficult to follow up a large number of infants

over a long period of time. He had begun the inoculations five or six years ago. While in the service follow-up work had to be discontinued. However, he had been able to follow up 25 children who had been inoculated and subsequently exposed to measles. Of these 25 children only two contracted measles. When one considered that ordinarily 95 to 97 per cent. of all infants and children who had not had the disease became infected when exposed, it seemed that it was perfectly possible to immunize. There were two points, however, that must be observed. The material used for inoculation must be bacteria free and some method must be devised by which the material could be preserved. Dr. Herrman expressed the belief that it was perfectly possible to immunize against measles as we immunized against smallpox.

Dr. BLAKE, in closing the discussion, said that only one of the monkeys had died of bronchopneumonia. Dr. Ewing had asked if he had looked for the Wolbach foreign bodies. He had used appropriate stains on a large number of sections but had been unable to see any of these bodies. Dr. Harris had emphasized the importance and seriousness of measles as a public health question. He could add an instance showing the popular recognition of this fact. A woman in New Rochelle was very much exercised because there were two or three cases of smallpox in that locality and wondered whether she should have her children vaccinated. She finally said that she did not know that it was necessary to have the children vaccinated because smallpox did not mean anything compared with measles.

Stated Meeting, Held February 17, 1921.

THE PRESIDENT, DR. GEORGE DAVID STEWART, IN THE CHAIR.

The Typhoid Carrier, from the Laboratory, Medical, and Surgical Standpoints.—Dr. ABRAHAM L. GARBAT made this presentation, which consisted in an abstract of a monograph which had been awarded the Cartwright prize by Columbia University, describing research work carried out in the course of a waterborne typhoid fever epidemic. This epidemic occurred in an internment camp at Hot Springs, N. C., in August, 1918, and in the course of the epidemic 183 patients were transferred to U. S. General Hospital, No. 12 at Biltmore, where the study was carried out. The study of the cases did not terminate with the cessation of acute manifestations but was continued during convalescence. The observations were made by the same laboratory worker and by the same technique in all instances. The fact that the death rate in some epidemics of typhoid fever was as high at 58.4 per 100,000 and that there were annually in the United States about 150,000 deaths from typhoid fever made it of great importance to detect typhoid carriers. An article published by the speaker in 1916 dealt with the value of duodenal cultures as a means of determining convalescence from typhoid fever and gave the results of a study of 12 cases in which typhoid bacilli were demonstrated in the bile and not in the feces. The present study was undertaken on a much larger scale. Bile cultures were made in 136 convalescent typhoid fever patients, the bile being collected by means of the duodenal tube. The tube was given at night and the following morning the bile was aspirated. It was found that large amounts of bile could be aspirated from the fasting stomach. The statement had been made that one very rarely obtained much bile from the fasting stomach. That was incorrect; the amount was very variable; one might get up to 80 c.c. or as small a quantity as 1 c.c. The bile in almost all these cases was thick and turbid and contained mucus. In only one instance were there active motile typhoid bacilli in the hanging drop. They used the Endo media and the examinations were made by standard technique. The first question taken up was whether the repeated examination of the feces was a fair index as to the presence or absence of typhoid bacilli in the intestinal tract. In making these examinations he had applied the Army rule, and found that 11 per cent. of the typhoid patients who were usually considered ready to leave the hospital and mingle with other people might still be discharging

typhoid bacilli undetected by the general stool examination. Of these 136 patients 15 continued to excrete typhoid bacilli for sixty-eight days. In this city in 1900 the Sanitary Code permitted the discharge of typhoid patients when two specimens of feces at an interval of twenty-four hours were found to be free from typhoid bacilli. In other words, by the routine stool examination many typhoid carriers were missed. The second question considered was whether it was possible that typhoid bacilli were destroyed on their way down from the gallbladder, as noted in cases with a negative stool culture and a positive bile culture. It was found that the longer typhoid bacilli persisted in the bile the more likely were they to be found in the stools. In the early days of convalescence bacilli might not be detected in the stools at once, but only after numerous cultures.

One could not tell from a negative stool in the early days of convalescence which ones would show typhoid bacilli later. A third question was whether in cases with positive duodenal cultures the typhoid bacilli were constantly present in the bile or whether there were intermissions when none could be found. Specimens of bile were taken every two hours for twenty-four hours, and after each specimen was collected the tube was washed with sterile water. It was found the bacilli were constantly present. Repeated cultures were made over long periods of time and it was found that the cultures were either constantly positive or if they became negative they remained so, but they might be absent from the feces for months and then recur. The writer was convinced that this intermittency in the stools was only an apparent one. There were rare exceptions to the constancy of the bacilli in the bile, but in such instances the absence of the bacilli from the bile did not continue long. In one case of cholelithiasis there was an occasional negative culture and in this instance cholecystectomy failed to cure the carrier state. The author required two consecutive negative bile cultures at intervals of two days to establish freedom of the bile from bacteria. A fourth question investigated was whether the bile cultures were accurate in detecting carriers, whether they were more accurate than the stools and whether the stool examinations should be discarded. This brought up the question as to whether there was such a thing as an intestinal carrier where the bacilli were lodged in the intestines. In the entire series of 164 cases he had been able to find only one such patient. True intestinal carriers constituted about 0.6 per cent. of all carriers. However, it was not safe to omit stool examinations entirely. The speaker made it a practice to examine two stools at intervals of six days. Every typhoid patient who continued to show typhoid bacilli in the urine or stools after the acute stage should be classed as a carrier. Temporary carriers were usually only such for weeks or months, and then cleared up. Every carrier should be considered a permanent carrier until proved otherwise. It was found that those patients who showed typhoid bacilli longer than five or six months usually became chronic or permanent carriers. Of 164 cases, 53, or 32 per cent., continued as feces carriers after the temperature reached normal; 46 cleared up in from one to four months; the remaining seven would probably be permanent carriers. This was about 4 per cent. of all typhoid fever cases. Bile carriers were classified into three types, gallbladder, liver, and duct carriers. No evidence had been obtained that there were pancreatic carriers. It was possible to differentiate between the intestinal and the gallbladder and liver carriers in the early period of convalescence. The intestinal carrier began to show bacilli early and in great numbers and in pure culture; on the other hand, when the bacilli came from the bile they were present in the feces in smaller numbers and with greater irregularity. A fifth question which Dr. Garbat had studied was that of differentiating the different types of bile carriers. This they had not done with any regularity. The idea had suggested itself that symptoms referable to the gallbladder might be of some aid. Two of the patients in this series had manifested symptoms referable to the gallbladder during convalescence. In one of these bacilli were found in the gallbladder, but not in the other. In one case showing a positive bile culture, after cholecystectomy the bile still continued to show the typhoid bacilli. In this case it was found

that a large stone was fixed in the cystic duct and the seat of the infection was the liver. In another case the bacilli were found in the bile or both the liver and the gallbladder. In the liver carriers he could not say whether the bacilli were in the liver tissue or in the hepatic ducts. As to the way in which the bacilli reached the gallbladder, they were probably carried by the blood to the liver and then into the bile, and at times into the gallbladder wall. Another route of infection, the ascending, might be by way of the common bile duct. This mode of infection was probably not frequent but it was a possibility. A sixth question was whether there was any factor predisposing to the carrier state. Were there any indications as to which patients might become carriers? No light had been thrown on this question by a study of the blood cultures. The majority of carriers seemed to have had a longer illness than other typhoid fever patients. Here, however, the protracted illness was probably not the cause of the carrier state, but more likely was caused by the persistence of the bacilli in the body. All medical treatment of typhoid carriers had been ineffective. When they studied this series of cases with relation to cholecystitis, it was found that 8 had definite evidence of cholecystitis. This relation was important with reference to the operation of cholecystectomy in gallbladder carriers. Once the symptoms of cholecystitis became evident in a typhoid patient operation was warranted earlier than otherwise. Occasionally a cholecystectomy done years after an attack of typhoid fever revealed the fact that the patient had been a gallbladder carrier for all those years. If operation was delayed too long in typhoid gallbladder carriers surgical interference became more difficult and dangerous. Not all persons who became gallbladder carriers manifested symptoms referable to the gallbladder during the disease. Cholecystectomy might in some instances be a cure for the carrier state but the results were not uniformly successful, and the cause was evident when one kept the classification of bile carriers in mind. Only the gallbladder type of carrier was amenable to operation. Unfortunately it was not always possible to differentiate between gallbladder and liver carriers hence cholecystectomy plus prolonged drainage was necessary, together with continued examination of the discharge. If repeated examination of the discharge showed the absence of the typhoid bacilli the wound might be closed, but if they were present drainage should be prolonged and in this way in a number of instances the infection could be cleared up. If a bile carrier had not cleared up after six or eight months a cholecystectomy should be performed, and in cases in which there had been symptoms referable to the gallbladder, operation might be undertaken earlier. A study of urine carriers had also been undertaken and 2500 cultures of urines from the 164 patients made. Every convalescent typhoid fever patient was given three urine examinations at intervals of six days. The patients were found to divide themselves into three groups (1) those in which the typhoid bacilli were at no time present in the urine; (2) those in which the urine was at first constantly positive and remained so for a shorter or longer time, and (3) those in which the urine was sometimes positive and sometimes negative. It was this group that was studied in detail. The first question investigated was whether the time of voiding made any difference. They selected 12 patients, and every specimen was collected separately and cultured separately. As a result he had found that the hour bore no relation to the presence or absence of the bacilli. The specimens might change from positive to negative and vice versa every few hours. They then extended the study over weeks, counting the bacilli, and found a marked intermittency even with hourly voiding. The high counts obtained in some specimens seemed to be accounted for by the growth of the bacteria in the bladder. All their experience tended to prove that culturing single specimens of urine and concluding from a negative result that bacilli did not exist in the urine was erroneous. Three negative cultures was not a dependable rule if complete freedom from bacteria was sought. All their observations left no doubt that accurate results were possible only when twenty-four hour specimens were examined. If the examination were made in this manner one or two examinations would be sufficient and a six day interval

between examinations would not be required. Of the 164 patients, 49 per cent. showed bacilluria at some time during convalescence; this was a much higher percentage than was usually given. Of 127 cases examined in the first week after the temperature reached normal 63 per cent. showed bacilluria. An attempt had been made to investigate the pathology of bacilluria in general but only one explanation was found to account for the source of typhoid bacilluria. It seemed, however, that in the majority of cases the bacilli came from the urinary tract above the bladder. Several types of kidney lesions had been demonstrated in urine carriers, such as multiple focal abscess, hydronephrosis, and acute nephritis. Typhoid infection might result in acute nephritis, but a transient bacilluria could not be explained on this ground. Dr. Garbat discussed at some length theories to account for the presence of typhoid bacilli in the urine and bladder. When there was an infection of the kidney the numerous calyces of the pelvis bore the same relation to the kidney as the gallbladder did to the liver, and the intermittency of the bacilluria might in some cases, at least, be explained by the fact that the calyces were flushed out at different times. Urine carriers might be classified along the same lines as bile carriers into urinary, pelvic, and bladder carriers.

Dr. HANS ZINSSER said that he had listened to Dr. Garbat's paper with a great deal of pleasure and regarded it as a finished piece of work. As a bacteriologist, he could express only admiration for the manner in which it had been done. Since water and food sanitation had reached degrees of perfection that made extensive water-borne and food-borne typhoid epidemics a matter of increasingly infrequent occurrence, the sanitary efforts in typhoid must center upon the direct and indirect contact infections from carriers, a problem which was still to be solved. As to Dr. Garbat's percentage of chronic carriers, it corresponded with the figures generally accepted, 4 to 5 per cent. of those convalescing from typhoid. As to the duodenal tube results, Dr. Garbat's work seemed to be much more favorable than that of others who had worked with the tube. As a rule, the percentage of positive findings in the duodenal contents had not been as great as those of Dr. Garbat, though one would expect the percentage in the duodenal contents to be higher in carriers than the stool findings, because of the greater relative purity of the cultures in this material. He thought that the comparison of stool cultures and duodenal cultures, as made by Dr. Garbat, who worked only with the Endo medium, could not be regarded as conclusive, since, in his experience and in that of assistants in his laboratory, a considerably higher percentage of positive stool findings could be obtained by proper use of brilliant green media, such as that described by Krumwiede. An important result of Dr. Garbat's work was the proof of the existence of a pure intestinal carrier. This class of carrier had been worked upon with some skepticism. Gallbladder, duct and liver carriers had been proven, and so classified before this. A pure intestinal carrier had been suggested by Professor Krause, who believed that it might be associated with chronic ulcerations of the intestine and even with low grade appendicial inflammations. Dr. Zinsser could not remember the name of the German investigator, but called to mind distinctly another pure intestinal carrier proved by methods similar to those of Dr. Garbat in 1916. Dr. Garbat had spoken only of the surgical treatment of carriers. Dr. Zinsser regretted that he had not taken up the medical treatment, as well. He said that the carrier problem was a very difficult and large one in preventive medicine, and it centered about the proper handling of the carrier, a problem in which not only medical but legal problems were involved. Though results of investigation showed that about 5 per cent. of typhoid fever patients become chronic carriers, there were probably a great many who were carriers who had never had typhoid fever in typical form. A great many of those vaccinated against typhoid fever might become carriers with the typical disease, and this, indeed, was the case during the war, when extensive outbreaks of diarrhea and intestinal disease occurred in all the Armies of the Allies, and probably of the Central Powers, as well, during July, August and September of 1918, when it seemed fair to say that pretty nearly four out of five

men had some intestinal upset associated with diarrhea. A considerable percentage of the few of those that were examined had typhoid, paratyphoid, and dysentery bacilli in their stools. It seemed fair to suppose that many of these men had typhoid and paratyphoid infections, rendered atypical by the vaccination immunity, and as more and more people became vaccinated, more and more carriers would develop in whom the warning of their probable carrier state supplied by the history of an attack of typhoid fever, was lacking. Medical treatment which Dr. Garbat did not mention, had, to be sure, offered very little that was hopeful. A great many methods had been tried, and a few of them recently had seemed to give hopeful results. Two German observers had reported within recent years that they had managed to cure a limited number of typhoid carriers by the use of animal charcoal and thionin, and animal charcoal and tincture of iodine. Methylene blue and many other drugs that were eliminated partially through the bile seemed to have failed completely. Vaccination of carriers had been unsuccessful, as, indeed, there was no theoretical ground for hoping that it might prove a cure, since the organisms in the carrier were not physiologically within the body. It was perhaps natural, therefore, in view of the very meager results of medical treatment, that interest should center upon surgical treatment which seemed pretty sure to cure the pure gallbladder carrier. But surgical treatment could not solve the sanitary problem, if one considered the large number of typhoid carriers in any community, removal of gallbladders certainly could not be looked to, except in a very limited percentage of these, and even in the favorable cases it must be left to the surgical judgment of the individual surgeon whether or not the operation could be safely undertaken, for a certain percentage of these cases did not clear up, and there have been a not inconsiderable number of deaths following the operation. The sanitary solution of the typhoid carrier problem would rest primarily upon such careful and rational studies as that of Dr. Garbat. Epidemiological study of the individual typhoid case must make the beginning of preventive organization, backed up by careful carrier examinations of the limited group to which the epidemiological study led. Beyond this, public health measures were only successful when they were based upon feasible procedures. Typhoid carriers should be reported, and there should be systematic carrier examinations of individuals engaged in all occupations associated with food handling. The carrier when found should be reported, registered, and his whereabouts and occupation should be under constant health department supervision. Carriers should not be allowed to follow vocations as cooks, waiters, or similar occupations involving food handling. All this might be expensive, but, from the economic standpoint, it would be cheaper to compensate such people if they were to seek other employment, and to retrain them, than to permit them to continue as food handlers, which might involve great loss to the community. In closing, Dr. Zinsser said that he could not criticize anything in Dr. Garbat's paper. His studies, as well as those of others who had used the duodenal method recently, were important in showing the directions along which rational methods, which would eventually restrict typhoid fever, could be developed. Such studies, coupled with the administrative health board activities outlined above, and constantly increasing generalization of vaccination, with, finally, education of the carrier and the general public in the simple processes of hygiene, as to cleanliness of hands after stools and before taking meals, these were the lines along which the carrier problem would have to be controlled for the present.

Dr. SAMUEL W. LAMBERT said he did not know what a pure clinician could say regarding pure, scientific bacteriological technique presented in such an able way. He had read the paper some months ago and since then had been more careful in analyzing methods to discover carriers. In spite of the problem of the carrier, typhoid fever at least so far as this city was concerned was disappearing. They used to have 20 or 30 cases on the medical service of the Presbyterian Hospital every year; last year they had only six cases. This was the result of vaccination and of the education of the community. We were, of course, all interested in the discovery of carriers and in this the clinician was de-

pendent upon the laboratory. The laboratory must tell the clinician when he could discharge the typhoid patient. He had found the laboratory more prone to turn in a positive urine than a positive stool culture. He had not used the duodenal tube as a routine procedure and doubted if it could be so used. Certainly if German prisoners of war had to be bribed in order to get them to submit to its employment, its applicability to the private hospital patient was probably out of the question, even if it might be possible to apply it to a few others. The question of the typhoid carrier had always brought to his mind another point—namely, that one might catch the typhoid carrier—and it was rather important to catch him, but what were other cooks and food handlers putting into our food? Dr. Garbat had spoken of methylene blue as a medicinal disinfectant which had failed. The idea had occurred to him that if it were possible to feed all food handlers and cooks methylene blue we might not be able to diagnose the typhoid carrier but we might at least find out which ones were cleanly in their habits. Dr. Lambert took exception to Dr. Zinsser's statement that dealing with typhoid carriers was a question for the surgeon of the future; he thought it was a question for the medical men to determine how typhoid carriers could be disinfecting. We did not possess a real disinfectant for the intestinal tract. Dr. Garbat had done a great piece of work and was to be congratulated.

Dr. GARBAT, in reply to a question as to whether he had traced any relationship between bile carriers and urine carriers, said he had gone into that question, but the time had been too short to include that part of his work. He might say, however, that it was a mere coincidence if the same individual was both a bile and a urine carrier. With reference to the question of operation, these patients who were carriers were willing and anxious to be operated upon, in view of the fact that no medical treatment had been found effective in dealing with the carrier state.

Books Received.

THE MEDICAL RECORD is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.

THE OXFORD MEDICINE. Edited by H. A. CHRISTIAN, M.D., and Sir JAS. MACKENZIE, M.D. Vol. III, Diseases of the Digestive System, Kidneys and Ductless Glands. 828 pages with illustrations. Published by Oxford University Press, American Branch, New York.

BAILLIÈRE'S NURSES' COMPLETE MEDICAL DICTIONARY. Edited by CONSTANCE M. DOUTHWAITE. 206 pages. Published by William Wood & Company, New York.

OPTIMISTIC MEDICINE. By A FORMER INSURANCE MAN. 318 pages. Published by F. A. Davis Company, Philadelphia.

TRANSACTIONS OF THE AMERICAN PEDIATRIC SOCIETY. Edited by OSCAR M. SCHLOSS, M. D. 32d Session, 1920. 353 pages with illustration.

THE SEX-COMPLEX. By W. BLAIR BELL, M. D. 251 pages with illustrations. Published by William Wood & Company, New York.

THE DISEASES OF THE NEWBORN. By Dr. AUGUST RITTER VON REUSS. 626 pages with 90 illustrations. Published by William Wood & Company, New York.

THE WATERING PLACES OF SWITZERLAND. 86 pages with illustrations. Published and offered by the different Swiss Watering Places.

THE WASSERMANN TEST. By CHARLES F. CRAIG, M.D. 279 pages with illustrations. Published by C. V. Mosby Company, St. Louis.

ANNUAL REPORT OF THE SURGEON GENERAL OF THE PUBLIC HEALTH SERVICE OF THE UNITED STATES, for the Fiscal Year 1920. 391 pages. Published by the Government Printing Office, Washington.

EPIDEMIC RESPIRATORY DISEASE. By EUGENE L. OPIE, M. D., FRANCIS G. BLAKE, M. D., JAMES C. SMALL, M. D., and THOMAS M. RIVERS, M. D. 402 pages with illustrations. Published by C. V. Mosby Company, St. Louis.

Miscellany.

MAN AND DEVONIAN MOLLUSK*.

By F. CAUTHORN, A.M., M.D.,

SUPERIOR, ARIZ.

Man:

Strange inhabitant of the rocky mountain side!
Thrice an hundred miles from where the ocean,
At its nearest point, washes the sand-strewn beach

Or, with relentless lashings, beats against the cliffs,

I found thee.

Thy graceful fluted edge and rounded hinge,
Thy shape entire,

So like the forms now living in the ocean shoals
Bespeak thy kinship and thy former home.

What changes hast thou seen in this old Earth

As æons rolled!

Age begets wisdom,

And with bowed head and humble mind,

I would of thee a lesson and a moral learn.

Mollusk:

Poor fellow mortal!—

Nay, do not wince that such I call thee;

For surely, as the ages roll,

There's kinship 'tween thee and me.

Twice ten million years have passed away,

Since o'er my sandy bed washed the Devonian Sea.

How insignificant thy "three score years and ten"!—

Yet, like thy "three score years and ten," this twice

Ten millions is but a fraction of the time gone by.

E'en then, as now, the one outstanding fact of all
Was prevalence of universal law.

The sun gave light and heat,

And held his circling satellites in equal poise;

The Moon her monthly passage made

About the turning Earth;

And twice each day the then existing land

Was laved by flowing tides.

We, the living forms, responded

To the urgings of the vital spark,

And passed away.

Nowhere was asked the question, "Why all this?"

Time rolled on with varying change;

Time after time my calcareous bed was lifted up

And sunk again below the ocean's depths.

At last, with mighty rumblings,

The solid crust of Earth was opened,

And 'stead of watery waste,

I found myself upon the mountain side,

While all about was barren rock and desert sand.

Strange creatures roamed the Earth,

And from the lips of one the query came

Of "whence and why and whither."

In boastful arrogance,

Man clothes the Great Unknown with human attributes;

With love; with hate; with lust of power

And childlike jealousy;

He would pretend the world is ruled;

Demands to know the wherefore of his being;

Why he should suffer pain;

And sacrificial altars builds, and temples rears,

*Suggested by the finding of a fossil mollusk in the mountains of Arizona.

To appease the wrath Divine or win His favor.
 In blind conceit he asks to be exempt from Law,
 And he and his be ruled by special favor.
 But from the brooding silence of immensity.
 There comes no answer.
 Thy part consists in humble acquiescence
 In the things that be;
 In trust complete that all that is, is well.
 Be not afraid.
 In childlike confidence entrust thy future
 To the First Great Cause;
 Ask if thou wilt, as ask thou surely must,
 The whence of thy existence;
 Extend thy study to the Universe at large
 And try to solve the plan:
Console thyself that, of it all, thou art a part;
 That of the Eternal Energy that moves it all,
 Thou art a spark.

Death of Weichselbaum.—The eminent Viennese pathological anatomist died October 28 last in the 76th year of life. He was born in 1845, the son of a simple country cooper. He remained to the last proud of the simple life, regarding his subsequent career as the logical outcome of his early environment. His preliminary education ended with a gymnasium course at Krems in 1863. Thence he repaired to Vienna to begin the study of medicine at the University, which he completed in 1869. Up to 1883 he fulfilled various duties, becoming an army physician and eventually the assistant to one of Rokitsky's pupils, who was pathologist to a hospital. At the latter, the Josephine, he also served as operating surgeon and internist, specializing later in military medicine and sanitation. He was for a time instructor in the last named discipline at Lemberg. By gradual stages of subordinate work he reached the goal of his ambition as pathologist to the Vienna University in 1893. This chair he held until 1916. His career as author began in 1872. Two subjects to which he early contributed valuable information were the pathology of the pancreas and the action of chronic alcoholic addiction on the testicle. With Koch's discovery of the bacillus he threw himself into the study of bacteriology and was the first to demonstrate the tubercle bacillus to the then sceptical Viennese professors. Later he became identified with the discovery of several important pathogenic bacteria, the *Diplococcus lanceolatus* of a form of pneumonia, and the meningococcus of epidemic meningitis. He published over 100 papers on pathological histology, bacteriology, and epidemiology, and was one of the world's great authorities on and crusaders against tuberculosis.

Eulogy of Pozzi.—On January 19, 1921, Professor Faure pronounced a eulogy of this illustrious surgeon who was murdered in 1916 by an unbalanced patient. (*Progrès Médical*, Jan. 29, 1916, xlix, 5.) Pozzi was born in Bergerac in 1846 of Protestant stock, his father having been a clergyman. The eulogist and the deceased had been schoolmates. He came to Paris in 1861, where lived the well-known physician, Laboulbène, his cousin, who acted as his preceptor. While still interne, the war of 1870 surprised him. This he fought through and was wounded, lying in the Necker Hospital during the siege. Later he resumed his internate at the Charité

and was thrown early into comradeship with Gosse and A. Robin, men who later were to be famous in surgery and medicine, respectively. The latter, who attended him at his death, experienced the most bitter moment of his career, for the two had been intimate friends for fifty years. In 1875, still an interne, he came under Paul Broca, and, while yet in his internate, he made friends with many of the most distinguished men in Paris, artists, literati, and actors. Among the latter was Mounet-Sully, with whom he became intimate. Through his life he was a lover of all the fine arts, and his home was a veritable art museum. He visited, among other celebrities, Lister and Billroth. Gynecology he chose as his life work. He developed a passion for travel, visiting both Americas and spending much of his time in the Mediterranean countries, including the Holy Land and Egypt. These were not the flying trips of the tourist, but residential sojourns. He was 70 years old when he was slain. Among others, Clemenceau was at his bedside. The operation to save his life is described in full. Four bullets had caused ten intestinal perforations. The operation was done under local anesthesia, so his mind was clear to the end, and he expressed his last wishes, one of which was to be buried in his native town.

Magendie and Experimental Pharmacology.—Recently there has been a slight revival in our interest in the activities of Magendie, who was in the midst of his career as a pioneer a century ago. It has been shown that his great eminence as a physiologist was dimmed by the career of his pupil Claude Bernard and recently we have noted the announcement that he anticipated the discovery of vitamins by at least seventy-five years. This statement we have been unable to verify because the second edition of his "Physiology" bearing the date 1836 is not accessible to us. The chief credit awarded to Magendie both in his time and ever since has been in the domain of experimental pharmacology. In the *Gazette hebdomadaire des sciences médicales de Bordeaux* for December 12, 1920, xli, 50, Massias gives a resume of his work in this field. Magendie's "Formulaire" appeared in 1825 and went through eight editions in ten years. It dealt entirely with newly discovered drugs and gave instructions for their preparation. He tested these new remedies on patients in the Salpêtrière and Hotel-Dieu. He experimented on himself and never hesitated to dose himself with any drug which proved innocuous to animals. He experimented with nux vomica before Pelletier and Caven-
 tou had isolated its alkaloids, this work going back to 1809. In 1818 he introduced morphine into therapeutics. He followed up the various discoveries of Pelletier, such as narceine, codeine and emetine, testing their pharmacological and therapeutic activities. In 1826 he devised the earliest soda mint tablets. He was the first to test quinine in pernicious fevers (1821) and in 1817 advocated prussic acid for cough, and was a pioneer in iodine therapy. He seldom wasted time on substances which failed later to make good; perhaps his advocacy of gold salts came the nearest to a mistake. Nor did he overlook the importance of any discovery by his contemporaries. Leroyer discovered the action of digitalis, and Magendie at once recognized its importance.

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FUNDAMENTAL PRINCIPLES OF THORACIC SURGERY.*

By WILLY MEYER, M.D.,
NEW YORK.

GENTLEMEN: To preside over the annual meeting a second time is a privilege I had not expected. Let me assure you that I am deeply sensible of the honor conferred and that I gratefully appreciate your confidence.

No other chapter of surgery has received as great an impetus by the late war as has thoracic surgery. One of the principal reasons for this phenomenon has been the fact that colleagues who formerly had paid little or no attention to the work within the chest, beyond pleural affections, were suddenly confronted with the necessity of operating upon lungs, heart, diaphragm, mediastinum, etc. Another reason has been the terrible influenza epidemic during the last two years of the war, when the hemolytic streptococcus took the lives of so many soldiers through pneumonia and pleurisy. Since then the question of the best treatment of acute and chronic empyema has again come conspicuously to the front and, up to the present time, is one of the principal topics for discussion on the programs of local and national gatherings.

This broadening of the interest almost looks like the beginning of a new era for thoracic surgery. It leaves the hands of the comparatively few who heretofore enjoyed its fascination, and becomes the common property of the profession at large. Such a moment in its development appears to me peculiarly fitting for retrospection and for emphasizing once more what, I believe, many of us, who have done work in this special field, have come to look upon as its fundamentals.

I have reference to three principles which, to my mind, form the basis for the safe and rapid further evolution of thoracic surgery. They concern the lessening of and, if possible, the ruling-out completely of the dangers which attach to this branch of operative surgery. These principles are:

1. The avoidance of the acute pneumothorax—acute operative collapse of the lung—during the operation.
2. The avoidance of the acute *post*-operative pneumothorax resulting from our efforts to render harmless by drainage the exudate which is the response of the pleural leaves to exposure and manipulation.

*Presidential address before the third annual meeting of the American Association for Thoracic Surgery, New Orleans, La., May 1, 1920.

These two points have already been discussed by me in a paper read before the Southern Minnesota Medical Ass'n at Rochester, Minn., on June 23, 1919.¹

Since that time the hard school of experience has again brought home to me another lesson, a lesson which deserves to be laid down as the third principle, and is still more necessary to keep constantly in mind in the surgery of the thorax, than in the surgery of other parts of the body, namely, the importance of

3. The avoidance—as far as it is possible—of everything that might favor the development of a post-operative pneumonia.
1. The Avoidance of the Acute Operative Collapse of the Lung in Thoracic Operations.*

We all know that surgeons called upon to operate during the world war near the front for injuries of pleura and intrathoracic organs were obliged to do so on basis of their every-day's surgical experience, many of them without special preparation for thoracic work. If then, in spite of stress and outward difficulties, such operations were followed by success, it is not difficult to understand that these surgeons should come to the conclusion that, after all, thoracic operations were not different from surgical interference in other parts of the body; or, expressed in other words, that arrangements for maintaining the physiological difference in air-pressure during the surgeon's intrathoracic work, demanded as essentially necessary by other medical men, were superfluous.

In my presidential address before the second annual meeting of our Association at Atlantic City, June 9, 1919, I tried to show the fallacy of such a sweeping conclusion on basis of war experience. I emphasized that it was not conducive to the proper evolution of thoracic surgery, to generalize from the experience made in one single chapter—traumatic chest surgery—to the entire, large field of operative intervention upon all the viscera of the thorax.

The work done near the front, wonderful and admirable as it appears, was, after all, emergency work. It did not permit of the careful individualizing we are wont to practise at the hospitals in times of peace. As in the latter we have the necessary time and opportunity at our hospitals, to give the patients the benefit of the advances made within the last sixteen years, it seems to me it is our duty to do so. Every surgeon preparing to operate on any one of the intrathoracic organs should, I think,

*For the sake of clearness, it seems wise to me, to more often substitute the term "acute operative collapse of the lung" for "acute operative pneumothorax."

take the trouble to first study the dangers of the acute operative collapse of the lung which inevitably occurs on incising a "virgin pleural cavity," that means a pleural cavity, which had never been the seat of inflammation and therefore shows nowhere any adhesion between its pulmonary and costal leaves. He would then recognize the danger to which he was exposing his patient when not guarding against this accident by employing one of the four methods of differential air-pressure which, fortunately, now are at our disposal for this purpose. True, fully one half of our patients seem to be able to stand the sudden collapse of the lung. But, are we able to tell *beforehand* who will overcome the concomitant risk and who will succumb to it? Can we know *beforehand* whether we have to transgress that length of safety in our incision which Graham and Bell, by ingenious mathematical deduction, have established? Is it not, therefore, self-evident, that suitable arrangements should be made for safe intrathoracic operative work, so long as we have ample time to prepare for and meet the dangers ahead?

Not long ago I talked to a colleague at the close of a meeting in which he had just stated before a large audience, that lung surgery could well be done **without the use of differential air-pressure**. He said to me: "I know it is better for the patient to avoid the lung collapse; still I believe, we can get along without air-pressure in lung surgery." I agree with him only to the extent that emergency cases are concerned—cases of traumatism that demand prompt surgical action—out in the country; but at home, at our hospitals, we should nowadays be prepared to give our patient the benefit of what science offers for the sure avoidance of one of the principal dangers confronting him.

Besides, by making use of a differential pressure apparatus we are enabled to thoroughly distend the lung at will and make it collapse again, that is to say, carry out lung gymnastics in the course of the operation, a procedure which, when intermittently and methodically done, represents one of the most powerful heart stimulants on a physical basis. And what, if a *double* pneumothorax occurs in the course of an intrathoracic operation, accidentally or intentionally? What, if the adhesions between the visceral and costal pleura are in the way and have to be severed, if the lung has to be pushed aside in order to reach the seat of the disease? Preparing for such emergencies by the use of apparatus means safe-guarding the patient's welfare.

2. The Avoidance of the Acute Post-Operative Collapse of the Lung in Thoracic Operations—Airtight Thoracic Drainage.

Observations on the post-operative course in quite a number of patients subjected to intrathoracic interference have shown that it is for the patient's best, here as elsewhere, to follow the principles of general surgery. In the thorax, more than in any other part of the body, post-operative drainage is desirable, often clearly indicated on account of the great tendency of the pleura to form an exudate. But, draining the chest immediately after an intrathoracic operation also means collapse of the lung, except it can be done in such a way that the air is prevented from entering the

thoracic cavity through or alongside of the drain. In other words, the drainage must be "airtight," that is to say, while the amount of air, present in the chest at the conclusion of the operation, must find a ready outlet, no air must enter. Such a procedure not only allows the lung to distend immediately after the completion of the operation and to remain distended, but it gives exit to any exudate that may form. This exudate is sterile only in exceptional instances. Airtight thoracic drainage, therefore, fulfills two important demands simultaneously.

The principal points of airtight thoracic drainage have been brought out by me before. What Buelau taught in 1891, as being the most desirable procedure in the treatment of empyema, we have come to accept—in a round-about way, I might say, and independently of Buelau's teachings—as the safest procedure for *every* intrathoracic operation, on basis of careful observations during the after-treatment and on basis of the results of the thoracic work of ourselves and others.

Kenyon's original work on the drainage of empyema in children, adapted by myself to intrathoracic operations in general, is, as a careful study of the literature has shown me, *Buelau's principle*, carried out in a somewhat different way. In order to emphasize the principle as such, I propose that we drop the authors' names altogether and call the procedure simply "Airtight Thoracic Drainage."

In carrying out this drainage, best, to my mind, as just stated, in *every case* of thoracic operation, we save our patients danger, trouble and pain. Besides, it is easily performed and gives fullest satisfaction to both patient and surgeon alike.

Absolute airtightness of the drainage tube is required after the operation for the first two to three days only, in order to give the lung the chance for proper distention and also to favor the formation of adhesions between pulmonary and costal pleura. These requirements the method fulfills, as clinical observation has abundantly shown. It is remarkable to see how quickly these adhesions take place.

And now as to the third principle, the avoidance of pneumonia, the goal also of our every-day's work.

3. The Avoidance of Post-Operative Pneumonia in Thoracic Operations.

It is natural to assume that by handling the lung and working on and next to it, the danger of the development of an inflammation in this organ should be increased.

At the second annual meeting of this Association, last year, Dr. S. J. Meltzer read a paper on "The Integrity of the Vagus Nerves as a Factor in Pneumonia," the complication which has marred and is daily marring so many efforts of the surgeon, particularly in thoracic surgery. To Meltzer the hypothesis seems plausible: that the resistance of the lung tissue to infection depends, among other things, upon the integrity of the vasodilator nerves of the lung. Should not the handling in intrathoracic work of the pneumogastrics, also often direct injury to their main trunks as well as their many branches, contribute to the post-operative occurrence of pneumonitis?

What I believe will greatly help to avoid a post-operative pneumonia in thoracic work is:

1. The selection of the proper type of differential pressure apparatus for general anesthesia in the given case;
2. Carefully planned preparation against possibly arising difficulties, by placing within easy reach the devices required to meet them;
3. The more frequent and persistent use of regional and local anesthesia during the entire operation in order to avoid aspiration of intrabronchial contents into the lung tissue proper, as so frequently occurs during general anesthesia;
4. Thorough clearing of the bronchial tree by means of aspiration, at the hands of a trained bronchoscopist, just before the operation. Such pre-operative preparation, of course, refers only to patients suffering from chronic, non-tuberculous, suppurative lung disease, *i. e.*, patients that have become accustomed to the introduction of the bronchoscope.
5. Further experimental work on cocainization of the pneumogastric nerve or nerves, above as well as below the aortic arch.

If the above mentioned desiderata: avoidance of sudden unintended and prolonged lung collapse during and after the operation, and avoidance of post-operative pneumonia, have been fulfilled, furthermore, if airtight post-operative drainage has been arranged for, and if surgeons are ready to carry out what the experience of the last 16 years has taught us, then, it seems to me, the safe and rapid evolution of thoracic surgery will be assured.

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ROUTES OF ACCESS TO THE HEART.

LESSONS GATHERED FROM THE EXPERIENCES OF THE WORLD WAR.*

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THE experience of the late war and the extraordinary increase in the number of casualties caused by the explosion of artillery projectiles (shell fragments, shrapnel, etc.), machine gun fire, and other foreign bodies, have virtually created a new chapter in the history of cardiac surgery. Apart from the greater frequency of the lesions of the heart by projectiles, migrating foreign bodies in the circulation, etc., the frequent survival of the wounded from the immediate effects of the primary trauma with retained missiles in the heart, has revealed a greater relative tolerance for these bodies than was previously suspected. The presence of these projectiles, as demonstrated by radiologic methods of investigation, has created a group of post-traumatic cases which come to the surgeon in a cold or latent stage in which the symptomatology

*Read before the American Association for Thoracic Surgery at New Orleans, La., on May 1, 1920. (A condensed report.)

and indications for surgical interference are very different from those offered by the immediate phenomena of the initial injury. In these cases the problem of diagnosis does not confront the surgeon with perplexing doubts. The presence of the missile in the heart or its immediate vicinity is proof positive of the lesion. Furthermore, the anatomical localization of the projectile or the foreign body has been localized in the heart chambers or the heart muscle by the radiologist—sometimes with almost uncanny precision and detail. The condition of the patient is not that of a shocked, exsanguinated, and often asphyxiated individual, battling for existence, giving the surgeon only a few precious moments to save life. These patients, on the contrary, come to the surgeon weeks, months, and years after the original injury has been inflicted, their complaints depending more or less upon the cardiovascular and respiratory disturbances and the gravity and persistence of the symptoms which are manifested after recovery from the primary effect of the trauma has been assured. Time, therefore, is afforded for the most thorough and satisfactory radiological and physical investigation, and for the most deliberate, calm judgment on the surgical indications in the event that the extraction of the projectile is deemed necessary or justifiable.

The lessons which have a direct bearing upon the surgery of the heart in general, and with reference to the extraction of foreign bodies in particular, may be briefly summarized into:

1. The indispensable association and collaboration of the radiologist with the surgeon for diagnostic and operative purposes.
2. The proved efficiency of this collaboration has added vastly to the safety of the intrathoracic manipulations and to procedures for the extraction of foreign bodies, which hitherto have been regarded as largely impracticable if not visionary.
3. Modifications in the technique of thoracotomy which utilize the older suggestions and methods have been revised and extended in the light of a new and larger experience.
4. The disregard of the pleura and of the risks of acute surgical pneumothorax, contrary to all preconceived notions of the gravity of this complication in ante bellum days.

In regard to radiological methods, all agree that radioscopy with the fluoroscopic screen is far more important than radiography with plates. There is a great difference in the methods of radiology utilized for the localization of foreign bodies among the leading operators, as seen by comparing the technique of Pierre Duval, René LeFort, Ombredanne and LeDoux Lebard, Marion, Mauclair, and Petit de la Villeon, and yet each has a claim for a certain measure of success.

In regard to pneumothorax, before the war we were deeply concerned with the risks and danger of the sudden admission of air into the pleura. Then the division of thoracic operations into *extra* and *intra* pleural was of great significance. The fear of traumatic or acute surgical pneumothorax dominated the minds of most surgeons, and the many devices and apparatus invented for operating under *hyper* and *hypo* pressure (Sauerbruch, Brauer, W. Meyer, Matas-Smyth, etc.) attest the conviction that everywhere prevailed to the effect that the

sudden collapse of the lung after the entrance of air into the pleura was a perilous complication which stood in the way of the progress of thoracic surgery. The introduction of the Meltzer-Auer principle of ventilation of the lung by intratracheal insufflation, regardless of the intrapulmonary tension, was a great advance and relieved many operating rooms of the cumbersome appliances which were used to obtain *plus* or *minus* tension in the lung. But even this last method, which is still a precious resource in counteracting the effects of *bilateral* pneumothorax, and whenever the mechanism of respiration is suspended was found unnecessary by the pioneer French military surgeons of the recent war, who unhesitatingly and freely opened the pleura whenever they deemed this necessary for their purpose.

This was the experience of Duval, Marion, LeFort, de la Villeon, and the majority of the operators on the French side, and of Moynihan and others on the British side, who seem to have confirmed the old views long ago entertained by Bazy, Delagenière, and Marion, that pneumothorax could be disregarded as a vital factor in thoracic surgery.

What we have learned of the tolerance of the pleura and lung for pneumothorax, applies as well to the injuries of the heart in which the pleura has been coincidentally opened and pneumothorax exists as a complication (61 per cent. of the cases). In such cases there is no reason why the heart and pericardium should not be exposed by the quickest and freest intrapleural thoracotomy. On the other hand, when the pleura is not involved, and there is no pneumothorax and the heart must be reached and freely exposed to extract the projectile embedded in the myocardium or held within its cavities, it is proper to consider the addition of pneumothorax as a complication which should be avoided if possible.

The object of the author, in this essay, is to consider the routes of access by which the heart can be made more accessible to surgical manipulation in all its parts, including the great vessels at its root. The procedures which have been utilized most frequently in the late war, especially by the French surgeons, who have had the greatest experience in this department of surgery, are reviewed. The reports of the many operations which have been performed for the removal of foreign bodies in the heart or at the root of the great vessels, shows a great variation and discrepancy even among the most experienced operators. There is, for instance, a great leap between the practice of LeFort, who insists upon the importance of a large open door and plenty of light, and who opens a large fenestra by a trap door osteoplastic flap, including the cartilages from the third to the fifth ribs to the left of the sternum, and the small button hole intercostal incision barely long enough to admit a long narrow forceps, that Petit de la Villeon has used so successfully in the extraction of pulmonary and mediastinal projectiles.

It is evident from the compilation of the numerous case records that the methods adopted by the individual surgeons have varied according to conditions. But it is also quite evident that while the intrapleural methods are necessary and unavoidable in dealing with pulmonary or mediastinal projectiles,

it is *very questionable* in the particular class under consideration (retained heart projectiles in the *latent* or *cold* stage), whether the pleura should be opened to expose the heart. Even Duval, the most fearless advocate of intrapleural manipulations in lung surgery, regards an acute pneumothorax as an undesirable complication in cardiac cases, and this is one of his reasons for advising his mediasternal abdominal pericardiotomy, which freely exposes the heart and the great vessels in the pericardium without opening the pleura.

The speaker then reviewed the methods of thoracic approach to the heart from the point of view of recent heart injuries, complicated by coexistent pneumothorax and those operated in the *latent* or *cold* stage without pneumothorax. For recent cardiac injuries complicated by pulmonary hemorrhage and hemothorax, the intercostal incision of Spangaro (1906) which he (Matas) had first introduced to English speaking readers (*Trans. Southern Surg. Ass'n*, 1907, and *Keen's Surgery* Vol. V, 1909) offered the greatest advantage. It could be made as large as necessary following the intercostal space and could be widened as much as necessary by forcible retraction, with rib spreaders coupled with a section of the sternal ends of the cartilages above and below the intercostal space. By this procedure, free access was given to the heart and lungs. LeFort has carefully studied this procedure since the war and has resorted to it with advantage, though he has utilized the large trap door osteoplastic flap of Delorme when a very large opening was required. Experience has taught that in certain cases, none of the parasternal or lateral trap doors, or the intercostal incision with division of the cartilage would suffice to expose the retrosternal regions of the heart and the great vessels at its base, without dangerous traction on the organ, and for this reason several operators have been compelled to make supplementary sternal resections (Fontan, Terrier, Raymond, Marion, Podrez, Rydgyier, Cantas, and even Delorme.) The obstacle offered by the sternum to a complete exposure of the heart (base, auricles, posterior surface, and great vessels) is overcome by the medio-sternal pericardiotomy first suggested by Milton of Cairo (1897), subsequently modified and successfully applied by Rehn (1914) but made really practical and effective by Duval and his associates Barnsby and H. and B. Barastys. The technique of this operation was illustrated by the speaker with lantern slides from the description given by Pierre Duval and the Barastys in the *Presse Médicale* of August 29, 1918, under the title of "Median Thoraco-abdominal Pericardiotomy."

The Duval-Barastys operation essentially consists in: (1) A median incision from the level of the third costal cartilage to a point in the linea alba, midway between the tip of the xyphoid cartilage and the umbilicus. After cutting the skin to the sternum, the incision is carried through the abdominal aponeurosis and between the recti, down to, but *not* through the peritoneum. (2) The upper insertions of both recti are detached from the edge of the ensiform cartilage, exactly through the median line and the posterior surface of the ensiform, the attachments of the diaphragm also being cut away from the cartilage. (3) Two fingers of the left hand are inserted and pushed from below upwards and behind the xyphoid, and then behind the sternum up to the level of the third costal cartilage, the fingers closely following the posterior surface of the bone. In this way the pericardium is detached from the retrosternal connective tissue. By separating the fingers slightly, the two pleural cul-de-sacs are pushed away from the midline and laterally to the under surface of the costal cartilages. (4) The sternum is then split in the midline with a large chisel (the speaker

prefers the giant sternotomy of Hudson, which does better and quicker work) beginning from the tip of the xiphoid and ending on a level with the third costal cartilage. At this level a transverse section of the sternum is made, leaving the manubrium attached to the clavicle and to the first and second costal cartilages. (5) The two halves of the sternum are now spread open, lifted, and bent out with retractors (the hands of assistants are preferable), care being taken not to fracture the cartilages. Through this large vertical space the pleural cul-de-sac and pericardium are recognized, displaced and detached from the thoracic wall with gentle gauze pressure to avoid any tearing of the pleura. (6) Laparotomy and pericardiectomy: the peritoneum is now opened in the mid line. By inclining the incision a little to the left and immediately along the insertion of the diaphragm to the chest wall, the pleura will be seen to diverge, leaving a very considerable and safe interspace between them. The pericardium is now held up with two forceps and divided in the midline with straight, sharp, but blunt pointed scissors; the pericardium is now split its full length to the root of the great vessels. The pleural cul-de-sacs are now safe and need not be considered. (7) Section of the diaphragm. Between the pericardial and peritoneal sacs, the diaphragm still remains as a horizontal partition holding the two halves of the divided xiphoid in place. The scissors are again introduced and the diaphragm is divided up to the level of the suspensory ligament. The sternal halves are then pulled apart and by lifting them up and bending them outward upon their cartilaginous attachments, they widely open the retrosternal space.

It is like opening a book—exhibiting the heart with the great vessels at its base, in full view before the operator. The ventricles, auricles, aorta, and vena cava, anterior and posterior surfaces of the heart are thus made easily accessible to any manipulation without requiring exteriorization, traction or torsion of the organ.

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After the extraction of the projectile or suture of a cardiac wound, the operation is concluded by the suture of the diaphragm, then of the abdominal incision and of the pericardium. The sternal halves are replaced and held in contact by aponeurotic sutures without bone suture support. Finally, a continuous or interrupted suture closes the skin without drainage.*

The chief and only objection that can be made to this operation is its apparent magnitude, but this objection is more apparent than real. It is certainly not a greater trauma than is involved in making a large trap door osteoplastic flap on the Délorne plan, which at once creates a pneumothorax, and it is surely less bloody, as the section is made strictly in the midline. It is, however, an operation which is to be reserved for the extraction of foreign bodies in the heart, pericardium, or great vessels at its base, in the cold stage when there is

no infection or complicating pneumothorax and the patient has had time to recover from the effects of the primary injury. The feasibility of this procedure is not based on purely cadaveric studies, but by three successive operations on the living subject.

The first case was reported by Duval and Barasty to the Société de Chirurgie on June 26, 1918 (*Bull. et Mém. de la Société de Chirurg.*, No. 23, July 2, 1918). The operation was performed within a week after a French soldier had been wounded in the chest by a German spitz bullet. The bullet had entered the left thorax on a level with the seventh rib in the anterior axillary line. He had lost consciousness for a while and had a light hemoptysis—but no other extraordinary symptoms, except occasional intermissions in the pulse beat, and later, pains in the precordia which were aggravated by every movement or effort, and especially when attempting to sit down. In the course of a radiologic examination with the fluoroscopic screen, the bullet was seen playing up and down along the vena cava, gyrating, turning on its axis and looping in the venous currents with excursions which extended from the level of the diaphragm to the right auricle, into which it entered and escaped with extraordinary velocity. The mediosternal operation as above described, was adopted, and the bullet felt through the pericardium in the inferior vena cava. After several unsuccessful attempts to grasp it, Duval finally succeeded in pinching it through the walls of the vein with his fingers and holding it at the junction of the cava with the auricle. After encircling the projecting body with a purse string suture, he incised the vein and extracted the bullet with a forceps. The bleeding was immediately controlled by tightening the suture. The heart behaved admirably throughout, though the pulse went up to 140, but rapidly fell to 100 shortly after the operation had been completed. A liter of blood was evacuated from the left pleura on the fifth day. Nine days had elapsed since the operation and the patient was progressing rapidly towards recovery, though he had a pericardial friction and signs of a small pulmonary infarct in the right lung. It is presumed that the bullet had entered through the left lung, perforated the left ventricle, the interventricular septum, then entered the right ventricle and had been ejected through the tricuspid orifice into the right auricle, from which it moved against the current into the inferior cava where it was kept in constant motion by the force of the blood stream. This case is unique in its way and is probably the first in which a mobile migratory bullet has been extracted from the inferior vena cava through the pericardium. It would seem impossible to have accomplished its extraction by any other way than through the large and direct opening offered by the amplified mediosternal thoracotomy of Duval.

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*Full details of the operation with illustrations, are given in the chapter on the "Military Surgery of the Vascular System" in Vol. VII of Keen's Surgery which has just been issued (March, 1921) by the press of Messrs. W. B. Saunders Co., publishers, to whose courtesy the author is indebted for permission to incorporate much of the matter which appears in this text.

It is a different story in the second case—that of Barbier and Gujon (*Bull. et Mém. Soc. de Chirurgie*, No. 38, Dec. 24, 1918). In this soldier the bullet entered the heart directly from back in the left thoracic region. When he was wounded the patient complained of intense pain in the heart and in two minutes fell unconscious and remained in this condition for twelve hours. He was transported

in this grave condition and reached Barbier's station at Traves two and a half hours after the injury. His condition was then alarming; shallow respiration, intense dyspnea, cyanosis. Pulse, small, irregular, 80 to 90. The radiographic examination revealed a bullet which was lodged either in the walls of the heart or fixed in one of its cavities. Barbier operated *twenty-three days* after the injury. The bullet was located in the *posterior* wall of the heart midway between the apex and the base, in the wall of the right ventricle. Barbier clamped the heart between his fingers and placed two prophylactic sutures, one above, the other below the projectile; he then incised the myocardium and extracted the bullet. A jet of black blood spurted; evidently the projectile had penetrated the right ventricle. The two catgut sutures were tied at once, and three additional sutures completed the hemostasis. The wounds in the pericardium and other parts were closed without drainage and post-operative sequelæ were remarkably mild. Thirty days after the operation the patient had recovered completely with no physical signs or symptoms in the heart or elsewhere to show for his injury.

Barbier regards the method of approach by Duval's median thoracoabdominal pericardiotomy as ideal on account of the ease of its execution and the great working space it gives to the operator.

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The third case is also very remarkable in many ways. In this case, reported by H. Rouvillois: (*Bull. et Mém. Soc. de Chirurg.*, No. 18, July 3, 1919), the missile was removed $4\frac{1}{2}$ years after it had entered the heart. The patient, a soldier of 23 years, was wounded early in the war by a German spitz, which penetrated the anterior surface of the chest, a finger's breadth from the ensiform cartilage. As he was struck, he felt a violent pain as if he had been "punched in the pit of the stomach with a fist," but this was only for an instant, after which he was practically free from symptoms. After resting eight days in the field hospital at the front, he was able to *ride 60 kilometers on his bicycle* without exhibiting any sign or symptom of any consequence, until three days after the ride, when he felt some pain in the wound, which was of short duration. He was sent to the rear where a radiologic examination was made, which seemed to show the bullet near the surface, and several efforts were made to extract it, but they failed, as the bullet could not be found. He returned to the front (four months after the injury), when he realized that any severe exertion brought about palpitations. He was made a prisoner in April and was then compelled to do hard work, which brought about great palpitation and precordial distress. He was sent back to France in November, 1918 (three months after the injury); disabled, and in extreme weakness with fainting spells, cold sweats, vertigo, and palpitations, which steadily grew worse. With all this, his physical heart signs were negative, no cardiac murmurs and a good regular pulse, when he was quiet and avoided undue exertion.

The radiologic examination revealed a bullet which appeared to be in the immediate vicinity of the heart and probably in the pericardium.

He was operated on April 11, 1919. The Duval mediosternal section was adopted. The heart proved

normal in appearance, but on palpation the bullet was detected in the wall of the right ventricle, to the right of the apex. The extraction of this bullet from its bed proved to be an extremely laborious and trying procedure, as the bullet could not be enucleated or shelled out. It was finally mobilized with a periostome or bone scraper, which exposed it sufficiently to allow a strong Kocher forceps to extract it. The bullet was covered with a layer of calcareous incrustation which had literally fused it to its surroundings. The bleeding that followed this remarkable extraction was easily controlled with prophylactic hemostatic sutures. The recovery and convalescence of the patient was also remarkably rapid and perfect.

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In sharp and striking contrast with the methods which stand for a "wide-open door and plenty of light" in the thorax for the treatment of heart wounds and the extraction of cardiac projectiles, we find the method of Petit de la Villeon. The peculiarity of this method is that it searches for intrathoracic projectiles under the fluoroscopic screen and extracts them through the smallest button-hole openings. The openings are made in the intercostal spaces after a careful localization of the projectile, and with this in constant view, a long blunt-pointed forceps follows it wherever it may be, and extracts it. This method, which is known as the method of the "forceps under screen," is one of the most extraordinary and sensational developments of this war's experience. De la Villeon first began to apply this method early in the war in the extraction of projectiles lost in the extremities. His success was so great that he tried it in the chest for the removal of foreign bodies in the lung and mediastinum. This was done for the first time on October 27, 1915, with remarkable success, not only by the distinguished originator himself, but by a large number of surgeons who have followed in his footsteps. This emboldened de la Villeon to attempt the extraction of bullets and other foreign bodies from the heart and pericardium. On May 28, 1919, he reported the extraction of 14 projectiles from the cardiopericardial or cardiopulmonary areas. All of these patients were relieved of their projectiles and were up and about in an astonishingly short time (3 to 5 days) after the operation.

In reply to the numerous criticisms bearing on the uncertain and adventurous nature of this procedure, he explained to the Société de Chirurgie what he regarded as the limitations of the method in its applications to cardiopericardial projectiles. Only missiles attached to the surface of the heart could be attacked by this method. He would not dream of removing any projectiles which penetrated the heart cavities and he would not attempt the extraction of bodies embedded in the auricles or right ventricle because he realized full well the dangers of hemorrhage from dislodging such bodies. The "permissible zone" of attack was the pericardium, the thick wall of the left ventricle, and the thicker cone of the apex. In any case, the depth of penetration of the forceps should never exceed the more superficial layers of the myocardium and not deeper than 3 mm. from the visceral layer of the pericardium. How he was able to regulate this depth of penetration by the screen, or how he was to overcome

the tough resistance of the pericardium, he could not well explain. Beyond this permissible zone, it would be folly to attempt to penetrate with a forceps. The auricles, right ventricle, the interventricular grooves, and the walls of the vena cava, constituted a forbidden zone which should not be trespassed upon by this method. Projectiles in these areas can only be extracted with safety by the open methods of thoracotomy. In proof that he had actually extracted projectiles from the myocardium, he stated that in two cases the projectiles had brought with them fragments of tissue which, on microscopic section, were shown to be typical myocardial fibers.

It is easy to understand that such a procedure could find no application in the surgery of the heart, no matter how useful, in the hands of an expert, the method has proved to be in the lung and other less vital localities. It is not surprising that on several occasions the procedure, as applied to the heart, even in the restricted way in which de la Villeon applies it, should have been received with much doubt and scant favor by the most representative French surgeons (Pierre Duval, Broca, Tuffier, La-Pointe, Hartmann, *et al.*). The consensus of opinion, as formulated at the close of the discussion, was summed up by Hartmann, who stated that "no matter how satisfactory this method had proved to be in the lung and in other parts of the body, it had no place in the surgery of the heart, and should not be employed for the removal of cardiac projectiles." Whatever the shortcomings and obvious dangers of this method in cardiac surgery, there can be no question that, in other parts, it has yielded almost incredible results in the hands of its master and his immediate followers. There is no procedure that is so largely dependent for its success upon the personal equation, the skill and experience of the operator.

In regard to the results of operations for the removal of missiles from the heart (cardiotomies) chiefly by thoracotomies which were complicated with pneumothorax, hemothorax, or other lesions, we find that Délorne had gathered from French military sources during the war and up to September 25, 1918, twenty-five cases (*Bull. Académie de Med.*, Sept. 25, 1917). Of the first seventeen cases which were reported in detail in his exhaustive memoirs, he found that ten of the missiles had been removed from the right ventricle, three from the right auricle, two from the left ventricle, and one from the left auricle. The result in thirteen cases was surprising: ten recoveries and three deaths (76.1 per cent. recoveries). René LeFort states that he had removed eleven foreign bodies from the heart in the course of nine operations; in two cases from the heart cavities, with only one death.

The gross comparative statistics of the late or delayed operations for cardiac projectiles, including the *operated* and *unoperated* cases, are summed up to December, 1918, by Pierre Duval, who has gathered most of his material from a monograph by Rossi. According to Duval's compilation, the total number of reported war projectiles in the heart up to 1918 (*Bull. et Mém. Soc. de Chirurg.*, Dec. 24, 1918) is 62.

These figures do not include the cases in which the projectiles found their way into the heart cavities through the peripheral or extra cardiac avenues

of the circulation. Of this group, Duval finds twelve cases with nine deaths. Neither does he include la Villeon's cases, who on May 25, 1919 (*Bull. et Mém. Soc. de Chirurg.*, No. 18, June 3, 1918), reported the extraction of fourteen projectiles from the cardiopericardial or cardiopulmonary area, by his method of the "pince sous écran"; none of these were intracardiac, but were lodged in the vicinity of the heart and large vessels. Two of these he claims were parietal (myocardial), but there is no convincing proof of this.

Going back to Duval's statistics of the cardioto-mies by open methods, he found that of the 62 cases, 39 were parietal (mural). Of these, 16 were operated, with 14 recoveries and 2 deaths; 23 were not operated, with 23 recoveries and no deaths. There were 23 cases of projectiles retained in the heart cavities (*intracavitary projectiles*), of which 10 were operated, with 7 recoveries and 3 deaths; not operated, 13, with 12 recoveries and 1 death.

Judging by statistics, it plainly follows that non-intervention should be the rule. Evidently, however, the indications for operation cannot be formulated by mere statistics. The indications for operation are not amenable to rules. The indication must be based upon the individual prognosis from the point of view of the condition of the patient, the degree and duration of his disability. It is only when life is threatened by the presence of the projectile, and the patient thoroughly understands his danger as well as the risks of the operation that this can be regarded as justifiable. If an operation is decided upon, it is then that the advances and the new knowledge of the technique acquired by the experience of the late war will prove to be an invaluable acquisition.

THE ADVANTAGE OF MENTAL THERAPY IN ORGANIC NERVOUS DISORDERS.

By L. PIERCE CLARK, M.D.

NEW YORK.

(Concluded from page 556.)

III.—ESSENTIAL AND SYMPTOMATIC EPILEPSY.

WHILE it must be generally admitted that essential epilepsy is an organic disease, no one distinctive brain lesion when present has been generally agreed upon to be common to all. As in many other brain disorders, the lesions found must be considered as the symptomatic pathology of the disease—more an effect than a cause. In view of the fact that morphologic and microscopic studies lend so little aid to the ultimate understanding of the true disorder, many have turned their attention to its psychogenic aspects. In so doing the majority of workers have not been misled into thinking that the fundamental nature of the disease may be revealed by such studies. The real nature of it, like that of gravity and of electricity, may remain equally obscure or hidden. But by such studies we may more definitely reveal its pathogeny by aid of the finer technique of the newer psychology. Of course it is quite absurd to say that we may psychoanalyze away an organic disease any more than that we may do away with constitutional instability of subcortical centers in the spasmodic and tic dis-

orders. It is, however, true that we may analyze away the so-called affect epilepsies, but they really are not epilepsy at all, but forms of psychoneuroses with convulsive symptoms acting as conversion symptoms of the general neurosis. Yet there are affective elements in all cases of essential epilepsy, and to this more or less constant attribute we must ascribe many of the temporary improvements in genuine epileptics by pure psychoanalysis, however difficult and incomplete such analysis may be. However, it is not essentially in this direction that the greatest advantage in the therapy of the disorder has been attained, but rather in the genetic understanding of the epileptic as a personality independent of the more or less obvious character of his chief symptoms, namely, his fits.¹

For many years the epileptic has been known to possess a unique personality, but lately it has been more precisely and accurately defined and we now believe it to be summed up in the statement that he possesses in glaring excess egotism, supersensitiveness and emotional poverty—the latter taken in its broadest aspects. Primarily these faults of character are based upon some fundamental defects of instincts, usually more inherited than acquired. The fault becomes frequently the more patent as the potential epileptic grows up and meets the progressively increasing stresses of life. This renders such individuals extraordinarily susceptible to outbreaks of their disorder for the first time upon slight or no discernible cause. Naturally, then, if we have looked to recovery from the primary fault, we must recognize a tentative pathogeny of the disorder to be a general and constitutional one, a sort of imbalance of cortical and subcortical elements not dissimilar in neurological principles to those more or less generally recognized to subtend the other spasmodic disorders to which we have already alluded. Perhaps the morphologic deterioration found at autopsy is in these tissues most diseased, but this is pure speculation.

If epilepsy, then, is a sort of abiotrophy of a family stock, a recessive and not a dominant, eugenically speaking, one may understand how the pathogeny of the affection may easily outrun the limits of any personal investigation of the individual case. However, we must make the best of a bad situation and plan our therapy as best we can. If, then, we cannot approach the lesion or neural fault on organic grounds by any specific therapy as such, what may we do for it by psychologic means of treatment? But when we do this we radically depart from the idea of again bridging the gap between the somatic cerebral factors underlying the disease and the psychobiologic pathogeny of the disease. Until this gap is filled we cannot hope to solve the real problem of just why epilepsies come about.

Without further concern as to the ultimate pathology of the disorder we shall schematize what may be done with epilepsy by an opportunistic consideration of it as a life reaction disorder, that is, as a psychologic entity. First of all, we cannot hope to radically change the fundamental nature here more than anywhere else but so adapt such a type of individual so he may obviate the more specific manifestations of his attacks and the like epileptic reactions. This is largely a process of

daily education by taking into account the development of the trends of interest within the range of its possibilities. The individual is to be sympathetically encouraged in all activities that concern the broadest development of his narcissistic interest. We do not try to make him a social being as a collectivist with broad interests. Being anti-socially inclined, his life must be built around him as an individualist. In its larger development this enables him to live in harmony with the collectivist though their innate life interests are widely separated. We can do this best by an intensive study of the special aptitudes, both of a conscious and an unconscious nature—his daily conflicts, dreams, and the unconscious motives revealed in the transitory deliria of petit mal seizures. All give us material upon which to work.

Several errors in the empirical training of the past have been to try to make over and change the epileptic character, together with too little personal appeal as an incentive to continued effort, as well as too little variety in the daily life. Many of these attitudes of approach in mental therapy can be best illustrated in a brief citation of individual cases.

The first case cited will be of the simple constitutional sort, the individual showing exquisitely the epileptic makeup. Others will be symptomatic epilepsies, dependent upon organic brain lesions. The manner of approach in either class is not specifically different. One must bear continually in mind here, as over the whole domain of medicine, that the physician's great fault is not that he does not make a careful analysis of the physical disorders which he finds, but that he is too often unduly impressed with the consequences of such positive data for ill and not enough aware of the innate and acquired possibilities of the natural bodily defenses and aptitudes for spontaneous adjustments which the organism as a whole possesses. Less burdened with exact and determinative knowledge of tissue disintegration, the charlatans are able—though with less real grasp of facts, to build a hopeful constructive program out of the positive assets which the patient still possesses and often gain thereby astonishingly good results. It is not that we should know less, but rather more, of the broader significance of all life processes and possibilities. One has but to cite the older gloomy views in regard to a valvular lesion of the heart and the present attitude that such a lesion in itself is not of so very great moment if the organ is sufficiently compensating in structural alterations to give proper functioning.

CASE I¹ is that of a boy of fifteen whose grand mal epilepsy has now been in two periods of arrest, one of seven years (to November, 1918). He had attacks usually in a series of two to ten, and had at least three or four status periods, in one of which he had 150 grand mal attacks in a single day. There was no distinct nervous disorder in the family stock, but many of the paternal relatives possessed the epileptic character. The boy himself had the classic epileptic personality. While it was possible for him to endure the demands of home life with rages and tantrums, later when these had to be repressed at school he could not subordinate his crude individualistic tendencies; he broke into uncontrollable tempers, was punished and sent home. His first grand attack came on one night after a particularly exasperating day at school. After the first attack he still continued at school, with all its

steadily accumulating annoyances, until a month later, when he had five grand attacks in one night. It was then decided to have him leave school, and allow him to go and come as he pleased with his father, who was in the fishery business. Under training treatment and directing his interests from the abstract work at school to a concrete outdoor life he gradually became more tranquil and the attacks ceased.

After an arrest of seven years this boy once more became epileptic. We find the mother anxiously pushing him in the ordinary abstract training at school. He has had three convulsions, the first occurring in November, 1918, the second a year later, and the third in March, 1920. Since this time he has remained free, but there are days when he feels stupid and can do nothing correctly; the parents have now learned to put absolutely no duties upon him at these times, either in school or at home; he complains of his head feeling bad and can hardly recall anything that might have transpired during that period, showing a state of acute exhaustion due to forced efforts at school work.

CASE II is quite unique, inasmuch as it is one of an infantile cerebral hemiplegic who has recovered from his epilepsy or Jacksonian spasm, the only one with this favorable outcome that I have even seen or known of in a large experience. The patient is a man now twenty-six years old, who came under treatment when he was ten. He had a bad family history of actual nervous and mental disorders in the ascendants as well as less defined psychopathic traits. At five years of age, after an attack of smallpox, general septicemia occurred and ended in a left hemiplegia. The convalescence from this serious mishap was prolonged and three months after the initial onset of high fever and convulsions he had an attack of status hemiplegicus unilateris (left) with fever 104° plus. The clinical history showed 47 grand mal attacks in four hours. The attacks began with a Jacksonian onset on the left side and then became general to a slight degree. Since that period he had all varieties of attacks every two or three months in a series of several at each period. Incidentally our patient had what I made special report of at the time, a paradoxical pseudomuscular hypertrophy. The fits were followed by transitory exhaustion palsy. The boy suffered no other physical fault than that mentioned. In makeup he was typically epileptic. Inasmuch as we could do nothing specific to the lesion, long since transixed in a meningitic scar, and realizing the poor prognosis that must be held for such a form of symptomatic epilepsy, we undertook to so regulate and teach the patient the nature of his temperamental defects as to enable him to gain as full and continuous a field of interest as possible. A succession of activities was engaged in without great success until a chicken farm with fruit raising was provided. Around the duties and interests of this demanding occupation our principles of concrete teachings were grouped. After a few months the fear and apprehension of attacks were removed, and the patient kept at his work in spite of warnings of an approaching seizure. When the fits finally did occur after many such aures, he immediately afterward resumed his work. In fact he became so used to his symptoms that they were no real concern to him one way or the other. The convulsions grew less and less frequent and severe until the spasm was confined solely to the left arm and face. The arm was so rigid and deformed by contraction as to make it well nigh useless, yet the patient persevered in making his business pay, entered prize competitions, etc. He took no sedatives. The motor, trophic, and circulatory defects remained unchanged. The character faults became less pronounced, although they are none the less present on excessive stress. To him his little farm is an object of admiration and continued engrossment. His epileptic retardation has disappeared and he says, "My work is my one salvation in the world."

The third case has by no means been attended by so signal a therapeutic triumph, yet what may be done with long-standing organic lesions and their sequelæ of epileptiform fits is well illustrated here.

CASE III is that of a man now 57 years old, who has

been an epileptic since an attack of scarlet fever at ten years, following which he had a slight but enduring right hemiplegia. The patient made a poor sexual adjustment, and under social and economic stress he became a grand mal epileptic. As deterioration advanced he became more and more engrossed in his past domestic and economic failures, including a sexual impotence. A series of attacks was precipitated and encouraged by certain unconscious ideas formulated under an exaggerated potency and homosexual trend. Finally there were crude infantile ideas of divine impregnation and childbirth, or his own rebirth. Later he underwent the agony of crucifixion and the ascent to heaven as a final salvation from all his troubles. When the delirious episodes cleared the homosexual gift was transferred into a fund provided to save him and certain "epileptic children." As a last stage the institution was the thing really wrong and certain wise and beneficent individuals were to remake and reform the whole colony environment and thus make reality endurable for such unfortunates as himself—a wish phantasy ever present in the unadjusted epileptic. In mal adjusted and deteriorated cases such as the foregoing one can give little therapeutic aid, yet much may still be undertaken in the free periods between seizures to bring about a certain degree of insight by simple explanatory talks on social and sexual adjustments. A wise, friendly guidance may still direct such individuals to a happier interned life in an institution. The result of painstaking analysis and good advices for this patient has resulted in periods of physical and mental freedom from attacks and deliria twice as long as formerly. He has finally taken up useful work at the colony with actual interest and personal profit. Of course the organic lesion is not altered, but neither has it been altered in any of the spasmodic disorders earlier considered, yet the epiphenomena of the attacks and an irritable and a social attitude have been reduced to the minimum, and the sum total of personal comfort and happiness possible for such a patient has been greatly augmented. Even though the improvement should be temporary only, for a few years at best, the therapeutic endeavor is worth while. The gain in diagnostic value of the state is alone worthy of the effort.

It is extremely difficult to say just what induces epilepsy in these hemiplegic cases. It is not the location or extent of the structural lesion, for the former is exceeded in porencephaly or entire atrophy of one cerebral hemisphere. In double palsies or diplegias the extent of the lesion is greater, yet they are infrequently followed by epileptiform attacks, and when they do occur they are not uncommonly recovered from. I think it safe to say that epileptiform attacks invariably follow in every case of infantile hemiplegia. The epiphenomena of fits occur from a few months to several years after the original insult. In a material of several hundred cases the longest time the spasmodic attacks have delayed their occurrence was not more than six years. So the imminence of remote attacks after supposed infantile palsy "without palsy" should not be charged to organic mischief unless the onset of fits is close to the supposed cerebral injury. This principle holds true independent of the nature and extent of the lesions present.

What rôle, therefore, can the underlying lesion be playing through the epileptiform attacks? Obviously such cases are not similar in nature to essential epilepsy except that both may have somewhat similar convulsive phenomena; but the makeup in not a few of the hemiplegic epileptics would seem to make an enduring epilepsy take on the characters which the essential type so exquisitely expresses. Here again, with more reason, the neural imbalance

theory works with more show of material defense. It has been shown that a subsequent lesion on the unaffected side converting the case to one of double hemiplegia, causes the epileptiform attacks to disappear. The complete palsy of the damaged side as in a subsequent capular lesion of late apoplexy rids the former hemiplegic epileptic of his convulsive disorder. Singularly enough, with the riddance of the epilepsy the character mends and the psychic processes are bettered.

How does mental analysis and the training treatment improve those organic processes upon which the epileptiform attacks seemingly depend? One can only say, as in considering the tic disorder, that the removal of an untranquil psyche removes a continual disturbing factor and may reestablish an inhibitory control of no small moment. In brief, one may conclude this section with the statement that so long as we must look upon essential epilepsy as an organic or at least a constitutional disorder with certain mental attributes as the most outstanding diagnostic elements of the disease, we must place our emphasis of training and educational treatment upon the fundamental make-up rather than the convulsive part of the disease; and if we develop the epileptic as an individual within the healthful range of the possibilities of his egocentric nature we may so stabilize him to a healthy arrest from the more violent aspects of his epileptic reactions. This analytic plan of mental therapy is entirely compatible with the acceptance of an organic view of the disorder, whatever it may ultimately prove to be.

IV.—MIGRAINES AND NEURALGIAS.

True neuralgias and migraine, exclusive of the false types of hysteric or physical conversion symptoms, have a variantly construed neural and chemic pathology. Hardly anyone assumes other than a somatic basis for the true neuralgias in our pathology. Two illustrative cases of extraordinary moment may be given. The plan of treatment carries its own portent for the similar treatment of such diseases in future. It would seem that the question to be solved here is not by what method can a patient so afflicted be induced to exhibit increased fortitude in bearing pain, but rather how much of a given neuralgic disorder may properly be charged to the lesion or somatic state and what part of it is due to an excessive accompanying emotion known as an affect. Even though the latter be great, one must still reckon how much of it may be suppressed or borne without harm, and how much, though it be borne, seems to hasten the physical process underlying the neuralgia. Of course only in extreme or desperate cases should the great pains which we shall here illustrate be undertaken. The first case was not treated by analysis as a curative agent for the migraine as such, but only incidentally, for a supposed epilepsy found to be only a psychoneurosis, a convulsive pantomime of a supposed affect occurring at the mother's sudden death. The migraine was not a part of the psychic syndrome which first came under treatment as it had endured since early life and had hereditary cause and characteristics. In the absence of an hysteric character the condition might in all reasonableness be considered a true

migraine. Simple frontal headache did, however, play an important but nevertheless a secondary rôle in the psychoneurotic syndrome, and was due as a part of an unexpressed affect, a psychic determinant forcing for expression. In brief, the case is as follows:

CASE I is that of a man of thirty-nine. There was a history of attacks of migraine in the mother, a sister, and a paternal uncle. The personal history was negative aside from periodic attacks of migraine every month or so from earliest years. They were the usual sort, largely confined to the left side of the head, attended with photophobia and vomiting. When his psychoneurosis broke out he also had headaches, but these were quite dissimilar in location and character from the classic migrainous episodes. He had led a sedentary life as an expert bookkeeper; this, in addition to excessive indiscretions in diet, often provoked the migraine. The attacks were so severe that our patient suffered prostration in bed for a day or more. They were frequently aborted by morphine. Mental analysis for the hysteric repression which had simulated epilepsy resulted in a complete cure of the neurosis; the migrainous episodes also completely disappeared and have been entirely absent for over five years. The patient has not changed his occupation or daily habits.

Visceral neuralgias of a persistent and intensive character, especially in the genitocrural region, are rare. I have seen but two cases. My first was a middle-aged man who had attacks of pain in the left testicle, which endured more or less persistently for twelve years. It had all the clinical characteristics of tic douloureux. He was a man of character and prominence, and endured the state with the extreme fortitude characteristic of such sufferers. The neuralgia was without any hysteric stigma and defied all plans of treatment, and so far as I know it may still persist; he disappeared from my observation some years ago. The present case is interesting inasmuch as the pain, while no doubt of a true organic origin, was so out of seeming proportion to the actual condition that the mental state threatened to end in suicide. In other words, the affect generated by the pain was so severe as to seriously cripple the patient's mental usefulness. A combination of physical and mental therapy was successful. The case is as follows:

CASE II is that of a girl of nineteen who had her first attack of neuralgic pain in the vagina at eight years. They came on suddenly and lasted a few hours, then disappeared. In the interval she enjoyed perfect health. The family history was negative except the mother had migraine from early life until the climacteric. Our patient presented no physical disorder throughout her youth except these peculiar neuralgic attacks, which appeared at irregular intervals. At one time it was thought they were associated with a separative foal in a diverticulum in the bladder; later this did not prove true. Soon after a completely negative physical examination I saw her in an attack of pain and was at once impressed that the mental effect of the episode seemed enormously out of proportion to the probable amount of pain experienced. The patient, without perceptible alteration of the pulse, respiration, or temperature, showed profound depression and anxious states. She thought this illness would cripple her career at college, her future marriage, etc. Psychoanalysis was undertaken for this exaggerated attitude. Her fundamental emotional defect was the very marked repression begun in the first pain period. The infantile reaction remained even in adulthood. After several months' treatment there are now only the faintest traces of "discomfort," but no "real pain." Our patient has since happily married and is in excellent general health. The physical basis for the neu-

ralgic episodes themselves has apparently developed on the hereditary basis of such disorders plus pyorrhea, the teeth having been diseased from earliest life. The final removal of the latter difficulty has apparently reduced the possibility of the neuralgic attacks in any form.

In both cases one sees, perhaps, an enduring slight constitutional tendency still to the neuralgic disorder, but no doubt the disabling and crippling element is removed from both. Nor do the good results in the psychic treatment of constitutional and functional disease of the nervous system end here.

Many psychoanalysts have indirectly reported the favorable influence of mental therapy upon the physical disorder present in their psychoneurotic patients. It is sometimes hard for their critics to believe that such therapists have reported aright upon the physical betterments thus brought about. It is rather astonishing that the results have not been given more attention and credence by the internist. Jelliffe has reported in circumstantial detail the longevity and improvement by such mental therapy in a woman who had advanced renal disease. The rather marvelous results (not yet published) are worthy of intensive inquiry. Of course no one may hope that Bright's disease can be cured by such treatment, but that the patient is comparatively well and able to undertake his life work and activities alone makes the effort of amelioration worth while. Who may estimate the degree of physical harm advanced arteriosclerosis may sustain by the undue shunting of intensive affective impulses upon an already overburdened visceral disease? A case from many illustrating this point may be briefly cited in that of a man in middle life whom I gave psychoanalysis for homosexuality, not with the promise or even hope to render him heterosexual but with the purpose to make clearer and more convincing the different avenues of sublimation for these unfortunate perverse emotional impulses. The object of the treatment has been fairly well attained; just how this was brought about does not immediately concern us. At the beginning of treatment it was found that he had a fairly well-advanced arteriosclerosis; cardiac and nephritic crises were present every week or so. Arterial tension was high and gastric episodes were common. A year after treatment his nephritis has become quiescent, the anginal attacks have disappeared, his digestive attacks are removed, and his registered arterial tension has fallen thirty or forty points. The organic lesions are probably present though quiescent, and the whole organism has established a compensatory balance that permits our patient to lead a happy normal existence. Such instances, which are innumerable, must give the keen internist pause, asking himself whether or not there be a psychic component in his organic cases and whether it would not be wise to combine psychic therapy with his well-formulated physiotherapy. In taking such an attitude well within the domain of rational medicine we may curtail much of the specious quackery in the world to-day and enhance the value of a broader system of therapeutics for scientific medicine.

While from the very first beginnings of the new psychology some desultory studies have been in process, not until the last few years have we had a more or less systematic approach of its application

to obvious organic disorders of the viscera, such as lung and heart diseases. Furthermore, Campbell⁶ has called special attention to the rôle which the emotions, instincts, and personality play in these affections. While our knowledge has been enlarged through recognition that the activity of the thyroid in exophthalmic goiter influences the heart action, we find even in uncomplicated cardiac disease the vaguer but none the less insistent neurotic symptoms play a definite rôle. Thus morbid anxiety and ill adjustments of the sex life modify the course of cardiac disease. In asthmatic attacks and gastrointestinal disorders there are feelings of inferiority either innate or acquired which aggravate the essential inferior mechanism of the heart as such. The reverse is also true. An inferior heart may increase the feelings of inferiority of the personality as a whole, as Adler⁷ has contended. When combining these two possible interacting factors a study of any cardiac affection may be made much more comprehensible. As Campbell points out, to understand the relative values of psychic and somatic elements in causation of a heart disease requires experience, an open mind, and a nice intuition in the individual problem.

Not a few have gone more boldly into these psychic factors in their relationship to physical disease. Thus Taplin⁸ considers asthma as remarkably amenable to mental therapy, and cites many actual cases thus treated. Perhaps he has overstressed the essential psychogeny of these respiratory disorders which he has bettered. He may have included some cases not of the true asthmatic type, but his work and its report is a good augury for future therapy of these stubborn respiratory affects. Even in Mènière's disease he claims to have achieved good results by mental therapy. Taplin unfortunately has limited his form of mental therapy to that of suggestion. The relative importance of psychologic and physiologic factors in inducing physical disorders is discussed at considerable length by Hart, who calls attention to the fact that when we employ psychologic means in treatment to-day we may do so with quite as scientific accuracy as those embracing physiotherapy. The internist as a really effective therapist must be able to evaluate the one as carefully as the other, and a proper combination of both in the particular case should be his aim.

For a long time the internists' treatment of the tuberculous has stressed the prognosis, other things being equal, upon the mental and moral attitude of the patient rather than on the degree and extent of the lesion. Of late distinct therapeutic approaches have been formulated on those lines. Wilkes⁹ states the issues fairly. Of course psychic treatment even as physiotherapy cannot hope to actually restore lost tissue, but mental therapy may help one to remove the depressive emotional conditions, and establish instead a contented and optimistic state of mind, and thus actually improve the physiologic action of the viscera supplied by the sympathetic system, and indirectly stimulate general metabolism. In a study upon actual case material Ishigami¹⁰ found psychic acts frequently influence the tuberculous unfavorably; there were actual lowering of the opsonic index and transient glycosuria, and under exciting states increased ad-

renalin in the blood and diminished phagocytosis obtained. Miner⁹ is even bolder in asserting that mental therapy is of equal importance in tuberculosis treatment as physiotherapy. His views on the subject are none the less important though they are confined to conscious explanatory talks. He gives an extensive system of procedure. As regards mental therapy in systemic disease, claims of the many beneficial effects are cited by Rabinovitch;¹¹ thus Morat, the physiologist, and Walthard, the gynecologist, have shown such clinical results, while Dide and Witry have separately demonstrated the psychogenic motivation cure of certain forms of acute edema. Vogt produced pemphigus blebs by suggestion, and in the converse Jelliffe¹² by more comprehensive methods of mental therapy as psychoanalysis cured psoriasis. In conjunction with Evans, Jelliffe¹³ believed that the depressing effects of the inhibited emotions upon physiologic activity have been well established. They hold that the physician should endeavor to reestablish normal metabolic changes through psychic control. This may be brought about by relieving many patients of the great drain on their nervous energy through making known to them the unconscious conflict between the heretofore infantile wishes and the demands of the unconscious life. Work based upon concrete material is that of Adler, who through mental analysis of a case of trigeminal neuralgia which previously had been resistant to all forms of physiotherapy, yielded promptly to mental therapy. While Adler would not infer that all trigeminal neuralgias are psychogenic, he believes that given the proper condition the unconscious may seize upon these symptoms and increase or precipitate the neuralgic attacks for its own ends. Again analyzing so stubborn a physical disorder of the spinal cord as muscular atrophy, hypotonia, mechanical hyperexcitability of muscles associated with slowness of contraction, increased reflexes, sensory and vasomotor phenomena, Babinski and Froment¹⁴ insist that such are not entirely the result of immobilization, and hold that they are disorders partly reflex as well as psychic in origin. They find a combination treatment of physical as well as mental means gives best results.

We must conclude from some of the foregoing views it is not difficult to comprehend that the aggressive attitude of many physicians, especially those best equipped with the more recent and exact methods of psychotherapy, are invading the field of internal medicine both in studies of the causation of visceral and organic disease as well as in the application of exact mental therapy to bring about more hopeful results. It is obviously not the intention of such workers to urge a psychogeny for such affections with undue zeal but they sanely hold that the psychic factors in organic disease have been given too little attention in the past and that their claims for a mental therapy based upon such findings demand our most serious attention. Time and more exact control studies will make clearer whether the disordered psyche's continued assaults of a visceral organ which may possess an inferior mechanism may not be a potent factor in inducing disease in that organ.

Of comparatively recent years a broader and more comprehensive extension of the idea is in evi-

dence no less than the expansion or extension of a veritable psychogenic theory for all sorts of visceral disease. In brief, it is held that the proper functioning of all bodily processes have psychic stimuli and control and that instances are not uncommon in which the disturbances of circulation, digestion and all secretory activities have been signally perverted by these psychic factors over a number of years until the final resistance to disease in those organs has been made easy and then seemingly through simple physical forces of one sort or another has induced the serious or fatal disease from which the person often succumbs. There is reason to think that ultimately incipient psychic as well as chemic causes will be considered the forerunners to all sorts of internal disorders of the heart, lungs, liver and kidneys. Even now, though to some the idea is seemingly fanciful and without definite proof, we have report of indubitable clinical material which augurs well for the fruition of this hypothesis.

In conclusion of our general thesis we may summarize that sufficient data are at hand to show that improved principles of pure mental therapy have already shown how all sorts of spasmodic disorders constitutional or functional in origin and many psychotic syndromes supposedly of analogous somatic basis may be radically helped or cured by such therapy. Further, various other visceral disorders may not only be cured or brought to a practical arrest by mental treatment but this whole psychic approach in general medicine bids fair to offer one of the best rational explanations of some organic disease. By due heed and caution in the earliest application of mental therapy the method may offer one of the greatest advances to preventive medicine of recent times.

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CLINICAL SYPHILIS OF THE CENTRAL NERVOUS SYSTEM.*

A PRELIMINARY STUDY.

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NEW YORK.

IN 1914, after an investigation of three years, I read before the New York Neurological Society a paper entitled "The Intensive Treatment of Syphilis of the Central Nervous System by Neosalvarsan Intravenously and Mercury by Inunctions." I then began a study of why certain cases improved and others did not. I soon learned that lues attacking the nervous system produced symptoms predominantly either cerebral or spinal. Continued study convinced me that lues rarely attacked the nervous system *en masse*, but produced symptoms referable to a patch of meninges here or there, a blood vessel of comparatively insignificant caliber, or a tract in the spinal cord. Upon the knowledge of anatomy and physiology of the nervous system depend the conclusions at which I have arrived. I have furthermore concluded that the successful treatment depends upon proper discrimination as to what anatomical and physiological destruction is caused by the initial invasion, certain structures being unalterably attacked, whereas others are undoubtedly amenable to the proper treatment. Therefore, it is absolutely essential that cases amenable to treatment be recognized in their very incipency. By the time the average patient reaches a neurologist cases which have been amenable to treatment have progressed to a degree where they show permanent damage, and it is for this reason that I shall call attention to the "little things" which should prompt one to at least suspect syphilis.

It is a matter of fact that post mortems give us very little, if any, information as to the primary invasion of the nervous system by the spirochæta—individuals rarely dying of syphilis of the nervous system in its early stage. Therefore we must of necessity rely upon the known and undisputed anatomy and physiology of the central nervous system for any conclusions we may arrive at in regard to the initial attack. I advise you strongly not to attempt to indulge in disputes relative to the minute anatomy and physiology of the central nervous system—leave that to the anatomists and physiologists.

It is my belief that the majority of general practitioners are disinclined to keep themselves properly posted as to the anatomy and physiology of the nervous system, hence a brief consideration thereof will not be out of place here. My remarks will be for practical purposes only. For more detailed considerations you are referred to any recognized anatomy and physiology.

Anatomy and Physiology. Meninges Covering the Brain.—It must be borne in mind that the cranial nerves pierce the meninges, and I wish particularly to call your attention to the space between the cerebellum and the brain stem, in which any inflammatory condition of the meninges may produce cranial nerve involvement, especially the fifth, sixth, seventh and eighth cranial nerves. I wish also to impress upon you the relation of the optic nerve to the

meninges. Especial attention is directed to the blood supply of the cerebrum and cerebellum. The artery of cerebral hemorrhage (lenticular striate artery) gives off numerous branches, one to the frontal region (mental and motor speech area), one to the Rolandic area (highest motor power area), one to the post-central area (higher sensory areas for normal sensations, pain, temperature), and so backward to the sensory aphasic and visual areas. One should familiarize oneself with the posterior inferior cerebellar arteries.

Spinal Cord.—It must be borne in mind that both the anterior and the posterior roots pierce the meninges within the cord. The following tracts are of the most practical significance: (1) Anterior horn, lower motor neuron tract, disease of which produces flaccid paralysis, like that seen in infantile paralysis; (2) the pyramidal tracts, disease of which produces spasticity (stiffness); (3) the spinothalamic tract, disease of which produces alterations in the sensation of pain and temperature on the opposite side of the body from the lesion; (4) the posterior columns, disease of which produces loss of sensation of position, and alteration of the sense of touch, and hypotonus.

General Considerations.—There have been described by a pathologist, I think, of Baltimore, whose name I cannot now recall, two species of the *Spirochæta pallida*, one which he claimed produced syphilis of the skin and bones, the other of which attacked the central nervous system. I am inclined to believe that this was a correct assumption. My experience has been such that I am of the opinion that an individual having grave secondary symptoms is much less liable to central nervous syphilis than one who has just had mild secondary symptoms or only chance, probably due to the fact that the individual with grave symptoms has been more vigorously treated. I am also firmly of the opinion that atavism plays an important role in the development of syphilis of the central nervous system. I am furthermore of the opinion that any individual who has had syphilis with or without secondary lesions, for his protection, should have performed a lumbar puncture every two years between the ages of twenty-five and thirty-five years. Only recently a young man came to me for advice relative to marriage. He had had syphilis several years before and simply wanted to know if it were safe for him to marry. The man presented no subjective symptoms whatever, and the only abnormal objective finding was a very slight irregularity of the pupil. Lumbar puncture revealed a 4-plus Wassermann reaction, two hundred odd cells, an excess of globulin, and a colloidal gold luetic curve. I could quote others, but time would not permit.

Multiple pregnancies do not eliminate syphilis of the nervous system. The absence of conception is suspicious. No stratum of society is exempt.

The one criterion of syphilis of the nervous system is the pupil. We hear a lot about the Argyll-Robertson pupil, but I want to warn you that the Argyll-Robertson pupil does not develop over night, and when it is complete in its entity your patient has some permanent damage. Any irregularity of the pupil in an individual under the age of forty years, particularly if associated with slowness of light reaction and inequality of size, must of neces-

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sity be considered luetic until proved otherwise. I wish to call your attention to what I have styled "dead man's pupil." This is a peculiar, dull-grayish look to the pupil. Experience is necessary to recognize this phenomenon. In the normal individual there is a haze to the pupil but, unlike the "dead man's pupil," this haze has a greenish hue. The haze in the "dead man's pupil" prompts one to suspect a cataract or corneal opacity; but unlike these two, by use of the ophthalmoscope one can see through the hue of the "dead man's pupil."

Aortitis is a frequent accompaniment of central nervous syphilis. In cerebral vascular syphilis ophthalmoscopic examination is often of vital corroborative service, revealing endarteritic changes manifested by a longitudinal white streak and by kinking of the retinal vessels, associated with a low blood pressure.

The colloidal gold reaction can no longer be considered pathognomonic of syphilis of the nervous system, inasmuch as it is frequently found in other neurological conditions. However, when present, with corroborative serological and clinical findings, it is of the utmost significance, inasmuch as it is the last of the various serological findings to respond to treatment and is therefore of valuable prognostic aid.

Syphilis Within the Cranium. Meningitis.—Syphilitic meningitis differs from the usual forms of meningitis in that it is more frequently associated with cranial nerve involvement and choked discs. (Of the cranial nerves involved those most frequently encountered are the optic nerve, fifth, sixth, seventh and eighth cranial nerves.) Less frequently do you find the profound illness and typical Kernig sign. The initial symptoms are usually local in character and in my experience have been most frequently referable to the frontal regions, next in frequency, the cerebellar pontine angle. The cranial nerve involvement with choked disc can probably be explained upon gumma formation. The serology here usually reveals, in addition to other positive findings, a high pleocytosis.

Isolated Gumma.—Isolated gumma of the brain produces all the usual findings of brain tumor, and differs from the gummatous meningitis only in the persistence of the isolation of its location and the serological findings which usually reveal a low pleocytosis.

Cerebral Vascular Syphilis.—This is the most frequent form of cerebral syphilis. I wish again to refer you to the anatomy of the lenticular striate artery. When any individual under the age of forty develops a sudden apoplectic stroke, the burden of proof that the condition is not luetic rests upon the examining physician. Unlike the apoplexies caused by nephritis and arteriosclerosis, those produced by syphilis, in the vast majority of cases, have had premonitory symptoms before the fatal onslaught antedating it anywhere from a few weeks to three or four months. Unfortunately these premonitory symptoms have been considered of no particular significance, treated as such mild maladies as "indigestion," and so forth. I quote the following cases: A patient appeared in the clinic six years ago complaining of headache; he showed a distinct speech defect, and the pupils were strongly suggestive of syphilis. He was told, as well as his wife,

that the probabilities were that he had a serious condition, but neither one of them was willing to accept it. He was strongly advised to enter the hospital for lumbar puncture and other investigations, but the family could not see the wisdom of this. Six weeks later I received a most urgent call and found the patient the victim of complete right hemiplegia with motor and sensory aphasia. Investigation proved the luetic nature of his malady. This man's speech defect was caused by the invasion of the branch of the lenticular striate artery which supplied the left frontal area. Another patient, sent to me because he had a 4-plus Wassermann, gave a history to the effect that three months previously he had had a spell in which he "lost his right arm" for a period of twenty or thirty minutes. This was a post-central manifestation and was due to the invasion of that branch of the lenticular striate artery which supplies the areas of the brain of the normal sensation. The only objective finding in this patient was irregular, unequal and sluggish pupils. The serology proved positive in toto. Before treatment was instituted he suffered an acute apoplectic stroke with both sensory and motor aphasia. Whereas, the logical assumption in that *a priori* the lenticular striate artery was diseased, the premonitory symptoms are directly attributable to thrombotic or absolute endarteritic changes in the smaller branches of the lenticular striate artery.

Thrombosis of the Posterior Inferior Cerebellar Artery.—I have seen three of these cases, two of which proved to be syphilitic, one alcoholic. The syphilitics improved to the extent that they could return to work. This condition is characterized by a sudden onset of giddiness, vomiting, and difficulty of deglutition and, in addition, paralysis of the fifth cranial nerve (inability to feel pin-prick on the face) and ataxia on the same side of the lesion, with a hemiplegia and a disturbance of the subjective sensations on the opposite side of the lesion.

General Paresis.—I have subdivided general paresis into two classes, namely, meningeal and parenchymatous. It is rare to-day that one sees in private practice or clinic work the genuine paretic which was seen ten years ago. The subdivision is dependent on the original onset of the disease. I believe that certain paretics begin primarily as a meningitis and by a continuity of tissue become the real confirmed paretic. The meningeal paretic is primarily a meningitis of the frontal area and the paretic symptoms are simply those due to irritation concomitant with the propinquity of tissue. The meningeal paretic will complain of headache; he will have insight into his condition, there will be less deterioration, and although he will have tremor of his tongue and of his lips they will be more or less gross and not be the fine fibrillations observed in the genuine paretic. He will not have the omissions in writing, nor will he present the grandiosity or the careless habits of the parenchymatous paretic. The serological investigations will reveal the meningitis paretic to have a high pleocytosis, a less persistent Wassermann reaction, and globulin content. He may or may not show the alleged typical gold colloid curve of the parenchymatous paretic, meningeal paresis, prognosis favorable.

Syphilis of the Optic Nerve.—Any disease of the

optic nerve, of course, produces more or less disturbance of vision. Syphilis in attacking the optic nerve produces the symptoms in one of two ways—either by direct invasion of the optic nerve itself, or secondarily by invading the structures about the optic nerve. Unfortunately the most frequent attack is direct, and associated with *tabes dorsalis*. With direct invasion, the disturbance of vision comes on very gradually and often an individual is practically blind in one eye before he realizes that there is any trouble with his vision at all; and more frequently than otherwise it is by accident that the patient learns of his malady, some little incident in everyday life calling his attention to some defect in his vision. Pain is rarely if ever complained of. The condition here is a primary atrophy of the optic nerve. Indirect invasion of the optic nerve is a result of either periorbitis or meningitis in the location of the optic nerve. Pain is here a conspicuous symptom and the defect of vision is from the beginning a compression neuritis, but the process, continuing by continuity of tissue, becomes an inflammatory process—similar to the involvement of the posterior root of the spinal cord in “meningeal *tabes*,” a description of which follows. The optic nerve is also indirectly involved in gummatous meningitis and isolated gumma of the brain associated with choked discs, the condition produced being dependent upon the general increase in intracranial pressure, the final outcome of which, if not relieved, being a post-neuritic atrophy.

Syphilis of the Spinal Cord. Tabes Dorsalis.—Before the advent of serology the French school taught that the initial lesion in *tabes dorsalis* is a posterior meningitis of the spinal cord. Oppenheim and others did not agree, but considered the initial lesion a neuritis of the posterior roots or a posterior ganglionitis. It is a well-known fact that direct invasion of the posterior column of the spinal cord is rare. My experience has convinced me that both the French schools and Oppenheim and his followers were in part right. The fact is that given any large clinic one can readily classify his cases according to the teaching of these two schools, therefore I have subdivided *tabetics* into two classes, namely, meningeal and parenchymatous *tabes*, depending upon the initial pathological onset. The clinical symptoms presented are as follows: Meningeal; the principal symptom here is pain. The patient comes to you because he has pain, described as boring, burning, shooting, and so forth. In addition, he may tell you that he has occasionally awakened from his sleep by a sharp pain causing his leg “to jump up.” Ataxia is conspicuous by its absence, as are also sexual disturbances. This man will not have the typical Argyll-Robertson pupil, but will have an irregularity, an inequality, or some slowness of light reaction. Also, there will be some evidence of the “dead man’s pupil.” His deep reflexes in the very early stages will be present and if anything over-active. As the disease progresses his reflexes will become altered, the first of which to be affected being the ankle jerks. A peculiar phenomenon which is present in the vast majority of these meningeal cases is a diminution or absence of the deep muscle pain sense in the calf muscles. In eliciting this it must be recalled that the superficial sense is usually acute in these meningeal cases and

that at first the patient will experience pain while upon continued deep pressure the superficial sense will be overcome and the phenomena above mentioned elicited. My usual method of eliciting this symptom is to grasp the calf muscles firmly between the thumb on one side and the fingers on the other, slowly but progressively increasing the pressure. In normal individuals when thoroughly relaxed this is very painful. Caution must be exercised that the patient is relaxed. Given any case of so-called rheumatism or neuritis without definite physical findings, my advice is to squeeze his calf muscles and if, in doing so, you do not cause pain then do a lumbar puncture and Wassermann and assure yourself that you are not dealing with meningeal *tabes*. These patients represent the preataxic or pain-stage of *tabes dorsalis* as outlined in the average textbook, and in view of the fact that ataxia is conspicuous by its absence, the use of the term locomotor ataxia is not only misleading, but has resulted in many of these cases going unrecognized until they have become parenchymatous *tabes*. The lesion here is a posterior meningitis, and the pains are caused by an infringement upon the posterior roots as they pierce the meninges; and you can readily understand that a continuance of the inflammatory process will involve the root itself, later extending up to the posterior ganglion, and so on to the posterior column, giving the classical picture of *tabes dorsalis*.

The loss of the deep muscle pain sense in these cases, I believe, is *per se* a posterior root phenomenon, this sensation being conveyed by certain selective fibers yet to be demonstrated. In corroboration of this, given a case of subacute combined sclerosis in which we know that the posterior columns of the spinal column are involved and which do not give posterior root symptoms, this phenomenon cannot be elicited. Meningeal *tabes*, prognosis favorable.

Parenchymatous Tabes.—These patients come not so much for pain but because they “can’t walk well” or have some sexual disturbance; or, maybe, on account of defective vision. In addition, sphincter troubles will be in evidence; in fact, they present the classical findings of a well-developed case of what is to-day looked upon as *tabes dorsalis*. Here you find your Argyll-Robertson pupil, absent knee and ankle jerks, and other classical findings. The serology of the two conditions varies: the meningeal giving you a high pleocytosis, above 80 cells per cubic millimeter, limited excess of globulin; the parenchymatous showing a low pleocytosis and a marked excess of globulin, both of course showing a positive Wassermann reaction, the meningeal being less profound.

Syphilis of the Anterior Horn.—This condition was first described by Dana some ten or twelve years ago. The condition was considered an endarteritis. It is of rare occurrence, but is one of those most amenable to treatment. It usually occurs in individuals between twenty-five and thirty years of age. The symptomatology is quite typical, being as follows: Pain is inconspicuous, though there may be experienced a sensation of pain for the first few days, after which a sensation of numbness or deadness is complained of in the affected limb. This is followed by a motor weakness and in

course of time the patient "accidentally" notices that the hand or part involved is "shrivelling up." The peculiarity about this invasion is that the disease attacks a certain segment for a while, then attacks another. For example, it may attack the segments supplying the hand muscle, where it will progress for a period of six weeks or three months, when it becomes quiescent; then it will attack another segment, for example, the shoulder, and progress likewise, and if not recognized will continue to attack individual segments in this order.

There is also a chronic endarteritis of the anterior horn, the course of which is similar to a progressive muscular atrophy, the distinctive features of differentiation being that in the luetic chronic endarteritis of the anterior horns motor weakness precedes muscle atrophy, and the progress is much more rapid. This condition develops after the age of forty. The serological findings in the subacute form, if recognized in its incipency, that is, during the few days of pain, will show a high pleocytosis; otherwise both conditions reveal a few pleocytosis.

Anterior Column and Pyramidal Tracts.—This condition is usually observed in individuals between twenty-five and thirty-five years of age, and is characterized by a fairly acute onset, drop-wrist or drop-foot, associated with pyramidal findings such as the Babinski phenomenon, clonus, and absent abdominal reflexes. Motor weakness is profound, but distinct atrophies in the early stage are rarely encountered. Pain is insignificant, but preceding the motor weakness, paresthesia, such as numbness, deadness, are usually complained of. Urinary incontinence or precipitancy is at times a distressing symptom. The condition bears a close similarity to multiple sclerosis but, unlike multiple sclerosis, the profoundness of the symptoms in this condition is due to the lower motor neuron tract involvement and not to the pyramidal tract. Also, unlike multiple sclerosis, this condition shows the pupillary phenomena and serological findings of syphilis. The condition is very amenable to treatment. A condition somewhat analogous to this has been described by Spiller.

Pyramidal Tracts Alone.—This is, in reality, the condition described by Erb as Erb's syphilitic spinal paralysis, and is a degenerative process. The onset is usually between the ages of twenty-five and thirty-five and the malady is characterized by a progressive spastic paraplegia with more or less sphincter and sexual involvement. Pain is inconspicuous but various paresthesias may be present. The usual complaint is that the legs feel stiff. At the height of the lesion there can often be demonstrated a zone of hyperesthesia. The serological findings usually reveal a low pleocytosis. Prognosis unfavorable.

Transverse Myelitis.—The symptoms here observed are those of any acute transverse myelitis. The condition is amenable to treatment but unfortunately the flaccid paralysis of the onset is usually supplanted by a spastic paralysis which no amount of treatment can overcome.

Pachymeningitis.—Localized pachymeningitis may occur anywhere, but in my experience the most frequent location has been the sacro-lumbar region, giving rise to symptoms which are often incorrectly diagnosed as sciatica. Sciatica, *per se*, like hysteria,

is a dangerous diagnosis, and the burden of proof upon the examiner is to prove that the condition is not sciatica. Pachymeningitis in any location is characterized by pain, motor and sensory phenomenon. In the lumbar-sacral region the symptoms are, pain in the back for a period of a few days, later extending down the thigh and legs, usually on the posterior aspect. As the condition progresses, there will ensue atrophy of the thigh and leg muscles with diminution or abolition of the deep reflexes, and it must be borne in mind that, unlike sciatica, the knee-jerk will be affected. Lumbar puncture will of course clear up any doubt and in early stages reveal a high pleocytosis. Prognosis favorable.

Peripheral Nerves.—It is my experience that peripheral nerves are rarely attacked by syphilis and that of those attacked the external popliteal has been the most frequent. There have been observed a number of cases presenting a typical seventh cranial nerve palsy, which showed a persistent positive blood Wassermann, but negative spinal fluid serology. Some have and some have not improved under antiluetic treatment but the clinical course has been so identical with that of the usual seventh nerve palsy that I am at a loss to know whether or not syphilis is an etiological factor in the development of isolated facial paralysis. Many cases of typical trigeminal neuralgia with positive blood reactions have been actively treated, but with no relief of their symptoms. Isolated ptosis, recurrent, is usually of luetic origin and responds to treatment.

20 WEST FIFTIETH STREET.

THE DIAGNOSIS OF STOMACH CONDITIONS.

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IN arriving at a diagnosis in those who come to us for stomach trouble, it is necessary to follow out five procedures: history taking, physical examination, laboratory tests, Roentgenoscopy, and Roentgenography. It is obvious that one may not depend upon a single clinical or laboratory fact in making a satisfactory diagnosis. The more findings one has, the more nearly correct is one's judgment, since one must have a complete picture of the problem at hand or fail most miserably at times.

Symptoms which are so often misleading may be checked by laboratory findings; Roentgenoscopic findings may be checked by Roentgenographic findings; and they in turn may be checked against symptomatic statements and laboratory results, and thus is built up a complete and strong outline upon which to base judgment and so render the painstaking physician less likely to be in error in diagnosis, prognosis, and treatment.

It is well known that many of those who come for aid in what they call stomach trouble or pain in the stomach, are in reality suffering from some other condition. The pain which they call stomach pain may be produced by the gall-bladder, the appendix, stone in the kidney or ureter, tabes dorsalis, angina pectoris, or be the result of some general condition such as arteriosclerosis. Since this is true, it is necessary to take a very careful history

and make a very careful and complete examination in every case with which one has to do, in order that there may be no unwarranted diagnoses.

It is well to have a carefully planned routine for taking all histories. In order that one may arrive at the gist of the matter at once, one may inquire of the patient what he considers his chief complaint; is it pain and where; or does he experience shortness of breath; or in fact just what complaint brings him for relief? In the family history one may inquire into the illnesses and habits of the family; did any die in infancy or early youth, and of what illnesses; is there a history of alcoholism, of tuberculosis, or of syphilis? The family history will often throw a great deal of light upon obscure cases of stomach disease.

The personal history includes a résumé of the patient's past life and the symptomatology of the case. Many who come for relief will have very indefinite and fanciful symptoms, since many of our patients have most erroneous ideas of human anatomy, and absurd conceptions of functions. Probably the best plan is to allow the patient to outline his symptoms and then by judicious questioning to bring out the salient points. When did the first symptoms appear; what was his occupation at the time; was it necessary to change his occupation, and when; or has it been necessary to give up all work; what relation does his distress have to meals, to exercise, and to sleep? Has he vomited, and the character of the vomitus; especially, did he vomit blood and did the vomitus contain food he had eaten six hours or more before vomiting occurred? Has he lost or gained weight; is he constipated or not, and has he passed tarry stools? It is best to go into the subject of pain very carefully; is the pain severe or mild or merely an uncomfortable sensation; is it continuous or paroxysmal; is it sharp or dull, lancinating or boring in type; where is its greatest intensity, does it radiate and where, what relation, if any, does it bear to the ingestion of food?

Physical examination, as in the history taking, should be carried out in a routine way. The following plan has been found convenient. Physical appearance: does the patient appear to be ill; is he well nourished or emaciated? Weight: does it bear the proper relation to his height; has it changed, and how much? Skin: is it soft, moist and pliable, or dry and rough; are the nails brittle; is the hair abundant or scanty, fine or coarse; are the mucous membranes anemic? The teeth should be examined; those missing and carious ones as well as the presence of pyorrhea should be noted. Is the tongue dry or moist, and is it protruded in the median line; is the throat normal and can pus be expressed from the tonsils? In examining the eyes one should note inequality of pupils and their response to light and accommodation.

The lungs should be examined carefully by percussion and auscultation. The heart should be outlined by percussion and auscultated for abnormal sounds and arrhythmia, and the sphygmographic readings should be taken. In going over the abdomen use one finger only in eliciting points of tenderness; feel the liver edge, the spleen, and if possible the kidneys. And finally endeavor to obtain reflexes and especially bring out the presence or absence of Romberg's sign.

Laboratory tests: the Wassermann is done in all cases. A recent writer says that syphilis may be the cause of the gastric disturbance; that it is generally admitted that five or six per cent. of ulcers of the stomach are syphilitic in origin, and that it has been suggested that ten per cent. is nearer the truth.¹

Uranalysis includes the specific gravity, tests for albumin and sugar, and the microscopic examination of centrifugalized sediment. If albumin is found, the blood must be examined for urea nitrogen and creatinine, and if sugar is found, examine the urine further for acetone and diacetic acid, and examine the blood for sugar and determine its carbon dioxide combining power. The examination of the gastric activity should be carried out in two procedures: first, by the motor meal, which consists of a bowl of well cooked rice and a tablespoonful of washed, uncooked currants taken with a glass of water an hour or more after an evening dinner of bread, meat, and potatoes. It is best to have the patient take this meal of rice and currants at nine o'clock in the evening, and present himself for the withdrawal of gastric contents at nine the next morning. After the patient has rested a few minutes the Ewald meal, which consists of a slice of bread without crust and four hundred c.c. of water, is given to him, and at the end of one hour this meal in turn is withdrawn and the two sent to the laboratory. The patient is now taken to the dark room and the Roentgenological examination is carried out.

The first or motor meal should, if the stomach is normal, give these findings: amount twenty to forty c.c., no food particles, total acidity of 15 to 30 degrees and free hydrochloric acid up to 10 degrees. If there is more than forty c.c. of fluid obtained, or if the total acidity is high, one may say that retention is present, which may be due to hypomotility as for instance, from cancer. If free hydrochloric is in excess, or if the amount obtained is less than twenty c.c. one may say that hypermotility is present and chronic gastritis or peptic ulcer may be suspected. Rehfuess and Hawk give figures which differ somewhat from those given in this paragraph.²

The second, or Ewald meal, should present these findings: total acidity sixty to eighty degrees, and if one wishes to read percentages of acidity it is only necessary to multiply the number of degrees by .00365, thus forty degrees equals .148 per cent. There should be no lactic acid and the total acidity should bear a fairly definite relationship of three to two to the free hydrochloric acid. If there is a high total acidity and low free hydrochloric acid, it may be the result of organic acids, one of which is lactic acid, and may argue for carcinoma. So combined acids and organic acids and acid salts are always carefully computed.

The tests for occult blood have fallen somewhat into disrepute, since the tests are delicate and may be positive because of admixture of minute quantities of blood from wounds produced by the stomach tube or by retching, or by the meat eaten the evening before. Gastric ulcer, early gastritis, gastric dilatation and gastric neuroses produce hyperacidity. Hypoacidity is present in carcinoma, chronic gastritis, pernicious anemia, and in achylia gastrica there is an entire absence of acid.

In the writer's opinion, the internist should follow his gastrointestinal cases to the x-ray laboratory if he can possibly afford the time to do so. He certainly should be as conversant with the Roentgenologist's technic and terminology as he is with that of the physiologic chemist, the serologist, and the bacteriologist. The technic of examination by the Roentgen ray varies with different workers. The double meal as first described by Haudek and as later described by Carman and Miller¹ is now, variously modified, very generally used. The following is the technic employed by the last named authors: At the laboratory the patient is given four ounces of well cooked wheat breakfast food in which has been stirred two ounces of barium sulphate; according to his taste may be added milk, not cream, and a little sugar. He is asked to abstain from other food or drink, except water, until the examination is completed. He returns six hours later and is taken to the screen room. The chest is briefly inspected and next the position and distribution of the six hour meal is noted; then the patient is given a mixture of eight ounces of water and two ounces of barium sulphate, freshly stirred. While he is drinking this the canalization is observed. The patient is next given a mug of twelve ounces of cornstarch pap with barium. After the stomach has been carefully examined by means of the fluoroscope, plates are made as will be outlined in another method. These same authors say of the double meal:² "The principal advantage of the six hour meal is the saving of time to the examiner and of annoyance to the patient entailed by the repeated screening and plating."

The following method is employed by many able workers and probably is less liable to lead to difficulties: When the patient is sent into the dark room for the Roentgenological examination, he is asked to remove all clothing to the waist (a woman should be covered with a gown). He is first asked to step in front of the upright Roentgenoscope and the lungs and heart are examined and any abnormality noted. He is then handed a glass of four hundred c.c. capacity containing buttermilk in which is a heaping tablespoonful of barium sulphate, thoroughly mixed. He is asked to take a swallow of the mixture and the bolus is watched as it descends the esophagus and enters the stomach. It will be seen to hesitate at the aortic arch, and just before it enters the stomach at the cardia, and it requires from two to ten seconds for the bolus to travel the length of the esophagus. This procedure is for the purpose of ruling out cardiospasm, cancer, diverticula, and unusual contractions of the esophagus. Now the remainder of the mixture is swallowed and is watched as it enters the stomach and settles down into the lower pole; then a second glass of the mixture is given and after a short time, about five to ten minutes, usually, peristalsis will set up and the position and the motility are observed and an attempt is made to observe the duodenal cap. At least three plates are now made of the stomach and as a routine one plate of the gastrointestinal tract is made at the end of five hours and at the end of twenty-four hours, and sometimes at the end of forty-eight hours and at the end of seventy-two hours. This covers the technic of the Roentgenological exami-

nation of the esophagus, stomach and intestines, but one must also make complete Roentgenological studies of the renal system and the gall bladder in order to rule out diseases of these organs which may at times give rise to symptoms of stomach disease.

A prominent Roentgenologist says: "I have seen the futility of incomplete examination so often that I almost refuse to make an incomplete study. The great majority of patients sent to me for an examination of the 'stomach' because of stomach symptoms, do not have any lesion in the stomach but have disease of one of the other organs, most often of the gall-bladder or the appendix."

It is necessary to allow forty-eight hours for the Roentgen examination of the patient who presents himself for diagnosis, because of "stomach" symptoms, and it is often necessary to allow another twenty-four hours, especially if the results of the early examination point toward the appendix as being at fault.

From a Roentgen viewpoint of stomach symptoms, one considers stasis, incisura, niche, filling defects, spasticity, activity, and motility. The Roentgen ray has shown us the outlines of the normal stomach and that the position of the stomach, as taught to us who received our medical training fifteen or more years ago, was a misconception. When the writer was an undergraduate, our professors often marked out the stomach by percussion. We now know that they often outlined portions of the colon instead of the stomach. We know that a stomach which is normal to a short, thick individual is abnormal to the one who is tall and spare. There are two main types of stomachs, the steer horn type and the fish hook type, or as it is sometimes called, the "J"-type. The type which is normal to the individual is termed the orthotonic type. To classify according to Schlesinger, there are four varieties: the orthotonic, hypertonic, hypotonic, and the atonic.³

An orthotonic, adult stomach will accommodate eight hundred cubic centimeters very well. This will not fill a stomach of the hypotonic type, but by manipulation the outline may be nicely brought out. Because of these facts, one may use two glasses of four hundred cubic centimeters each of barium mixture as has been suggested.

Under the fluoroscope one notes the depth and rapidity of peristaltic waves. These waves, as seen under the fluoroscope, do not begin at the upper pole of the stomach, but lower down, about the beginning of the pars media and differ in individuals as to depth and rapidity of progression. However, observations by barioentgenography in which a dozen plates were exposed during the progress of one peristaltic wave, occupying on the average twenty-two seconds, after the ingestion of the bismuth meal, the wave was shown to begin at the incisura cardiaca and progress without bisecting the stomach at any point. A recent article tends to disprove the theory of Pawlow that the pyloric sphincter is under "acid control."^{4,5,6}

In the fluoroscopic examination of the stomach one notes the progress of the peristaltic wave or its absence, filling defects are observed, incisuras are noted, and the gastric outline carefully studied for niche and spasticities. Ninety-five per cent. of gastric cancers give Roentgen signs, and nearly

one-third of all cancers occur in the stomach.^{2b} Ninety-five per cent. of gastric tumors are cancer.^{1a}

Hyperperistalsis suggests either irritation or obstruction. Thus, in gastric ulcer there is a great likelihood of hypermotility. Reflex irritation, as from appendicitis, may show its presence by overactive peristalsis. Obstruction in the pylorus, as in old ulcer, may bring about the same result. Gastric cancer may give rise to either hyper- or hypoperistalsis, depending upon the extent of infiltration. Reverse peristalsis may be noted in gastric cancer. Hyperperistalsis may be the result of gall-bladder disease.

Incisuras may be due to ulcer, cancer, or reflex irritation. If reflex, the condition will probably not continue day after day, or may be ruled out by administration of belladonna. As a general rule, narrow incisuras indicate ulcer, while broad incisuras indicate cancer. Filling defects usually indicate new growth in the gastric wall; however, they may be the result of intragastric tumor, or due to food which is sometimes taken by patients against orders, or due to the presence of unusual material in the stomach, as for instance hair balls.

The niche is caused by ulcer. It was first described by Reiche in 1909, and further commented upon by Haudek in 1910. It is a bud-like projection showing on the outline of the stomach shadow, and is usually crescentic, but may be irregular in shape. It may occur in any part of the stomach but is usually seen along the lesser curvature. It is difficult to visualize at times, and then one must depend upon indirect signs for the diagnosis of ulcer.

All of the above signs will be seen by the aid of the fluoroscope and on the plates. Each method has its advantages, and it is always well to check one against the other. They should be balanced against laboratory findings. The symptoms are next taken into consideration. Finally, the case history is studied in the light of the other knowledge so tabulated. Thus is built a definite diagnostic structure upon a solid foundation of scientific facts which leaves no room for empiricism or conjecture.

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624 FERNWELL BUILDING.

TUBAL PREGNANCY, WITH REPORT OF A CASE.*

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TUBAL pregnancy includes all forms of gestation that originate outside the uterine cavity. So far as known, all ectopic pregnancies, with the possible exception of a few ovarian, originate in the Fallopian tube. It is conceded that in at least a large proportion of cases, fertilization of the ovum occurs in the Fallopian tube. Spermatozoa have been found in the fimbriated extremity and it is probably here that they unite with the ovum.

The diameter of the unimpregnated ovum is not over two-tenths of a millimeter and that of the tube two to three millimeters. Tubal pregnancy occurs about once in each one hundred and twenty-five pregnancies.

The oviducts or Fallopian tubes, while they vary in form, are quite uniform in their histological structure throughout their whole extent. Continuous at the isthmus with the uterus, they open at the fimbriated extremities into the peritoneal cavity. The wall is divided into a mucosa, a submucosa, a muscularis and a serosa.

The mucosa consists of a well-developed fibrous membrane, rich in elastic fibres and well supplied with blood-vessels and lymphatics, which support a simple layer of columnar ciliated epithelium. An imperfectly developed muscularis mucosæ, consisting of longitudinal bundles of smooth fibers is also present. The mucosa is in longitudinal folds and secondary folds that are especially abundant in the ampulla and infundibulum. The inner surface of the fimbriæ is covered with the mucosa, the outer with the serosa. The submucosa is a simple layer of areolar tissue which contains small ganglia and multicellular cells which form a rudimentary plexus. The muscularis consists of an inner circular and outer longitudinal layer of smooth muscular fibers. The serosa consists of a thin fibrous membrane supporting the serous endothelium.

The ovum is propelled then by the wave motion of the ciliated columnar epithelium, the action of its elastic fibers, and the contraction of the smooth muscle fibers that respond to the call from the contained nervous plexus, possibly stimulated by the presence of a foreign body within the lumen of the tube. Anything that interferes with the mechanism of these parts tends to make it an element of luck if the ovum is conducted through to the uterus.

The predisposing causes are: (1) Inflammation of the tube, causing (a) destruction of the ciliated epithelium, leaving denuded patches which obstruct the ovum; (b) loss of the peristaltic action of the tube; (c) cicatricial contraction in the tube. (2) Long and tortuous tubes with small lumen. (3) New formations in and around the tube. (4) Torsion of the tube. (5) Diverticula in the tube. (6) Conditions giving rise to sterility of long standing.

It may be in that part of the tube that traverses the uterine wall and is thus called interstitial pregnancy. If the ovum is lodged in the middle por-

*Read before the Norfolk County Medical Society, December, 1920.

tion, the condition is called isthmic pregnancy. The most frequent form is when the ovum is lodged in the outer third, and is called ampullar pregnancy.

Developments that may take place are:

If in the ampulla, the ovum may be expelled into the abdominal cavity, this being called tubal abortion. The tube may rupture and partly or wholly discharge the ovum in one of four directions: (a) into the abdominal cavity, (b) into the space between the broad ligaments, (c) into space formed by adhesions between tube and ovary, (d) into the uterus. It may remain in the tube and die before maturity or go on to term.

Mrs. J. E. M., age 23, German descent. Puberty at 11 years—always painful on first day and last four days. First child born September 7, 1918, at the age of twenty—forceps delivery, perineum torn and repaired at time in hospital. Nursed child nine months and while nursing menstruated every three months. Became pregnant a second time when first child was nine months old. Abortion was produced by a catheter introduced at three months on September 15, 1919, and curetted the next day in New York. She did not notice any disordered menstruation after that, except that it would be delayed as much as twenty days often. In June, 1920, the patient had an attack of cystitis with pus in the urine, which cleared up after six bottles of lithia water.

Present illness—Menstruated September 21, 1920, for one week, which was normal in amount, but slight backache. Started to menstruate again after one week; the flow was small in amount and lasted seventeen days. Examination on October 9, 1920, showed the uterus tilted back, with no apparent enlargement of tubes or ovaries; but pressure on the right side against the finger was painful. At that time she complained of no pain in the abdomen or from defecation—only prolonged menstruation. On October 15, 1920, she had sudden pain in the right side, which was not described as in the pelvis, but coming from the back around the side to the inguinal region and passing down the right leg to the knee. This attack lasted ten hours and then disappeared for two days. There was no fainting or weak spell. The patient said there was pain on pressure over the right ovary. I was out of the city and a physician called in gave an anodyne and advised curettage, but did not make a vaginal examination. The patient said urination at that time was not painful, but caused a drawing sensation. There was no pain or discomfort on defecation.

These spells would disappear for a period of a few days and in the interim the patient would feel well. Each return would be ushered in by pain starting in the back, then passing to the side and around to the pelvis in front and down the leg. I saw the patient again October 22, 1920, when she was free from pain. On October 23, 1920, she was taken with considerable pain, which required morphine, gr. $\frac{1}{4}$, and atropine, gr. $\frac{1}{150}$. Examination showed no bleeding, but a small tender mass (size of a walnut) in the right side of the pelvis. Temperature was normal and pulse 80.

The woman entered hospital October 25, 1920. At that time the head, nose, throat, and teeth were in good condition; chest and heart normal and heart beat 80 per minute; temperature normal; blood count not made and blood pressure not taken. Skin clear, clean, and rosy in color; no glandular enlargements anywhere in the body. Fairly well nourished, but under weight. Abdomen negative to pressure except low down on the right side, where pressure gave pain. There was no anemia of lips or eyelids.

An x-ray examination showed two small stones in the region of the right ureter, one about the brim and the other at the level of the third lumbar vertebra, but they were irregular in contour and not in line with each other. Because of their irregularity, Dr. McGruder expressed the opinion that they were calcified plants. A shadowgraph catheter was passed by Dr. Harrell and both stones were shown to be outside the ureter. A specimen removed by the catheter was negative. An x-ray and catheterization of the ureter were both made

October 27, and that night the patient required two hypodermics and hot water bag for pain. Lumbosacral pain is often associated with inflammation around the tubes and ovaries, but pain in this location may be rheumatic, as the results of some focal infection in another part of the body, or, as the orthopedists tell us, it may be due to a looseness or straining of the ligaments that hold that joint.

The suffering in this case was not constant and was more painful than that we generally see in inflammatory conditions except when ruptures take place and local points of peritonitis are in the process of walling off.

Preoperative diagnosis: Small mass in the right pelvis. (I had a suspicion that an ectopic pregnancy was present, but did not have a conviction strong enough to put it in writing.) Endometritis, and cervix lacerated and ulcerated.

Operation: Examination under anesthesia showed a small mass on the right side with torn and ulcerated cervix. Perineum in good condition. Curettage and repair of the cervix were done and then a midline abdominal incision was made. On opening the abdomen a right ruptured tubal pregnancy was exposed to view, with a handful organized blood clot. A thickened and rather bad chronically inflamed appendix lay across the top of this mass and this was first removed and then the right tube and ovary with the organized blood clot. The left tube and ovary were brought up, examined, and found normal in every way. The uterus was very slightly congested, but there was practically no enlargement; its position was considered good. A small strip of iodoform gauze was passed through a rubber-tissue tube down to the site of the rupture to guard against oozing and wound closed. Drain removed on third day.

Because of ulcerated cervix a Wassermann test was made, but it was negative. Temperature on third day went to 105° F., due to irritation from catheterization of ureters. There was pus in the catheter specimen. Urotropin and water soon cleared this up and except for nausea for a few days recovery was uneventful.

330 STREET AND COLONIAL AVENUE.

Medicolegal Notes.

Proceedings on Review of Order of Medical Board.—On certiorari to annul an order of the California State Board of Medical Examiners revoking a license to practice medicine in the State, the court has nothing to do with conflicts of testimony before the board nor with irregular or erroneous rulings on admissions of evidence where the record shows that the jurisdictional requirements with respect to these matters have been fulfilled.—*Jordan v. Alderson* (Cal.), 192 Pac. 170.

Evidence of Other Illegal Prescriptions for Liquor by Accused Not Admissible.—In a prosecution of a physician for unlawfully issuing prescriptions for intoxicating liquor to be used otherwise than for medicinal purposes, in violation of Missouri Rev. St. 1909, section 5784, it was held prejudicial error to permit the State to introduce in evidence prescriptions other than those set out in the indictment, this evidence not tending directly to prove the particular crime charged.—*State v. White* (Mo.), 223 S. W. 683.

Proper Hypothetical Questions.—In a proceeding under the Workmen's Compensation Act for death alleged to have been caused by a blow, received in the course of employment, causing a rupture of the aorta, it was held that, though a hypothetical question to a medical witness might have been erroneous in asking for a speculative opinion as to what might have been the effect of the injury rather than the doctor's judgment as to what its effect really was, the error was cured where the doctor's answer showed that he thought he was being asked what, in his judgment, caused the aneurysm. It was also held that a hypothetical question to the medical expert based on the assumption that the deceased was afflicted with a preexisting aneurysm and received the blow as claimed, and asking the witness as to the effect of the blow in hastening the previous trouble, was not open to objection.—*Stewart & Co. v. Howell*, Maryland Court of Appeals, 110 Atl. 899.

MEDICAL RECORD.

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RESECTION OF THE CERVICOTHORACIC SYMPATHETIC FOR ANGINA PECTORIS.

RESECTION of the cervicothoracic sympathetic was first performed by Jonnesco as far back as 1896 in the attempt to cure epilepsy and exophthalmic goiter. Later he tried out the intervention for glaucoma and migraine. Finally in 1916 he operated in the same fashion for angina pectoris. The case is unique in medical literature and the fact that the patient is alive and well today makes a report of unusual interest. The case was a typical one of angina pectoris and the operation performed was a unilateral resection of the left cervicothoracic sympathetic. In his examination of the patient exactly four years after intervention (April 4, 1920), the following facts were noted: The man continues absolutely free from any suggestion of his old malady and follows a double occupation in life as singer in a church choir and clerical work with success. His work, he says, makes it almost necessary for him to join in drinking occasionally with people, and his life is an irregular one and fatiguing; but even with this handicap he has had none of the symptoms which suggest a recurrence of his old malady. Three internist colleagues of the author examined the subject's heart and found the cardiac action, pulse, and respiration normal. The x-ray, however, showed plainly a slight dilatation of the aorta with irregularity of the wall and thickening of the same from atheromatous plaques, the individual thickenings or deposits being plainly in evidence and most marked at the beginning of the ascending aorta. The heart shadow showed a broadening of several centimeters with the apex a little low and to the left. Evidences of sympathetic resection persist in a narrowing of the left pupil and a slight narrowing of the palpebral fissure. (*La Presse Médicale*, March 9, 1921, xxix, 20.)

The history of the patient before operation is as follows: When first seen at the age of 38 he gave a history of syphilis, alcoholism, and nicotineism. The first access of angina had occurred on December 19, 1915, at 10 P. M., and the first visit to the author was made on March 19, 1916. Operation was performed on April 2 following. The patient

had had in all four crises of angina pectoris, and after the fourth announced himself as willing to submit to Jonnesco's operation. The Wassermann was positive and the x-ray shadows of the heart and aorta left no doubt as to the diagnosis. The author's operative method is of course well known to all surgeons. It is called by him "delicate but not difficult." It is done under the author's technique of stovainization of the spine, injection between the first and second dorsal vertebræ. Convalescence was smooth and the operation wound was healed in a week. The pulse before the operation had been from 44 to 52 and immediately after operation began to increase in frequency. By the third day it was 68 and apparently never exceeded 72 at any time afterward. The long lapse of time during which the patient was not seen was the consequence of the war. The result of this operation would seem to show that angina pectoris, despite its organic substratum, is essentially a neurosis and that by interrupting the reflex arc the condition may, sometimes at least, be completely arrested, the degenerated condition of the aorta being insufficient of itself to menace life immediately. The fact that Jonnesco chose the left side for the operation seems to have been due to the predominance of anginal symptoms on that side, the pain being usually reflected along the left arm. The author hopes that other surgeons will make trial of this operation. His patient was technically a very poor surgical risk, while many of the sufferers from angina pectoris are in comparison good risks.

THE PATHOLOGY OF DENTAL CYSTS.

WHEN fully formed, a dental cyst comprises a wall and fluid contents. The wall always has an inner epithelial lining, by the breaking down of which the fluid is formed, and an outer lining of fibrous tissue. The cyst is entire; there is never the bare dead end of a tooth root projecting into the cyst, but there is or has been invariably a septic tooth of the permanent set at the point of origin. In the fibrous wall of the smaller cysts a more or less extensive spongework of epithelium will always be found.

The earlier the cyst is examined and the smaller it is, the more abundant is this spongework, and the less conspicuous is the cystic cavity in relation to the whole of the morbid product. The liquid contents, which in the larger specimens are quite fluid and transparent, are found to be more tenacious in composition and to hold in suspension so large a quantity of cholesterol crystals as to give a superficial likeness to pus. This resemblance is further increased in the earlier phases by the fact that there is in the first formed fluid contents a certain amount of dead mesoblastic tissue and of inflammatory cells, as has recently been pointed out by Turner. Such small cysts are extremely common and are probably still referred to as abscess-sacs on account of the aspect of their contents. They are always found in connection with septic teeth of the permanent set.

The cyst may develop at any part of the root,

and a single tooth, especially multirooted, may present more than one cyst attached to it. If the sockets be examined after extraction, a small cyst will frequently be found which has been left behind, torn away from the root. Turner insists upon this fact and points out that the fully developed dental cyst is probably the commonest tumor of the body while the earliest stage of all is practically as common as are septic teeth. The earliest stage of a dental cyst consists of a spongework of epithelium; or in rare cases of a single bulb. This spongework of overgrown epithelium is almost always to be found in the inflamed and thickened alveolodental ligament surrounding septic teeth. It is included in a mass of interstitial granulation tissue, the result of a low grade chronic infection. Both granulation tissue and epithelial spongework are obviously the result of the same chronic inflammatory process. It is noteworthy that Turner, who has examined microscopically many hundred cases, found epithelium absent in only two instances and one of these was a large granulomatous bed surrounding pyorrheic lower molars, suggesting the possibility of sarcoma in its unusual extent.

Epithelial granulomata are very common in connection with septic teeth of both sets; small cysts are common in connection with septic teeth of the permanent set; fully developed cysts, clinically diagnosable, are not so frequent but still sufficiently so as to be probably the commonest neoplasm of the body; but they occur only with the permanent set. The reasons for this appear to be obvious. The temporary teeth, alveolus and its contents, are swept away before cysts have time to develop. Acute destructive inflammation and timely extraction account for the progressive diminution among permanent teeth.

Septic teeth have been spoken of instead of dead teeth, because though in fact the infection which culminates in a dental cyst is provided almost entirely by dead teeth, nevertheless the earliest stage—epithelial granuloma—is found commonly in the thickened alveolodental ligament of pyorrhea, and Turner has seen two instances of dental cyst in connection with living but pyorrheic teeth, and also a similar cyst of the gum at the point of exit of a chronic sinus connected with a dead tooth.

As to the actual infecting material, it is noteworthy that Turner has never succeeded in microscopically finding anything but yeast forms or in cultivating any other organism, but should there be any organisms present in dental cysts it is to be hoped that Drew's method of staining will enable us in the future to demonstrate them. Just now it would seem as if toxic infiltration were the effective cause. The histological picture of these granulomata—thickly aggregated plasma cells—is that always found in chronic infection of low virulence. When once started, the growth of the epithelium appears to go on independently of external stimulus after reaching a certain point. The originating tooth may be removed and the cyst still continue to develop, although no organism other

than yeast fungi—common in all inflammatory processes in the buccal cavity—have been demonstrated to exist.

PERSISTENCE OF PYLORIC AND DUODENAL ULCERS FOLLOWING SIMPLE CLOSURE OF AN ACUTE PERFORATION.

ACUTE perforation of a gastric or duodenal ulcer, with consequent soiling of the peritoneal cavity, severe pain, and shock, is a catastrophe which requires immediate surgical attention; for it has often been shown that in these cases, just as in cases of intussusception and acute intestinal obstruction from any cause, the mortality, in the hands of competent surgeons, varies directly in accordance with the amount of delay before operative treatment. In these acute cases the perforation takes place at or near the center of the ulcer, there may be much or little induration, extensive or very slight soiling of the peritoneum, and, depending upon the time which has elapsed and degree of peritoneal soiling, the patient may be in good or extremely poor condition. For these reasons the operator must vary his treatment to a certain extent, no matter what his opinion may be as to the proper steps to be taken in the average case. Some ulcers may be excised; some infolded, with or without cauterization; while in some cases closure of the perforation is possible only through the utilization of other structures, such as the omental transplant; also, the question of an immediate gastroenterostomy is to be considered. In the desperate cases closure of the perforation and drainage are all that may be advisable; but it must be remembered that simple closure does little or nothing toward curing the ulcer and that even though the patient may be so fortunate as never to have another perforation, his symptoms are likely to recur with their wonted regularity and there is the ever present danger of malignancy when the cancerous diathesis exists. Consequently, many surgeons believe that if the patient's condition does not present an absolute contraindication, gastroenterostomy, with or without pyloric exclusion, should also be performed. This would seem to be a logical conclusion; yet there is still a difference of opinion on this point.

Lewisohn, in an article appearing some time ago in the *Annals of Surgery*, emphasized the desirability of performing immediate gastroenterostomy in addition to handling the perforation itself, and cited four cases in which failure to perform gastroenterostomy at the original operation necessitated secondary operation for that purpose. He thinks we can safely say that operative recoveries are not impaired by an immediate gastroenterostomy and refers to Deaver's report of 25 cases where immediate gastroenterostomy was done with one death. In Lewisohn's own series of ten cases of acute perforation there was no mortality though immediate gastroenterostomy was performed in eight. Regarding the proposition that simple closure will usually fail to cure the ulcer, he says he

had occasion to observe four such cases in the short period of two years. In each of these the original operation consisted in simple closure of the perforation and drainage; and gastroenterostomy was required at periods varying from 10 months to eight years later.

Naturally, the individual surgeon's handling of these acute perforation cases should depend not only on the condition of the patient but also on the operator's ability to work rapidly. It is unquestionable that undue prolongation of operation time may turn the scale against the patient; but with the rapid operator, who works with the minimum of traumatization of the tissues, it would seem that, in the average case at least, the prospect of cure by immediate gastroenterostomy is well worth the added slight risk.

MICROORGANISMS AND SHOCK.

BAZY discusses this subject in the Surgical Number of *La Médecine* for October 20, 1920, ii, 1. The definition of shock by Piéchaud appears to answer the requirements of the French surgeons. Shock is a general condition more or less grave, characterized by feeble pulse, lowered pulse tension, pallor, insensitiveness and muscular weakness, with preservation of intelligence. The causes of this depressive syndrome are numerous, and without any attempt to enumerate them all the author isolates one which is the subject of the article—infection or the organisms which give rise to infection.

Shock, of course, may follow quickly upon traumatism alone, but there is a type in which infection plays a rôle. The germs include both pathogenics and saprophytes. The former is chiefly the streptococcus while the latter comprise the perfringens, the bacillus of edema, the septic vibrio and others. If the tissues have been badly contused an excellent culture medium has been provided. Multiplying at a rapid rate, they secrete toxin which can impregnate the organism much more rapidly than is ordinarily imagined. The presence of these organisms is usually apparent from the local reaction, but may be rapidly determined in advance by a bacteriological examination.

The condition under discussion, rare enough in times of peace, was prevalent during the war. It may still be of advantage in similar wounds of civil practice to continue the use of antgangrenous serum, making the injections simultaneously with those of antitetanic serum. The author further believes that in so-called operative shock with infected wounds the real motivation may be the bacterial toxins. This may occur in wounds in which time has been given to render them more operable. Thus in a case of appendicitis operation in the interval, death took place in twenty-four hours and could not have been attributed to operative shock.

In such cases there may be an element of bacterial anaphylaxis or microbial hypersensitiveness, so that the shock is of anaphylactic motivation. This phenomenon is well known, and whenever the

number of bacteria is insufficient to arouse an immunizing mechanism it is apt to sensitize the individual instead. These laws have been worked out in animal experiment. Operation on supposedly "cold" appendices can liberate bacteria and produce anaphylactic shock. The offender in these appendix cases is very often the *B. coli*, and the author suggests a prophylactic vaccination, or it may be better to try for an intradermic diagnostic reaction with the said bacillus. Should this prove negative the operator would feel much more free to intervene thoroughly, while if positive the operation might be contraindicated or at least the operator would be prepared for trouble, and would feel inclined to make use of the principle of anti-anaphylaxis before or just after operation.

RELATIVE FREQUENCY OF DENTAL CARIES IN THE TUBERCULOUS.

FARGIN-FAYOLLE, writing in *La Presse Médicale* for January 15, 1921, xxix, 5, refers to the articles on this subject of Paul Ferrier, who demonstrated in a classical manner the frequency of this association. He accounted for it by the demineralization to which the consumptive is subjected, which affects the teeth incidentally. Even in the pre-tuberculous period caries is often notable. Recently two theses have appeared on the same subject by Lemoine and Ferrier respectively, the latter being evidently a namesake of the original Ferrier, whose writings go back to 1900. Furthermore they in part antagonize the views of the older writer. They have instituted comparative researches on the tuberculous and controls in respect to the frequency of caries, taking subjects in the same general localities. Much care was taken in selection to eliminate sources of error. In the stomatological clinic of the Hotel Dieu, Paris, the percentage of caries and absence jointly was about 33 and in a strictly tuberculous service only slightly higher—35.22. The present author made some researches of his own. In the material of a surgical clinic the percentage of caries and absence was 20, in a medical clinic 28, and in a tuberculous service 33. A census of caries in average healthy subjects was not taken, but the incidence of caries in the tuberculous should be at least double the normal, which is computed at 15 per cent. Such low percentages of caries for French people will come as a surprise to the American reader, when he thinks of the 80 or 90 per cent. of caries in school children over most of the world, and he will wonder what may be the French criterion of a carious mouth. The author does not allude to any criterion nor is any mention made of filled teeth—whether a complete state of repair still means carious teeth.

NON-TUBERCULOUS COLD ABSCESSSES.

AUDAIN contributes an article on pseudotuberculosis of the cellular tissue to the *Gazette des Hôpitaux* for January 18-20, 1921, xciv, 6. The condition referred to appears to be relatively new. The clinical expression is cold abscess followed by fistulation. In such cases failure to find Koch's bacillus at first suggests some fungous infection, but in the cases

referred to the author has never found any evidence of mycosis. The culture and inoculation methods have invariably been negative. The age of selection seems anywhere from 15 to 40 and the author has seen many cases among the indigenous inhabitants of North Africa. While usually small—the size of an egg or mandarin orange—the author has seen abscesses which gave exit to a quart of pus. The physical appearance of the latter recalled a fungous infection, rather than tuberculous pus. Clinically it was impossible to exclude tuberculosis, and the fistula or ulcer formed after evacuation also resembled exactly that of tubercle. The golden hue of the pus was the only feature, aside from negative microscopic finds, to cause suspicion of the non-tuberculous nature of the process. The possibility of syphilis never even suggested itself seriously. The author recalled that cold abscesses have at times been traced to the staphylococcus, but this organism could not be accused in these cases. The condition responded well to the treatment of tuberculous cold abscess. The abscesses are often multiple and no very deep seated lesions have been seen, although the author believes that a case of empyema may have been of this character. It is possible, of course, that the tubercle bacillus or some undescribed fungus may have been responsible, even although all attempts to locate them repeatedly failed.

News of the Week.

Hospital News.—**NATIONAL HOSPITAL DAY.**—With the purpose of educating the public in the real functions of the 8000 hospitals in the United States and Canada, and focusing attention on the human side of the hospital, its varied services, its plants for expansion, and its needs, *Hospital Management* has selected May 12, the anniversary of the birth of Florence Nightingale, as the most fitting date for a National Hospital Day. All hospitals are invited to cooperate in celebrating the day. Each hospital will arrange its own program featuring its work and needs. The general direction of the day, however, will be under the control of the National Hospital Day Committee, 537 South Dearborn Street, Chicago. Sub-committees are being organized in the various States and in the provinces of Canada.

BILL TO AID COUNTY HOSPITALS.—The Pennsylvania State Department of Health is preparing a bill intended to aid counties in joining forces to build hospitals for communicable diseases. The Department of Health reports that there are 75,000 cases of tuberculosis in the State, and that probably 50,000 are receiving no care or attention. Private institutions and free sanatoria have less than 4000 beds, and but a fractional part of these are available for advanced cases.

NEW HOSPITAL FOR SOLDIERS' HOME.—The Indiana State Legislature has passed a bill appropriating \$225,000 for the erection of a new hospital and kitchen at the Indiana Soldiers' Home at Lafayette.

INFIRMARY FOR LIGONIER, IND.—Allen County, Indiana, is to have a new infirmary which will cost approximately \$750,000. The new institution will be located in Ligonier.

SITES OFFERED FOR GOVERNMENT HOSPITAL.—The Chamber of Commerce of El Paso, Tex., has been

offered free sites for the hospital to be built by the Government in one of the Southwestern States at a cost of about \$2,500,000.

TO REBUILD BILTMORE HOSPITAL.—Mrs. George W. Vanderbilt has offered a site of fifteen acres in the heart of the Biltmore estate, and a fund of \$25,000, to rebuild the Biltmore Hospital which was recently burned.

SANITARIUM IN JACKSONVILLE, FLA.—A sanitarium to cost \$20,000,000 is to be built on a 4000 acre tract of land near Jacksonville. The project is being financed by northern and eastern capitalists.

NEW WAYNESBORO HOSPITAL.—Construction work will be started soon on new \$145,000 hospital in Waynesboro, Pa.

COMMUNITY HOSPITAL FOR HUTCHINSON.—Articles of incorporation have been filed with the Secretary of State for a Community Hospital at Hutchinson, Minn.

THE RIVERSIDE HOSPITAL AT SAN JOAQUIN, CAL.—was recently destroyed by fire, with an estimated loss of \$50,000 to \$75,000.

THE BETH DAVID HOSPITAL, New York City, began a campaign, on April 1, to raise a fund of \$250,000 with which to complete and maintain an eight-story extension now in the process of construction. When the new building is completed the hospital will have four times its present capacity.

Bill to Save Small Medical Schools.—A bill was introduced into the Pennsylvania Legislature, on March 17, which has for its object to prevent so-called discrimination against medical schools not connected with universities. The measure amends the act creating a bureau of medical education and licensure of the Department of Public Instruction by providing that the rules of the board shall not provide for any different or higher standards for medical educational institutions than those provided for by the Pennsylvania statutes.

A New Degree in Medicine.—The Harvard Medical School will hereafter offer a new degree in medicine in addition to the time-honored M.D. It will grant the degree of Doctor of Medical Sciences (M.S.D.) to men who have specialized in their training in research work and the laboratory development of medicine rather than the clinical branches. It is hoped that by making a feature of this department more medical students will be attracted to research work. Dr. David L. Edsall, Dean of the Medical School, in announcing the new degree, states that in the laboratory branches there is really a disturbing paucity of capable and well trained instructors, and that if things go on as at present the laboratory branches will suffer seriously in both their instructional and investigative activities.

Harvey Society Lecture.—Sir Walter Fletcher, Secretary of the Medical Research Committee of Great Britain, will deliver the Tenth Harvey Society Lecture at the New York Academy of Medicine, Saturday evening, April 16. His subject will be: "The State's Relation to Medical Activities in Great Britain."

Argentina Plans to Honor Gorgas.—President Yrigoyen of Argentina is understood to have under consideration the participation of Argentina in the construction of a great scientific laboratory at

Panama, which is being planned as a memorial to the late General William C. Gorgas.

Delaware to Care for Mental Defectives.—As the result of a survey made by the United States Public Health Service in collaboration with the Children's Bureau, officials engaged in the care of mental defectives have become interested in the establishment of a bureau of mental hygiene in connection with the State Board of Charities. As a result of their efforts the Legislature has appropriated \$60,000 for improving the care and treatment of the mental patients in the State Hospital at Farnhurst. A training school for nurses specializing in neuropsychiatry will be opened, which will include occupational training and physiotherapy.

Protest Reduction of Medical Service.—A bill is now pending before the New York State Legislature, recommended by legislative committees charged with its preparation, which provides for a reduction in the appropriation to State institutions for the insane. The measure is being vigorously protested by the State Charities Aid Association and others interested in the efficiency of the State hospitals.

Medical Standards Endangered in Missouri.—Two bills affecting medical practice are before the Missouri State Legislature. The first deprives the State Board of Health of the power which it now has of deciding upon standards which medical schools must achieve before their graduates will be allowed to practice in the State. If this bill should become law a graduate of any school could receive a license provided he passed the State board examination. The second bill compels all hospitals that are exempt from taxation to permit any licensed practitioner of any school to treat a patient in the institution who desires his services. The medical societies of St. Louis and other cities have entered vigorous protest.

Medicine Popular With Exchange Students.—Out of a total of twenty-four exchange students of the Commission for Relief in Belgium Educational Foundation at work in America, ten are devoting their time to the study of medicine. Five come from the University of Brussels, two from Louvain, two from Liège, and one from Ghent. These students are studying in Johns Hopkins, California, Harvard, Columbia, University of Pennsylvania, Cornell, Yale, and Stanford. The Commission has also made some provision for the rehabilitation of Belgian Universities wrecked during the war.

Tuberculosis Decreases in England and Wales.—The figures given out by the Ministry of Health show that deaths from tuberculosis in England and Wales numbered 46,312 in 1919, as against 53,073 in 1917. Statistics for 1920, so far as they are available, indicate another decrease for last year.

Legislative Hearing on the Health Center Bill.—At the hearing on the Health Center bill before the Finance Committee of the Senate at Albany on March 30, the measure was opposed by representatives of the Professional Guild of Kings and Queens Counties, the Physicians' Protective Association of Erie County, the New York Medical Association, the Medical Society of the State of New York and the Medical Society of the County of New York. The bill was supported by State Commissioner of Health Dr. Hermann M. Biggs, a representative of

the State Charities Aid Association, and a member of the State Hospital Commission. No representative of the rural communities, for whose benefit this measure was ostensibly offered, appeared to advocate it, but an ex-member of the Assembly from Ontario County appeared in opposition to it as not demanded by conditions among those whom he formerly represented. Dr. Biggs presented a number of maps showing the devastated areas throughout the State which had been denuded of the practitioners formerly ministering to these sections and which the health centers were expected to repopulate if they were established. Some opposition was expressed to the methods employed by the health authorities to advertise their health campaigns. Another objection was that New York City, though benefiting in no way from this legislation, would be taxed for one-half of the whole amount expended for health centers throughout the State. It was the consensus of opinion at the end of the hearing that the bill would not be reported out of committee.

Physician Contests State Ruling.—Dr. Frank D. Jennings of Brooklyn recently applied to Supreme Court Justice Van Sicken for an injunction restraining Mr. Walter R. Herrick, State Commissioner of Narcotic Control, from enforcing a regulation promulgated last December requiring physicians to issue prescriptions for cocaine, morphine, and other habit-forming drugs on triplicate blanks issued by the Commissioner's office. Dr. Jennings contended that the regulation constituted a violation of his rights and those of other physicians.

Vaccination Rulings Differ.—Health Commissioner F. E. Harrington of Minneapolis has recently ruled that children may go to school whether vaccinated or not, and no children are vaccinated without the consent of their parents. He states, however, that in the event of an epidemic of small-pox he would be empowered to exclude from school any children who were not vaccinated. In New York vaccination is practically compulsory. Hugh McCullum More of Port Richmond, Staten Island, was recently convicted for a second time for failing to send his daughter to school, the reason being that he would not consent to have the child vaccinated. He was fined \$25 by the court and given the alternative of spending five days in jail. He has been given a few days to make up his mind which he will choose.

Prescriptions for Liquor Checked Up.—The Prohibition Office has checked up the prescriptions written for liquor in a little over a year, and finds that 13,800,000 prescriptions were written by 45,000 physicians who are licensed to prescribe liquor for patients. Most of the prescriptions called for one pint of liquor.

Physicians Reduce Fees.—Owing to the prevalence of unemployment and the reduction of wages, the physicians of Donora, Pa., have reduced their charges to the pre-war level.

The Camp Merritt Base Hospital Officers' Association will hold its second annual dinner on Saturday evening, April 9, 1921, at the New York Athletic Club, New York City. Dr. Carter S. Cole, 853 Seventh Ave., New York, is chairman of the dinner committee.

Children Given Ether to Cut Living Costs.—As the result of an investigation in Westfield, Mass., it

was learned that young children in that city were receiving sugar lumps soaked in ether to reduce their appetites. The children when questioned said the ether was given them to reduce their appetites and to quiet those who were noisy. The matter has been taken up by the State health and educational authorities.

Madame Curie will be received in the White House by President and Mrs. Harding on May 20, when she will be presented with the gram of radium in behalf of American women who have contributed funds for its purchase. Before Madame Curie goes to Washington she will be greeted by the University Women of America in Carnegie Hall, New York.

Dr. H. S. Brode has been re-elected president of the Walla-Walla County (Wash.) Tuberculosis League.

Dr. James D. Blevins of Beaumont has been appointed Director of the Bureau of Communicable Diseases and Assistant Health Officer of the Texas State Board of Health.

Dr. J. D. Osborn of Cleburne, Tex., has been appointed Surgeon General of the United Confederate Veterans, to succeed Dr. Derring J. Roberts of Nashville, who recently resigned.

Dr. Olin S. Pettengill of Salem, Mass., has been appointed Superintendent of the Essex County Tuberculosis Hospital.

Charitable Gifts and Bequests.—Of the \$1,000,000 set aside for charitable purposes by the will of Mrs. Annie Hurt of Washington, D. C., \$500,000 is devised for the erection and maintenance of a home in Washington for needy and destitute blind people. Approximately \$500,000 is to be equally distributed among the Children's Hospital, the Sibley Memorial Hospital, the Home for Incurables, the Washington City Orphan Asylum, and the House of Mercy.

Organizations of Professional Men Affiliate.—An attempt is being made by the Milwaukee County (Wis.) Medical Society to affiliate societies of physicians, dentists, and pharmacists in Milwaukee into an association which shall direct public policies as they affect these professions and have charge of legislative matters affecting these three professions. The organizations coming into the association would remain intact so far as their scientific activities are concerned.

Vacancies in the Medical Corps of the United States Navy.—Surgeon-General E. R. Stitt announces that there are at present a large number of vacancies in the Medical Corps of the Navy, and examinations are held at frequent intervals in several of the coast cities of the United States, and also at Chicago, Ill. For the present appointments will be made directly into the Medical Corps of the Navy instead of by preliminary enrollment in the Naval Reserve Force. As a consequence of this change successful candidates who may be ordered in attendance on a course of instruction at the Naval Medical School will be given an examination upon the completion of such course for the purpose of determining the value they have received from the instruction, but not with a view to determining their position in the regular service, this being accomplished by the entrance examination. Circulars of information for persons desiring to enter the Medical Corps of the Navy may be obtained by ad-

ressing the Surgeon General, U. S. Navy, Navy Department, Washington, D. C.

The Interstate Association of Anesthetists will hold a joint meeting with the Canadian Society of Anesthetists, and the Ontario Medical Society at the Clifton House, Niagara Falls, June 1-3, 1921.

The American Proctologic Society will hold its twenty-second annual meeting at Boston, Mass., June 3, 4, and 6, 1921. The headquarters of the Society will be at the Hotel Braemore. Dr. Ralph W. Jackson, 251 Cherry Street, Fall River, Mass., is secretary.

The American Association of Anesthetists will hold its ninth annual meeting at the Hotel Bellevue, Boston, June 6 and 7, 1921. Dr. F. H. McMechan, Avon Lake, Ohio, is secretary.

The American Medical Editors' Association will hold its fifty-second annual meeting at the Hotel Lenox, Boston, Mass., June 6 and 7. Dr. Joseph MacDonald, Jr., 15 East 26th Street, New York City, is the secretary.

The New York Electrotherapeutic Society was organized on March 9, 1921, and the following officers elected: *President*, Dr. Victor C. Pedersen; *Vice-Presidents*, Dr. Harold D. Corbusier and Dr. I. Seth Hirsch; *Treasurer*, Dr. Hermab C. Frauenthal; *Secretary*, Dr. Richard Kovacs. Regular monthly meetings will be held on the first Wednesdays of each month to which all physicians interested in electrotherapeutics are welcome.

The Italian Medical Society has been incorporated in Brooklyn, N. Y., and Dr. G. De Zoanna has been elected president. The purposes of the new society are to erect an Italian Hospital in Brooklyn, and to encourage friendly relations between Italian and American physicians.

Medical Society Elections.—THE FIFTH DISTRICT (S. C.) MEDICAL SOCIETY, including physicians of Chester, Fairfield, York, Lancaster, and Kershaw Counties, has recently reorganized and elected the following officers: *President*, Dr. W. R. Walker, Chester; *Vice-Presidents*, Dr. G. W. Poovey, Lancaster, and Dr. W. M. Love, Chester; *Secretary and Treasurer*, Dr. G. A. Hennies, Chester.

THE JACKSON COUNTY (ARK.) MEDICAL SOCIETY, at its annual meeting held in Newport, March 11, elected the following officers for the ensuing year: *President*, Dr. O. A. Jamison, Tuckerman; *Vice-President*, Dr. H. O. Walker, Newport; *Secretary and Treasurer*, Dr. Ira H. Irwin, Newport.

The International Red Cross Committee, at its meeting in Geneva, Switzerland, on March 30, elected the following officers: *President*, Gustave Ador, formerly president of Switzerland; *Vice-Presidents*, Sir Edward Stewart, Great Britain; Dr. Livingston Farrand, United States; Signor Ciralo, Italy; General Mille, Spain; M. Kuwato, Japan, and U. S. Guehoff, Bulgaria.

New Interstate Medical Organization Planned.—Doctors of Superior, Wis., and Duluth have named a committee to consider the formation of an Interstate Medical Association, to which doctors of northern Wisconsin and Minnesota, and the upper peninsula of Michigan would be invited to belong. It is proposed to hold meetings twice a year. On the committee are Dr. W. E. Ground and Dr. A. G. Hovde of Superior and Dr. C. L. Haney of Duluth.

Obituary Notes.—Dr. ROBERT B. ENGLISH of Baxter Springs, Kan., a graduate of the Missouri Medical College in 1874, died suddenly of heart disease on March 13, at the age of seventy-one years.

Dr. GEORGE WALTER HOCHREIN of Chicago died unexpectedly following an operation for gallstones at the Mercy Hospital, on March 21, at the age of forty-two years. He was a graduate of the Northwestern Medical School, in 1906, and a member of the American College of Surgeons. He had been a member of the staff of the Mercy Hospital for some years.

Dr. W. PRESTON BEAULIERK of Concord, N. H., a graduate of the University of Vermont Medical College, in 1896. He was a member of the American Medical Association and the New Hampshire Medical Club.

Dr. MILO A. JEWETT, United States Consul at Trondhjem, Norway, died on February 25. He was a graduate of Harvard Medical University Medical School, and was for a number of years physician to the State Insane Hospital at Danvers, Mass.

Dr. CHARLES E. SMITH of Gettysburg, Pa., a graduate of Hahnemann Medical College, Philadelphia, died after a protracted illness at his home, on March 16.

Dr. IRVIN WILLIS of Omega, Ga., a graduate of the Atlanta School of Medicine, in 1908, died suddenly, on March 16, at the age of forty-three years.

Dr. B. B. BUELL of Vermillion, Ohio, was run down and instantly killed by a passenger train, on March 15. He was a graduate of the Cleveland College of Physicians and Surgeons, in 1909, and was thirty-eight years of age.

Dr. GEORGE E. ELLIS of Denver, Colo., a graduate of the University of Buffalo Medical Department, in 1891, died about March 14, at the age of fifty-three years. He formerly practiced medicine in Sherman, N. Y.

Dr. ADOLPHE LERAY, chief of the x-ray laboratory of the St. Antoine Hospital, Paris, died at Enghien, on March 26. Dr. Leray was a victim of x-ray burns incurred in the course of what are believed to be successful efforts to find adequate protection from the x-rays. During the war Dr. Leray made 35,000 radiographs, for which he was decorated by the French Government with the Legion of Honor.

Dr. MAJOR H. WESTBROOK of Olmstead Falls, Ohio, a graduate of the Western Reserve University Medical Department in 1899, died suddenly while making a professional call in Brecksville on March 22, at the age of fifty-three years.

Dr. ROBERT W. SMITH of California, Pa., was almost instantly killed on March 21, when a passenger train struck the automobile in which he was riding. He was thirty-one years of age and a graduate of Jefferson Medical College.

Correspondence.

PANEL DOCTORS IN THE BRITISH ARMY.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—My attention has been drawn to the report in your issue of the 22nd January, 1921, of a meeting of the Philadelphia County Medical Society held on 27th October, 1920, and particularly to the remarks made by Dr. J. E. Sweet.

I am sure Dr. Sweet will be glad to know that he unintentionally misled his audience when he said that "he did not think any of the medical officers (of the British Army) were panel doctors." As Convener of the Scottish Medical Service (War) Emergency Committee I speak with authority and I can vouch for the absolute accuracy of the following figures:

General Practitioners in Scotland on the Insurance Panels on 4th August, 1914..	1766
Of these there served in the Army or Navy	610
General Practitioners in Scotland not on any Panel.....	402
Of these there served in Army or Navy..	124

The approximate total of medical men from Scotland of all classes—Consultants; Whole-time Officials and young graduates who joined the services immediately on graduating was 1560.

NORMAN WALKER, M. D., F. R. C. P.

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OUR LONDON LETTER

(From Our Own Correspondent.)

LONDON, March 16, 1921.

Thoracic Surgery During the War.—It has been stated on more than one occasion that the greatest advance made in surgery during the war was in thoracic surgery. In the development American surgeons played a prominent part and introduced new methods of technique. Of the British surgeons who dealt chiefly with this branch of surgery none had more experience or took greater advantage of this experience than Mr. George E. Gask. This authority gave a lecture on the subject (the second Lettsomian lecture) before the Medical Society of London on Feb. 21, 1921. He pointed out that, owing to the nature of the warfare, surgical and medical treatment had to be remodelled to meet the changed conditions. The wounds inflicted were of three classes: Those received (1) from rifle or machine gun; (2) from shrapnel balls; (3) from portions of shell and bomb or grenade. In moving actions the first of these predominated; in trench warfare fragments of shell were the chief cause. At casualty clearing stations the causes of death could be divided into two classes: (a) Those which occurred about thirty-six hours after injury; (b) those taking place later. Those in the first class were almost entirely due to the severity of the injury combined with the loss of blood. The prolonged invalidism following chest wounds was mostly due to infection of the pleural cavity and its sequelæ. Mr. Gask said it became clear that the principle to be aimed at was the early mechanical cleansing of the wound, both the chest wall and the injured viscera, before organisms had time to grow. This was attained by excision of the damaged and devitalized tissue and the removal of any foreign bodies, followed by early closure of the wound by delayed or primary suture. In the opinion of the lecturer this was the greatest contribution to military surgery which was made in the late war. There had been two bugbears which appeared overwhelming to surgeons attempting this. One

was a dread of opening the chest under a general anesthetic lest the resulting pneumothorax should cause respiratory failure. The second was their fear that the manipulation of a recently wounded lung might restart bleeding, which might prove beyond control. A wide opening should be made in the chest, so that the thoracic viscera would be brought into view. Patients with thoracic wounds were found to bear operation well, and they took the anesthetic well. Moreover, one pleural cavity could be opened widely without any grave danger. The fear of the danger from the mere handling of the lung was not justified. Thus, it only became necessary to decide which were the best cases on which to operate and to devise the best routes. A certain proportion would get well without operation; some required operation to save life or to obviate a long illness. In the intermediate cases there was room for difference of opinion. The teamwork done in the last war had made a great impression on the minds of those who participated in it. They were agreed that operation should be undertaken as soon as the initial shock of the injury had passed off and before sepsis could occur; usually it could be done about six hours after the patient reached the clearing station; i.e. twelve to twenty-four hours after receiving the injury. The speaker drew attention to the fact that it was not until July, 1917, that a memorandum was issued to medical officers emphasizing the value of treatment of open wounds of the thorax by immediate temporary closure by suture. An incision near the fifth rib enabled any part of the pleural cavity to be reached and dealt with. It had been found that manipulation of pleural contents could be carried out freely without causing any dangerous fall in blood pressure, and portions of lung tissue could be excised without fear. The lung, being a well-aerated vascular organ, was able to withstand infection. Gas gangrene of the lung itself was rare, whereas anaerobic infection of the pleural cavity was frequently met with. The surgeon should leave the pleural cavity dry and clean. The chest should always be closed in layers. Patients with hemothorax should be carefully watched for signs of infection, so that on the first occurrence of symptoms more active measures could be adopted.

The Treatment of Pulmonary Tuberculosis.—The lay press has so exploited the Spahlinger treatment of consumption that it has greatly aroused public attention. Despite the fact that Dr. Addison, the Minister of Health, explained clearly in Parliament the attitude of the Ministry toward the matter, and stated that, as it was a secret remedy, the difficulties in the way of proper investigation were practically insurmountable, many of the daily papers clamor for such an investigation. However, according to the *Evening Standard* of a recent date, there is a probability of an expert investigation into the claims made on behalf of the Spahlinger treatment for consumption being embarked upon. Moreover, the writer in this journal states that they had Herr Spahlinger's assurance that to an authoritative body he would disclose all the facts and processes of the treatment. It would be interesting to know if, when

he submitted notes of the treatment to the French Academy of Science, he disclosed all the secrets of the method. Dr. Addison declared that, on account of the secrecy maintained as to its constitution and method of preparation, it had hitherto been found impracticable for the recognized research laboratories of Great Britain to investigate its properties and effects. Does the discoverer now intend to reveal these secrets to an authoritative body? If not, the investigators must be considerably handicapped in their work. Again, to be certain that an individual is cured of pulmonary tuberculosis is a question of a very considerable period of time. But when all these points have been taken into consideration, it is satisfactory to learn, on the authority of the paper just quoted from, that certain specialists are considering holding an independent inquiry, so that the public may have a pronouncement on the treatment after it has been carefully investigated by those qualified to pass an expert judgment on the matter.

Encephalitis Lethargica.—According to promise, the Ministry of Health has issued recently a memorandum on encephalitis lethargica. Dealing with the history of the disease, it is pointed out that similar outbreaks have occurred in the past; for example, in 1865, the "strange fever" described by Willis, and epidemics characterized by nervous symptoms and lethargy in the seventeenth and eighteenth centuries. So far as is known the malady is caused by a virus which is filtrable, probably gaining entrance through the nasopharynx, and which sets up inflammatory changes in the nervous system. There does not seem to be any clear evidence that there is a relationship between encephalitis lethargica and epidemic hiccup, which has been observed in parts of this country during the past few weeks. The conclusions arrived at by the investigators who compiled the report for the Ministry of Health are that the disease "appears to belong to that group of maladies, including cerebrospinal fever and acute poliomyelitis, in which the pathological agent is much more frequently present in the human organism than the clinical symptoms indicate. An attack of the disease may be regarded as the result either of the breakdown of the immunity to the effects of the virus which the individual who harbored it had up to the time enjoyed or of a non-immune person having become freshly infected with a strain of the virus, which has attained a degree of pathogenicity that can be considered as specific." No specific treatment is available.

Obituary.—Sir Charles Cameron, M.D., passed away in Dublin on Feb. 27 last. He was in his ninety-first year. Of Scotch descent on his father's and of Irish on his mother's side, Cameron was born in Dublin. He studied medicine in Dublin and chemistry in Germany under Liebig, and at the early age of twenty-three was appointed professor of the Dublin Chemical Society. He did not take a medical qualification until thirty-eight years of age, when he obtained the license of the King and Queen's College of Physicians. He was appointed Professor of Chemistry in the School of the Royal College of Surgeons of Ireland in 1875.

A few years before this date, however, Cameron was made Medical Officer of Health for the city of Dublin, a post which he held up to two or three years from the time of his death. In 1835-6 he was President of the Irish Royal College of Surgeons; in 1886 he received a knighthood and in 1892 he was given the Harben gold medal. He was the recipient of honors almost too numerous to mention. Socially he was a delightful man and one of the most witty raconteurs of his day. His wit was of the sparkling kind and, in spite of his descent, had nothing of the proverbial Scottish "pawkiness." An example of his powers of repartee was shown some years ago when he was giving evidence before a Parliamentary committee, inquiring into a bill introduced by the Corporation of Dublin for the enlargement of the city boundary and the inclusion therein of certain suburban townships. It happened that Cameron himself lived in the suburbs and thus escaped the higher rates of the city. This fact was brought out during his cross-examination. The counsel, thinking to make a point against him, said: "You do nothing, then, to relieve the rates of the city." "Indeed I do," replied Cameron; "I relieve them of nineteen hundred a year." He was a voluminous writer on scientific subjects and also wrote a "History of the Royal College of Surgeons in Ireland," "Recollections," "An Autobiography" and a volume of poetry.

Lord Moulton, great lawyer and great chemist, died on March 9. Lord Moulton was one of the men who played a great part in winning the war. Although up to the time of the outbreak of the war a distinguished English judge, he was also known to scientific men as a great scientist and especially for his knowledge of chemistry; yet to "the man in the street" he was absolutely unknown. In an eloquent tribute to him by T. P. O'Connor in the *Daily Telegraph*, March 10, the writer says "that if his career had ended when he had attained almost the highest judicial honors, it might have been considered prosperous rather than brilliant; but the war brought him his opportunity, not of getting greater fame, for his work was unknown to the public at large, but of more valuable service to the defense of his country in her hour of need. He was attached to the Ministry of Munitions, and then there was seen, perhaps, one of the most extraordinary of all the phenomena of a war so rich in strange transformations, that a man who had spent his life over books, in law courts and in the peaceful debates of forums was engaged in contriving the deadliest weapons in the work of man-killing. Lord Moulton knew Germans, the German mind, the German language and German science, and, above all, German ruthlessness. The example they had given of employing the best scientific brains to add ruthlessness, horror and savagery to warfare, he bettered, for by constant research and experiment he was able to apply British science to the same purpose, to meet ruthlessness with ruthlessness, craft with craft and deadliness with deadliness. If the Germans brought in the hideous weapon of poison gas, it was the business of Lord Moulton and his associates to bring in a gas more poisonous and deadlier; if the Germans discov-

ered a new and deadlier explosive it was the business of Lord Moulton to invent a newer and still more deadly explosive."

Progress of Medical Science.

Boston Medical and Surgical Journal.

March 24, 1921, cxxxiv, 12.

1. When to Open the Knee-Joints. H. W. Marshall.
 2. The Energy Requirements of Young Girls from 12 to 17 Years of Age. Francis G. Benedict and Mary F. Hendry.
 3. The Production of Agglutinins in Typhoid Fever. Robert A. Kilduffe.
 4. Acute Empyema Complicated by Whooping Cough. William Reid Morrison.
 5. Recent Progress in Neurology. Isador H. Coriat.
4. Acute Empyema Complicated by Whooping Cough.—William Reid Morrison relates a case in point, in which rib resection and valve drainage of the chest under local and paravertebral anesthesia were employed. Ten months after the operation the patient, a little girl two years and five months old, presented symmetrical chest expansion, with no deformity. New rib had grown into the bony defect, and the chest was otherwise negative. In such complicated infections of the chest, novocaine is the anesthetic of choice, injected locally and paravertebrally. Ether, chloroform, or other general anesthetics are distinctly contraindicated. An indirect opening into the pleural cavity is infinitely preferable to a direct one, because in the latter case air rushes in and out of the chest continually, with each respiration. This causes partial lung collapse, which, in turn, favors cavity formation and chronic empyema, as the lung cannot fully expand. A valve fashioned from the soft tissues themselves is more efficient than any mechanical valve.

Journal of the American Medical Association.

March 26, 1921, lxxvi, 13.

1. Diphtheria Carriers. George H. Weaver.
 2. Industrial Lead Poisoning. Marvin D. Shie.
 3. The Diagnostic Significance of Jacksonian Epilepsy. George Wilson.
 4. Action of Mercurochrome-220 on the Gonococcus. Ernest O. Swartz and David M. Davis.
 5. Postural Rest for Pulmonary Tuberculosis. Gerald B. Webb, Alexius M. Forster, and G. Burton Gilbert.
 6. The Effect of Phosphorus in Rickets. D. B. Phemister, E. M. Miller, and B. E. Bonar.
2. Industrial Lead Poisoning.—Marvin D. Shie bases this discussion on material drawn from experience gained during a study of lead poisoning in several industries, during which he made thorough physical examinations, including laboratory work, of more than 900 workers exposed to the lead hazard. Eighty of these were found to be suffering from lead poisoning in various degrees of severity, and ninety-five others had sufficient signs and symptoms of plumbism to warrant a tentative diagnosis. Certain signs and symptoms of plumbism have been given somewhat more importance as diagnostic points than they deserve. These are anemia, basophilic degeneration of the red cells, hypertonus, and constipation. Pronounced anemia is present in only relatively few cases; in many severe cases there is no anemia whatever. The pallor that is usually present is, therefore, due to some other cause, possibly a constriction of the peripheral blood vessels. Basophilic degeneration of the red cells is rare in chronic cases, and its value as a diagnostic point, even in acute cases, has probably been overrated. The presence of hypertonus is extremely variable. The cause of this variance is unknown; the difference in the form of the lead to which the different groups are exposed may have something to do with it. Hypertonus is nearly always present during attacks of colic. Although constipation is usual, it is not invariably present. The assumption, therefore, that a patient who is not constipated does not have lead poisoning is fallacious. Many cases of plumbism, especially acute cases, occur without constipation. A point of diagnostic value which appears to have escaped recognition, except by Hayhurst, is the presence of mononucleosis in chronic

cases. This is almost invariably present. The presence of a lead line is also extremely variable. In the treatment of plumbism prophylaxis is of much more importance than the curative treatment. By means of proper working conditions and medical supervision on the one hand, and the observance of the rules of personal hygiene and common sense on the other, together with cooperation between employers and employees, the incidence of plumbism in American industries could be greatly decreased. If the cause of the poisoning is removed the prognosis, except in a few cases, is good even without medical treatment. If, however, the lead continues to exert its deleterious effects through small, steady doses, the case steadily progresses, finally terminating in some form of paralysis or in some of the common degenerative diseases. As a rule, lead poisoning is a disabling rather than a fatal disease, although in chronic cases it undoubtedly hastens death.

3. The Diagnostic Significance of Jacksonian Epilepsy.—George Wilson gives brief histories of seven cases in point, and concludes that Jacksonian spasm is by no means diagnostic of a lesion of the motor cortex. Probably the commonest cause of this form of spasm is idiopathic epilepsy itself, and a careful examination with close scrutiny of the facts and history may prevent many errors in diagnosis. A person with Jacksonian epilepsy should not be operated on unless other signs and symptoms of intracranial disease are present.

4. Action of Mercurochrome-220 on the Gonococcus.—Swartz and Davis state, as the result of laboratory investigations, that mercurochrome-220 shows a powerful germicidal effect on the gonococcus; that the gonococcus is about forty times as susceptible to the action of the mercurochrome-220 as *E. coli*, and that solutions of mercurochrome-220 lose their germicidal potency on standing, and should therefore be used only when freshly made.

6. The Effect of Phosphorus in Rickets.—Phemister, Miller and Bonar, following up previous observations, detail briefly the histories of two patients showing the effects of phosphorus and cod liver oil on rickets, and two showing the influence of phosphorus alone. They found that the end-results produced by phosphorus, and the combination of phosphorus and cod liver oil, were quite similar. The method of action is little understood. In the case of cod liver oil the result might be attributed to the presence of fat soluble A, but this could not be the explanation for the action of phosphorus. There is a trace of phosphorus in cod liver oil in organic combination, but it is improbable that it is present in sufficient quantity to exert any influence. Clearly phosphorus, and also cod liver oil, in some way restore the power of normal ossification, which in rickets is temporarily lost. This refutes the contention of Wegner, who thought phosphorus incapable of assisting in ossification in rickets until some other factor restored the altered calcium metabolism to normal.

The Lancet.

March 5, 1921 cc, 10.

1. The Arris and Gale Lecture on the Cause and Prevention of Myopia. F. W. Edridge-Green.
2. Some Sequels of Congenital Syphilis. Sir Humphrey Rolleston.
3. Nutrition in Vienna: A Study of the Food Supply and State of Nutrition of the Working Classes in Vienna. Madge R. Gibbon and Margaret I. H. Ferguson.
4. The Bacteriological Investigation of a Case of Plague. V. M. Synge and Joseph W. Bigger.
5. The Influence of Aeration on the Stability of the Antiscorbutic Factor. S. S. Zilva.
6. Mental Tests. W. A. Potts.

1. The Arris and Gale Lecture on the Cause and Prevention of Myopia.—F. W. Edridge-Green confines his discussion of this subject to acquired myopia, leaving out of consideration that due to congenital defect, in which the axis of the eye is longer than normal, and that due to increased refraction of the media. These causes are very rare in comparison with the acquired defect, in which, through elongation of the eyeball, the anteroposterior axis is increased and myopia induced, because the images of the external objects are formed in front of the retina, a concave lens being required to bring the images on the retina. The detailed examinations of some thousands of cases of myopia fail to convince the writer that a single case of myopia had been

either caused or increased by the use of the eyes for near work. It is very doubtful whether the use of the eyes for near work has anything to do with the production of myopia, and certainly nothing has been definitely proved. The causes of myopia are discussed under the heads of predisposing and exciting. The most common of the usually accepted predisposing causes is heredity. This may be a special weakness of the sclerotic to give way under the pressure or to become affected by certain diseases. Again, the anatomical arrangements for preventing the distortion of the eye may be defective. The first directly exciting causes of myopia are certain diseases, as measles, whooping cough, and bronchitis. Lifting and various exercises which increase intraocular tension may be exciting causes of myopia, the mechanism of the production of which is described. When it is considered that an increase of 1 mm. in the anteroposterior axis of the eye corresponds to three diopters of myopia, it will be seen that very little stretching is necessary in order to produce a perceptible amount of myopia. Numerous cases could be given of myopia and detachment of the retina through whooping cough. A young musician with low myopia, in indifferent health, was advised to take a rest and spend a year on a farm. He found that digging caused him great pain in the eyes, headache, and bleeding at the nose. His myopia rapidly increased, although he had no previous discomfort with his eyes in musical work. The recommendations which have been made by ophthalmic surgeons with reference to position in reading and writing, lighting, ventilation, and other hygienic conditions are advisable, but they do not seem to produce much effect in the prevention of myopia. In diseases which produce myopia, such as measles and whooping cough, special care should be taken of the eyes, particularly in those with a hereditary tendency to myopia. In measles the light should be arranged so that the child does not point its eyes downward, and the head should be raised as much as possible. During convalescence exercises should be carefully regulated; those forms which raise intraocular pressure, particularly when associated with back pressure, should be avoided. It is probable that the sclerotic, like other parts of the body, can be strengthened by suitable exercises. In the training of children in whom the eye is growing, when the coats of the eye are much softer than in the adult, those exercises which cause pressure and lead to myopia should be avoided. Any occupation which involves heavy lifting is not suitable for a myopic. It is particularly in those who have sedentary occupations, who are not in fit physical condition, and who have an hereditary tendency to myopia, that these forms of exercise should be avoided. Careful regulation of exercises, especially in the debilitated, is necessary. All exercises should be performed as far as possible in the erect position, with the eyes pointing forward. The ordinary games and sports, like cricket, tennis, running, and archery, are beneficial, and do not cause myopia. Standing erect and swinging light Indian clubs is a very useful form of exercise for people with sedentary occupations. Boxing is not suitable for them. In myopic children special exercises can be devised so that every muscle may be developed without causing an increase in the myopia.

4. The Bacteriological Investigation of a Case of Plague.—V. M. Synge and Joseph W. Bigger relate the occurrence of plague in a patient who resided within about a quarter of a mile of the docks, but who had no connection with shipping or sailors. The locality in which she resided has been free from plague both before and after her infection. The clinical findings and bacteriological investigations which definitely proved the disease to be bubonic plague are detailed. There can be no doubt, from these studies, that the organism was a true *B. pestis* and that the patient was suffering from bubonic plague. The method of infection is unknown. Both the municipal and port sanitary authorities failed to find any unusual mortality among rats. A number of rats were killed and sent to the writers for examination, but all were healthy. The fact that the patient owned a cat which alternately went on hunting expeditions and slept on her bed, may possibly be a link in the chain of infection. Nearly five months have elapsed since the occurrence of this case, and no further cases have been recorded.

British Medical Journal.

March 5, 1921, i, 3140.

1. The Influence of the War on the Modern Treatment of Fractures. Henry Wade.
2. An Address on International Organization and Public Health. G. S. Buchanan.
3. A New Principle in the Surgical Treatment of "Congenital Cleft Palate," and Its Mechanical Counterpart. H. D. Gillies and W. Kelsey Fry.
4. The Treatment of Sprue by Massive Doses of Sodium Bicarbonate. Aldo Castellani.
5. Angina Pectoris with Auricular Fibrillation. Hamilton M. Sandison. With a Note by Frederick W. Price.
6. Aneurysm of External Carotid Artery Treated by Ligation of Common Carotid Artery and Internal Jugular Vein. W. A. Peverley and J. K. Haworth.

3. A New Principle in the Surgical Treatment of "Congenital Cleft Palate," and Its Mechanical Counterpart.—H. D. Gillies discusses the principle involved, and W. Kelsey Fry details the prosthetic treatment advocated. The ideals aimed at are: Perfect speech, perfect mastication, normal nasal respiratory function, and, in so far as a displaced maxilla causes deformity, a normal bony contour. Gillies summarizes his part of the discussion thus: All unoperated hard palates have normal occlusion of the noninvolved teeth. Nearly all operated hard palates have abnormal occlusion of the noninvolved teeth. Nearly all operated palates have nasal intonation to speech and narrowed features and nasal passages. Most unoperated adult cases have enjoyed good health. Most palate cases require a dental plate, whether operated or not. He recommends: (1) Suture soft palate as far back as possible in the pharynx by detachment from hard, making the hard palate defect greater; (2) fill the hard palate defect by appliance from earliest infancy, even at the bottle or breast stage. For the lip he recommends early operation; for the palate, before speech development or later. Fry states the prosthetic advantages of this combined surgical and mechanical treatment as, first, the ease with which restorations of the hard palate can be performed by prosthetic means as compared with the difficulty with which the prosthodontist is confronted in the case of the soft palate; and, secondly, the absence of distortion of the dental arch, with resulting loss of masticatory function, which is unfortunately only too frequent in cases in which the hard palate has been restored by surgical means. The aims of dental treatment for these cases are considered under the following headings: (1) To aid feeding until such time as the surgical operation is thought advisable. (2) To construct an appliance to hold the epithelial inlay in position at the time of operation. (3) To construct an appliance to maintain the surgically restored soft palate in its correct position and, if necessary, to stretch it in a backward direction so as to enable it to make contact with the posterior wall of the pharynx. (4) To construct a permanent prosthetic appliance to restore the loss of the hard palate and, if necessary, the anterior portion of the soft palate.

4. The Treatment of Sprue by Massive Doses of Sodium Bicarbonate.—Aldo Castellani finds that the administration in sprue of massive doses of sodium bicarbonate by mouth and intravenously, in conjunction with the usual dietetic measures, gives satisfactory results in a large number of cases, especially as regards the intestinal symptoms of the malady.

The American Journal of Obstetrics and Gynecology.

February, 1921, i, 5.

1. A New Method of Subperitoneal Shortening of the Round Ligaments of the Uterus. Hermann Grad.
2. A Preliminary Report on Pylitis in Pregnancy, with Report of Cases. Greer Baughman.
3. Thrombophlebitis During the Puerperium Following Influenza, with a Report of Cases. Lewis F. Smead.
4. Pseudocholecystitis. Harold D. Meeker.
5. Benign Mammary Tumors and Intestinal Toxemia. William Seaman Bainbridge.
6. Missed Abortion. Jenninks C. Litzenberg.
7. Splenic Leucemia Associated with Pregnancy. George W. Kosmak.
8. Ovarian Dermoid Cysts: Etiology, Diagnosis and Treatment. Benjamin Rush McCallan.
9. The Status of Intrauterine Stem Pessary Based on a Study of 205 Cases with End Results in 117 Cases. Reginald M. Rawls.
2. A Preliminary Report on Pylitis in Pregnancy, with Report of Cases.—Greer Baughman bases this com-

munication on the histories of three cases of pylitis in pregnancy, selected because they were studied over a considerable period of time. All were treated with pelvic lavage, pyelograms being taken from time to time as the pelvic size changed, provided the condition of the patient warranted this added discomfort. All were private patients treated in a private hospital. The histories are summarized as follows: (1) In all the cases the right pelvis was principally involved. (2) In the first two cases the bladder was early and persistently involved. In the last case the bladder was occasionally inflamed. (3) In the first two cases the colon bacillus was the exciting cause. In the last case the staphylococcus albus. (4) In all of the cases the curve representing the sizes of the right and left pelvises is almost parallel. (5) The symptoms in all cases improved under irrigation. (6) The most marked improvement was noted following delivery in all of the cases, showing that the obstruction was due to the uterus and its contents. (7) The fact that the right kidney of the second case is congenitally small will account for the continued reduction of function upon that side. (8) There was noted a compensatory increase in function upon the side that was less involved. (9) It was possible to irrigate these cases within two weeks after delivery. (10) None of the cases had elevated temperature during the puerperium. (11) Even in enormous dilatations, as in Case III, where the pelvis held 100 c.c., a cure is possible. (12) Living babies were born in the cases in which labor was induced at the selected time, while the woman who entered labor before the time set for the induction of labor gave birth to a dead child.

7. Splenic Leucemia Associated with Pregnancy.—George W. Kosmak made a survey of the reported cases of leucemia complicating pregnancy in which a fairly definite diagnosis from the blood picture was made, finding ten cases. To this number he adds two well-developed and subsequently fatal cases, observed within a comparatively short interval of time. The ages in the twelve cases varied from twenty-four to forty, the majority being between thirty-two and thirty-six. With the exception of Peterson's case, all were multiparæ. A possible hereditary history is mentioned in only one case. The parity varied from three to nine. In most of the cases there is a history of living children that showed no tendency to the disease up to the time of the report, but, in a few instances, it is recorded that the babies died at varying periods from a few days to five months after labor. In four cases mention is made of the birth of macerated or stillborn fetuses. Among the twelve cases the mother survived in but two, but how long these mothers lived is not stated, neither is the subsequent course of the disease given. In the majority of cases it is found that the woman survived but a short time after labor. One of the writer's patients died before delivery took place, the second died in two weeks. In every instance but one (his own case) in which the definite diagnosis is presented, the splenomedullary type of the disease was observed. In many cases the authors mentioned a prodromal period in which progressive emaciation, anemia, and loss of strength were noted soon after pregnancy, from which no recovery resulted, and during which period the woman again became pregnant. The leucemia itself does not therefore appear to be a deterrent factor to conception. In any case where an anemic patient fails to recover under proper treatment a more minute and detailed examination of her blood should be made with reference to the possible diagnosis of leucemia. The occurrence of pregnancy in this disease indicates a most unfavorable outlook for the mother and conception, therefore, must not be allowed to take place where the condition is suspected. The prognosis is undoubtedly worse in the pregnant than in the nonpregnant state; and whether the association is accidental or not is immaterial. Where the disease is already present abortion seems to be indicated, with a rapidly progressing course and a fatal issue. The presence of an enlarged spleen is an almost constant factor in the disease, and should lead one to look for this sign in every anemic patient. The value of the x-ray in leucemia has been brought forward; but in the event of a pregnancy its application as a cure for the disease may work an undoubted harm on the fetus and the

induction of labor should be done before radiation is begun. It is important to distinguish between the acute and chronic forms of leucemia.

Western Medical Times.

February, 1921, xl, 8.

1. Differences of Opinion in the Treatment of Industrial Injuries. Carl Scheffel.
2. Trench Foot.—Etiology, Pathology, Bichloride Treatment. John F. Van Pelt.
3. True Gastric Pain. W. H. Foreman.
4. The Value of the "No Good"—Eurus continued. Douglas H. Stewart.
5. The Surgical Heart of the Child. Maxwell Quackenbos.

1. Differences of Opinion in the Treatment of Industrial Injuries.—Carl Scheffel reviews briefly some of the published opinions on the subject involved, from the variance in which he deduces that this branch of medicine is as yet very little systematized. Most industrial surgeons seem to agree that iodine is the best primary antiseptic to apply to wounds, but here the union of agreement commences and ends. It would be a great step forward if industrial surgeons could employ uniform and standardized methods to produce uniform results. Only in this manner can industrial surgery progress.

3. True Gastric Pain.—W. H. Foreman points out that true gastric pain is the result of adequate gastric tension. Ordinary gastric conditions or processes are not connected in consciousness, but are only concerned in reflex physiological gastric function. Pathological processes or conditions, either organic or functional, in the stomach or stomach wall, or outside of the stomach, such as fermentation, hypermotility, disturbance of gastric tone, inhibition of pyloric obstruction, peptic ulcer, cancer, reflexes from disease of any of the visceral or stomatic structures, functional or organic disturbances of the nervous or endocrine systems, or psychical influences, may induce gastric tension adequate to produce true gastric pain.

Indianapolis Medical Journal.

February, 1921, xxiv, 2.

1. Some Clinical Observations in Mental Diseases. Max A. Bahr.
2. Origin and Significance of Tics. H. Laxson.
3. Large Strangulated Umbilical Hernia. Scott Edwards.

1. Some Clinical Observations in Mental Diseases.—Max A. Bahr considers not the cases presenting a well pronounced type of mental alienation, but the class of persons who present in their clinical aspect psychological defects which are usually considered harmless or of too trivial a nature to cause any special harm, much less medical or legal restraint. The known progressive tendency, however, of such lesions, together with their baneful influence and even at times vicious tendencies upon the higher cerebral functions, renders such mental unsoundness the very soil which constitutes the borderland of insanity, and from which grow and develop all forms and degrees of actual insanity. That the clinical field embraced by these dwellers on the borderland of insanity is a very large and varied one is certain, and the numerous clinical, pathological, sociological and medico-legal problems involved, are of the greatest importance. Analysis of these cases will serve to show how apparently slight defects or anomalies of mental constitution operating in certain temperaments will combine with a train of circumstances to bring an individual to total failure as a contributing member in our social life. Within the area of these borderland cases one must include the cases of psychasthenia with its impulsions, obsessions, doubts, phobias, mental anguish, agitation, as well as psychopathic exaltation and depression, constitutional inferiority, disorders of the stream of thought, disorders of volition, of the emotions, of the memory, of attention, and of the personality, whenever such disorders are more than transient. The various abnormal traits of character which are noted in the histories of such cases are defects of adaptation, defects in the capacity of the individual for acquiring knowledge; such characteristics as self-depreciation, conceit or self-pity; in exaggerated measure the tendency to shun society; such traits as selfishness, suspiciousness, jealousy, and such

traits as conscientiousness and scrupulousness, which in their normal development are useful qualities, but which in their exaggerated form work in a way to interfere with efficiency. Also moods and irritability are to be considered which determine the habitual or episodic reactions of elation or depression and likewise such abnormal traits as touchiness and sensitiveness. It is needless to state that most good can be done for these patients in the incipient stage. The early recognition of the various abnormal traits may enable one to prevent the development of an actual psychosis by early appropriate treatment. Prophylaxis through education of the public is important.

Southern Medical Journal.

February, 1921, xiv, 2.

1. The Importance of a Knowledge of Syphilis to the Internist. Ernest B. Bradley.
2. A Physiologic Basis for the Treatment of Chronic Constipation. Horace W. Soper.
3. A Study of the Reactions Following the Transfusion of Blood. Paul W. Clough and Mildred C. Clough.
4. On the Administration of Digitalis to Children with Diphtheria. Hugh McCulloch.
5. Report of a Case of Formalin Urticaria. J. De Voine Guyot.
6. Health Insurance. Frederick R. Green.
7. Surgical Monstrosities and Monster Growths. Lucian H. Landry.
8. The Incidence of Kidney Infections in Acute Appendicitis. R. M. Harbin.
9. Ureteral Calculi. A. J. Crowell and Raymond Thompson.
10. Nonunion of the Humerus; Repair by Means of Bone Graft. M. S. Henderson.
11. Prenatal Supervision. Quintan U. Newell.
12. Unrecognized Glaucoma and the General Practitioner's Responsibility in Its Diagnosis. Hiram Woods.
13. An Atypical Mastoiditis Following a Staphylococccemia. H. Marshall Taylor.

3. A Study of the Reactions Following the Transfusion of Blood.—Paul W. and Mildred C. Clough consider the reactions following transfusion the chief difficulty in the use of blood transfusion, and divide these into the following general groups: (1) Reactions following the use of compatible blood; (2) so-called hemolytic reactions, following the use of incompatible blood, where the cells of the donor are agglutinated or hemolyzed by the serum of the recipient; (3) severe reactions occurring in patients who have previously received many transfusions, following the injection of blood from a donor belonging to the same blood group as the recipient, and therefore compatible in the ordinary sense. The common form of reaction following transfusion is the febrile type. These reactions follow the injection of compatible blood and cannot be foreseen by preliminary blood tests. Outspoken reactions occur in 20 to 30 per cent. of the cases, and milder ones in 20 per cent. more. The severer reactions are disagreeable, but very rarely harmful, and they seem not to lessen the benefit the patient may derive from the blood injected. The cause of these reactions is still in dispute. Some can be avoided by painstaking care in technique. The most important factor is probably the change in the platelets associated with incipient coagulative changes in the blood. Injury to the red cells by the citrate is possibly also a factor. The hemolytic type of reaction follows the injection of incompatible blood—that is, blood from a donor whose cells are agglutinable in the serum of the patient or of other individuals belonging to the same group as the patient. These reactions can always be foreseen by adequate preliminary tests. These reactions begin early in the course of the transfusion, and have a characteristic symptomatology which should be familiar to everyone attempting a transfusion, and which will usually enable one to recognize them promptly, and to interrupt the transfusion before a fatal dose of incompatible blood has been given. Some of the severe reactions occurring in patients with pernicious anemia who have received a large number of transfusions apparently do not fall into either category. They may occur after transfusions from donors belonging to the same blood group as the patient, and may be associated with hemolysis and hemoglobinuria. It is important to test the action of the recipient's serum on the donor's cells, but it seems probable that the methods now in use will not suffice to foresee and avoid all such reactions. While it is not yet possible to eliminate all such reactions

following transfusion, nevertheless with adequate preliminary tests and careful technique the danger involved is so slight that it should never deter one from giving a transfusion when one is indicated.

4. On the Administration of Digitalis to Children with Diphtheria.—Hugh McCulloch makes the following observations: (1) Diphtheria toxin, either experimentally or clinically, produces anatomical and functional changes in the structures of the heart by direct action. Clinical manifestations of cardiac failure are due to these alterations of function and not to changes in the vagus center or nerve. (2) The effect of diphtheria toxin on the heart is similar in many ways to the effect on the heart of digitalis, either directly or through the vagus nerve. (3) The administration of digitalis to patients with diphtheria is contraindicated because there would result a summation of effects in the same heart. (4) With our limited means of estimating the optimum therapeutic amount of digitalis, or of controlling its effect on the various structures of the heart, this summation constitutes a real danger to the life of the patient. (5) Measures for providing rest for the heart other than the administration of digitalis should be adopted.

Revue médicale de la Suisse romande.

December, 1920, xl, 12.

Ulcerogangrenous Vaginitis from Fatal Mercurial Intoxication.—Jaeger describes two cases of this very rare sequence and gives the subject monographic treatment. It has occurred almost wholly in syphilitics under treatment with the metal. Both patients were of this type and both had received intramuscular injections, the one of grey oil and the other of salicylate of mercury. Both patients were also receiving neosalvarsan and appeared to be reacting well to the treatment, which was interrupted in the first patient to allow her to menstruate. After the period had expired two ulcers were noted on the vulva. It was at this juncture that grave general symptoms appeared which caused the woman to seek ward treatment in the hospital. The vulva was much swollen and a gangrenous ulcerative process was evident. There was not the least evidence of salivation or mercurial sore mouth and no lesions are mentioned save the local ones. The process apparently extended upwards until it caused perforation of the vagina and peritonitis. Autopsy, however, showed the presence of acute nephritis and a condition of the colon and rectum suggesting that of the vagina. The intense inflammation, diphtheroid false membranes, ulceration, and mass necrosis caused an extensive bacteriologic research, revealing nothing definite; but metallic mercury could be isolated from the mucosa of the vagina. The second case was quite similar to the first, although in this patient mercurial necrotic stomatitis was present while there was no colitis. The case also ended fatally and autopsy caused some slight doubt that the vaginal ulceration was purely mercurial; no mention of finding mercury in the mucosa suggests that the test here was negative and the metal may have acted only indirectly through systemic poisoning.

Gazette des Hôpitaux.

January 4-6, 1921, xciv, 2.

Anaphylaxis.—Laumonier refers to a recent article on this subject by Kopaczewski, who makes a distinction between the hemoclastic crisis which follows a first injection and that which follows a second injection of the same substance. The second is the only one to produce the anaphylactic shock so-called. The hemoclastic crisis has been renamed the colloidoclastic. The phenomena produced by the second injection have been explained by sensibilization and the interval has been regarded as a period of incubation not seen after first injections. During incubation the soil is provided for the result of the second injection which follows suddenly. The preparation has to do with the laws of physical chemistry. The author gives the original views of Richet, Besredka and others, from which we must conclude that the antigen or often essentially harmless first injection is a complex nitrogenous

molecule. But a harmless atoxic serum may be rendered toxic by simple methods, such as centrifugalization or contact with kaolin, starch or gelose; who shall say then that anaphylaxis cannot be due to some change effected in the antigen itself? Theories involving a chemical explanation have been succeeded by another in which physics is concerned, and which is bound up in the colloidal condition of living matter. This takes us back to the subject of first injections in which the colloidal hypothesis is entirely plausible. Hence if the two sets of phenomena are reduced to a common motivation involving the colloidal equilibrium, the interval of latency is the subject which chiefly requires explanation. The phenomenon of colloidoclasia may be regarded as humoral, while the anaphylactic shock with its period of latency is essentially cellular, in Kopaczewski's opinion.

Brazil-Medico.

January 15, 1921, xxxv, 3.

Cataphrenias.—Austregesilo refers to a new syndrome which has been seen in syphilis (pseudoparesis) and after epidemic encephalitis. Other cases are seen in false dementia precox occurring in succession to some of the infectious diseases. Cured dementia precox is doubtless an example of this cataphrenic syndrome. The latter seems to find its justification at least in Brazilian psychiatry, for several of the leading authorities have moved to adopt the term. Naturally the movement is not unopposed, and the author admits that time alone can decide the question. At present the latter, as stated above, is restricted to a few affections, as precocious pseudoparesis, curable dementia precox and certain cases of the latter type which have followed epidemic encephalitis of the lethargic type. The author does not desire to extend this conception of disease beyond these limits. Kraepelin himself, as all know, has modified his original conception of dementia precox and it may be susceptible of further change. As far as can be inferred, Ulysses Vianna first applied the term cataphrenia to early syphilitic paresis, which proved to have been wrongly diagnosed. The same syndrome was then seen by French authors to follow lethargic encephalitis, and the fact is also recalled that certain apparent precocious dementers who traced their disease to an antecedent infectious disease have recovered—these also having presented the same syndrome. The author curiously omits a summary of the latter.

Finska Läkaresällskapet Handlingar.

November-December, 1920, lxii, 11-12.

Osteomalacia.—Schaumann describes the first case of this disease in Finland. The patient was a woman aged thirty-three. There was a marked family history of locomotor troubles, pains in the limbs, rickets, enuresis nocturna, convulsions, etc., but apparently no other case of osteomalacia. The subject herself, who was well grown, healthy, and mentally normal at the age of fourteen, developed the same pains in the legs and inability to walk as had been present in several near relatives and took to her bed for several months. But the trouble was an intermittent one, with notable remissions and tending to be worse in the spring. The patient did not menstruate until the age of eighteen, and five years elapsed before the periods were regular and normal. Six years after the onset there were noted several skeletal changes, such as approximation of the hips to the thorax. Five years more expired before the long bones began to bend without fracture. The condition became progressive and she became permanently bedfast. On examination she was found absolutely free from rickets. The osteomalacic pelvis was well shown, and there was kyphoscoliosis. The x-ray showed chiefly atrophy of the skeleton. Gross changes in the endocrine glands could not be shown and the only symptom pointing in this direction was brown pigmentation on the right side of the face and neck. The hair and genitals were normal save for a possible enlargement of the left ovary. The author believes that rickets and osteomalacia are closely related. The severer forms of rickets are also very rare in Finland.

Book Reviews.

THE ANATOMY OF THE HUMAN SKELETON. By J. ERNEST FRAZER, F.R.C.S., Eng., Professor of Anatomy in the University of London, and Lecturer in the Medical School of St. Mary's Hospital; Examiner in Anatomy for the University of London; Examiner in Anatomy for the Primary Fellowship of the Royal College of Surgeons of England; Formerly Examiner in Anatomy for the Conjoint Board of the Royal College of Physicians and Surgeons. Second Edition. With 219 Illustrations. Philadelphia: P. Blakiston's Son & Co., 1920.

In this handsome volume the author presents the study of the human skeleton from a novel, and practical, point of view. He considers the bones in their relation to the other structures of the body, rather than as isolated objects. The result is a volume which is stimulating and useful, and which demonstrates the real medical and surgical value of a knowledge of the bones when studied as here demonstrated. The book is profusely illustrated with pictures which are both artistic and of practical utility. The medical man who is some years away from his anatomical studies would do well to procure this book and go through it carefully; he would find much to instruct and much to interest him. The author is to be congratulated on having produced a volume as interesting as Holden's "Osteology," to which, indeed, it would serve as a valuable sequel.

INJURIES TO THE HEAD AND NECK. By H. LAWSON WHALE, M.D. Camb., F.R.C.S. Eng.; Capt. R.A.M.C. (T.F.), Formerly Capt. I.M.S. (Retired); The Queen's Hospital, Sidcup; No. 83 General Hospital; and Surgical Specialist to No. 53 General Hospital, B.E.F.; Surgeon for the Ear, Throat, and Nose to the London Temperance Hospital; and to the Hempstead General Hospital. With a Preface by Colonel FREDRICK F. BURGHARD, C.B., M.D., F.R.C.S. Octavo of 322 pages with 130 Illustrations. New York: Paul B. Hoeber.

From the preface by F. F. Burghard we learn that the author of this book was brought in contact with head and neck injuries from the earliest days of the war to its close: first at Boulogne, then at the Queen's Hospital at Sidcup, at which latter place he was able to follow up end results in a way which was not possible in the English hospitals in France. The author, therefore, had unusual opportunities for the study of these conditions and one does not have to read very far before he is impressed with the author's intimate knowledge of his subject. Also, it is soon seen that a large part of the text is based upon actual cases treated by the author or cases which came under his immediate observation. The injuries referred to were principally bullet or shrapnel wounds; but much of the text covers conditions that might easily occur from industrial accidents or in civil practice, as, for example, in the chapters on hemorrhage, injuries of the jaw, localization and extraction of foreign bodies, rhinoplasty, plastic surgery of the face, etc. One of the important features in the discussion of injuries of the face is the suggestion of what should be done at once and what should be left until a later date; and throughout the book we find treatment advised in accordance with a common sense view of conditions as they may be found under varied circumstances rather than in accordance with hard and fast rules. For those who have to deal with traumatic conditions this book should be a great help.

SURGICAL PATHOLOGY AND MORBID ANATOMY. By SIR ANTHONY A. BOWLEY, K.C.B., K.C.M.G., K.C.V.O., F.R.C.S. Surgeon in Ordinary to His Majesty the King and Consulting Surgeon to St. Bartholomew's Hospital; President, Royal College of Surgeons of England. And SIR FREDERICK W. ANDREWS, M.D., F.R.S. Lecturer on Pathology at St. Bartholomew's Hospital; Professor of Pathology in the University of London. Seventh Edition. With 210 Illustrations. Philadelphia: P. Blakiston's Son & Co., 1920.

This book has long been recognized as a serviceable introduction to the study of pathology. It is not by any means a complete textbook, but it occupies a useful place as a guide to the surgical student. The present edition contains new material on Gas Gangrene, Shock,

and Tetanus, and the size of the printed page is larger than before. The illustrations, which have always been a feature of the book, have been redrawn on a larger scale. The book will continue to hold its place as a singularly clear exposition of the main principles of surgical pathology.

NOUVEAU TRAITE DE MEDECINE. Publié sous la direction de G.-H. ROGER, F. WIDAL, et P.-J. TEISSIER. Fascicule Premier. Maladies Infectieuses. Paris: Masson et Cie., 1920.

This book forms the first volume of a projected series of twenty-one volumes of what we should call a system of medicine. From the prospectus presented and the list of the contributors announced it promises to be an excellent one in every respect. Certainly the authors who have been secured include nearly all of the French physicians of note.

The first five volumes are to be devoted to the infectious diseases. The one at present before us is devoted chiefly to the bacteriemias with some special applications. It is generally very well presented, but it would seem that the subject of infections caused by the influenza bacillus deserves more attention than Macaigne gives it. Certainly it is a very insufficient presentation of an infection that was so general and so carefully studied as this was. Hudelo's chapter on gonococcus infections is excellent, but we regret to find so little consideration given to the question of vaginitis in children and the importance of the careful study of vaginal smears from infants and small children. On the whole the book is excellent, and if the whole series is as well done it will be a valuable work of reference so long as it is not out of date. There is something to be said for the loose-leaf idea.

THE AMERICAN RED CROSS IN THE GREAT WAR. By HENRY P. DAVISON, Chairman of the War Council of the American Red Cross. New York: The Macmillan Company, 1920.

In the 292 pages which constitute the text of this interesting volume one may obtain a fairly comprehensive idea of the scope, character, and effect of the work of this great organization at home and overseas during the World War. The enormity of the task and the manner of its execution are concretely told in figures in the appendix, and the text, full of interesting incident, holds the attention from beginning to end. Many of "the millions of women, children, and men who, through the American Red Cross, worked and sacrificed that the misery of war might be alleviated," to whom the book is dedicated, will find in it an interesting account of the monumental undertaking which they so successfully consummated.

A TEXT-BOOK OF PHARMACOLOGY AND MEDICAL TREATMENT FOR NURSES. By J. M. FORTESCUE-BRICKDALE, M.A., M.D. (Oxon), M.R.C.P. London, Physician to the Bristol Royal Infirmary and Clinical Lecturer in the University of Bristol. London: Hodder and Stoughton; New York: The Oxford University Press, American Branch, 1920.

This is one of the Oxford Medical Publications and carries on the high traditions of the series. The letter press and the illustrations are excellent, and leave nothing to be desired. The purpose is to give an explanation of the principles underlying medical treatment in the expectation that instructions will be more thoroughly carried out, the more the nurse in charge understands. Excellent as the book is, it is open to question whether it will be useful to nurses; with the limited amount of time at the disposal of nurses, there is too much; to convert nurses into a local house physician, there is too little. But all the explanations of chemical and physical theories are simple and straightforward, and the pharmacology is clear and good. Perhaps there is too much emphasis placed on the synthetic drugs, some of which are rarely used. Especial mention may be made of the section on Sera and Vaccines.

In the second section of the book one would expect to find more emphasis on those parts of treatment which are usually entrusted to nurses, but the author has not done this and if anything there is too much attention given to details regarding which there is divergence of opinion among physicians. The appendices are most useful.

Society Reports.

AMERICAN ASSOCIATION FOR THORACIC SURGERY.

Third Annual Meeting, Held in New Orleans, La., May 1, 1920.

Dr. RUDOLPH MATAS OF NEW ORLEANS IN THE CHAIR.

I. President's Address: The Fundamental Principles of Thoracic Surgery.—Dr. WILLY MEYER of New York delivered this address. (See page 593.)

II. Thoracic Cavity.—1. Studies on the Effect of Trauma in the Thoracic Cavity.—Drs. F. C. MANN and C. A. HEDBLUM of Rochester, Minn., presented this paper. An investigation was undertaken to determine the cause of death or the development of a serious condition following intrathoracic operation. All experiments were performed upon dogs, kept under ether anesthesia of a constant tension. It would seem that one of the most potent causes of difficulty in intrathoracic operation lies in insufficient pulmonary ventilation. The compression of the lung, as could be produced by packing off the pleural cavity, was sufficient to prevent that lung from functioning until it was again insufflated. A serious condition could often be produced under very light ether anesthesia by different forms of intrathoracic trauma. This condition appeared to follow or was at least associated with reflex inhibition of the heart and respiration. No evidence was obtained that excitatory stimuli produced any permanent effect upon blood pressure or respiration, or in any way reacted adversely upon the condition of the animal.

Dr. HEDBLUM said that this study was undertaken in the hope that it might throw some light on the cause of the sudden death following thoracentesis. They had several such cases at the Mayo Clinic during the last few years. One was a man of sixty who presented signs and symptoms suggesting a purulent effusion some ten days following laparotomy. He collapsed immediately following a single negative aspiration, through an ordinary aspirating needle without any local anesthesia. Artificial respiration and stimulation failed to revive him. He was dead probably within five minutes of the aspiration. Unfortunately, a necropsy was not permitted. A second case was a girl of twelve years who gave a history of failing health, but without any definitely characterizing symptoms. X-ray showed a shadow in the lower portion of the left thorax. To rule out an effusion an exploratory aspiration was done under cocaine anesthesia. Immediately following withdrawal of the needle, after a negative aspiration, the child went into a clonic convulsion lasting perhaps nearly a minute. After a series of such attacks she died, about ten minutes after the onset. Necropsy showed tuberculosis of the central portion of the lower left lobe of the lung and a cerebral embolus. A third case was that of a young man of twenty-five, in excellent health, and having gained some twenty pounds following recovery from an influenza bronchopneumonia, complicated by a large empyema. The empyema had been reduced to 10 or 15 c.c. capacity under antiseptic solution treatment. One day, while the cavity was being irrigated with the hypochlorite solution, the patient remarked that everything was turning black before him. He lost consciousness and died in a few minutes. The brain in that case did not show an embolus. In all of these cases prolonged artificial respiration was instituted without avail. In support of the assumption that some of these cases might be due to some form of reflex inhibition, might be cited one case collapsing suddenly and dying following incision of the ear-drum. In addition to these fatal cases might be mentioned several who had recovered. One boy of sixteen developed a hemiplegia following aspiration of the lung for abscess, of which he still had a slight residue after ten months. Another developed a temporary blindness following the same operation. A child of ten also developed a temporary blindness following a drainage operation for empyema. Eye examination by Dr. Benedict failed to reveal the cause of the blindness. Another case was that of a residual sinus following resection of the chest wall for sarcoma,

done by Dr. Robinson three and a half years ago. The patient wanted the sinus closed. Bismuth paste injection was followed by temporary unconsciousness. On partly recovering consciousness he became so violent that forcible restraint became necessary. Complete recovery followed in twenty-four hours. Several other cases had developed slight symptoms following bismuth paste injection. These cases were presented without any attempt being made to account for these symptoms, other than to state that some of them were due to emboli, while others seemed to be due to a reflex inhibition. There might be other causes of which we were as yet unaware.

Dr. F. W. PARHAM of New Orleans, La., called attention bearing on this subject to three consecutive cases which showed, to his mind, that the positive pressure apparatus was not always absolutely necessary. The first case of resection of the chest wall which he undertook was in 1898, when he operated on a woman with an extensive disease of the chest wall without any differential pressure apparatus. When he opened the chest wall, which he did extensively, there was, of course, the usual development of a terrible pneumothorax. As it was his first experience, he was at a loss what to do, but suddenly remembered the suggestion of Payr; he pulled up and grasped the lung through an opening of five or six inches in diameter, brought it to the chest wall and sutured it, and the trouble subsided. The woman died a year later from a pneumonia. The second case was an extensive resection of the chest wall, which had already been reported by him and published in the "International System of Surgery" (Gould & Warren) with illustrations. Dr. Matas had at that time introduced before the State Medical Society the subject of improvements in thoracic surgery, and in that article he had suggested the method of Fell-O'Dwyer of positive pressure which he and Dr. John Smyth had been working on for some time. Dr. J. D. Bloom had added a bellows apparatus worked with the foot. When this case came into the hospital the speaker put this method into effect. The O'Dwyer cannula was introduced into the larynx and the bellows worked with the foot lever. The positive pressure was thus beautifully maintained. That trial convinced him that the chest ought not to be opened so widely without some differential pressure of the positive variety. He said that this resection involved the third, fourth, and fifth ribs for five or six inches. When a third case appeared, involving the lower right side of the chest with the diaphragm, he had one of their best laryngologists to assist him; he put the O'Dwyer tube into the larynx, but they could not keep it there, as the most violent reflex was started. He had to finish the operation without the assistance of the differential pressure. He resected the tenth, eleventh, and twelfth ribs for five or six inches of each with a portion of the diaphragm and, when the chest was opened, an aggravated pneumothorax developed. He caught the lung, as in the first case, and when he pulled it up it flattened out like a sheet of paper, then he tacked it to the diaphragm and chest wall and succeeded in finishing the operation without further untoward results. In this case he had nothing but the skin to cover the opening, everything else had been removed, and, therefore, he had subsequently to devise an apparatus to hold that side of the chest up. He believed this patient was still alive. In that case in which he had to operate without the assistance of the differential pressure, upon which Dr. Meyer had laid so much stress, he became convinced that the differential pressure was not absolutely essential, but when he compared the mental anxiety he suffered with the absence of this differential pressure, he could not see why one should not attempt to improve the apparatus for differential pressure. He believed Dr. Meyer was correct in the effort he was making to improve the methods of differential pressure to such a degree that they could more certainly be brought to their assistance in such cases. There was nothing more alarming to the operator or more disquieting than the pneumothorax which suddenly developed in proportion to the size of the opening.

Dr. JOHN L. YATES of Milwaukee, Wis., said he had the very good fortune to serve as a ward dresser at a hospital in Belgium and to study the effects at the time of operation, immediately after operation, and dur-

ing recovery of patients operated on after the so-called Duval method. Two things became obvious in watching this work. The first was the amount of traction required to expose the lung for operation when positive pressure was not used. The other point was determined in studying the fate of the acute pneumothorax, and there was a surprisingly large proportion which did not recover with advertised rapidity. He observed one case of complete pneumothorax, with closed chest and collapsed lung, a month after operation. In spite of treatment for ninety days thereafter, it was impossible to detect any improvement in his complete unilateral pneumothorax. When they started work as a team with the American forces, their experience in Belgium, together with experiments done on dogs, had led them to the conviction of the great importance of some form of differential pressure. Dr. Gwathmey worked out a simple, safe method of positive pressure, morphine-gas-oxygen analgesia. The apparatus was not cumbersome and utilized gas tank pressure. This brought up the question of collapse advanced by Dr. Mann. The duration of collapse varied, most of the wounded coming to operation more than twenty-four hours after injury. They soon came to the realization that if the collapse were due to collapsed bronchi, with absorption of air distal to the bronchial compression, reinflation was impossible because, if enough pressure was used (this applied to men as well as to dogs) to reinflate the lung under such conditions, sufficient strain was placed on the heart to produce acute and rapidly fatal dilatation. If the compression was due not to bronchial collapse, but merely to air cell collapse, the refilling of these air cells followed rapidly, and under, as Dr. Mann indicated as effective in the dog, 15 to 16 mm. positive pressure. Repeated inflation and deflation of the lung required by operations upon wounded men caused no demonstrable variation in systemic blood pressure. Traction upon a deflated lung sufficient to permit of a degree of exposure suitable for operation caused a fall of 40 mm. Hg. in systolic blood pressure in a few minutes. This observation was made upon a patient who had been found to show no variation when the positive pressures were changed. Facts of this type upheld the accuracy of the observation previously made in Belgium. Another point about differential pressure: In the repair of a lung injury, traumatic or surgical, one must recognize that any pulmonary tissue permanently out of function was a menace to the individual, either an immediate menace as a focus for the development of empyema or a subsequent menace through atrophy and consequent impairment of elasticity. If a considerable portion of a lobe was of diminished capacity, the entire lobe would shrink and thus cause a shrinkage of the whole side of the chest. The patient would be a better man if all permanently disabled portions of the lung were resected. How far must that resection be carried back? With the aid of positive pressure, inspection quickly determined the presence of essential functions, the pulmonary and bronchial circulations and the air circulation. All must be present to maintain respiratory function, and the limit of necessary resection was easily decided by cutting back the lung under constant inflation until red blood spurted under high pressure, blue blood spurted under low pressure, and pulmonary tissue was everywhere inflated. It was then possible to establish hemostasis and aerostasis so that function could be immediately reestablished by reapproximating the cut surfaces and by sewing the visceral pleura airtight. With differential pressure it was then possible to cause pulmonary inflation so the chest might be closed with minimal residual pneumothorax. They had observed the progress of the wounded in Belgium where this procedure was not followed, and could compare it with that of our wounded, and found that the method resulted, first, in the immediate comfort of the patient after operation, and then in the rapidity and completeness of convalescence. In larger hospitals for the non-transportables the lung ward was peopled with patients treated by other surgical teams as well as their own, and the comparison showed the closing of the chest with the nearest possible obliteration of the acute pneumothorax led to the greatest number of recoveries and the greatest rapidity of convalescence. As was well known, the great number of those who did not survive

and did not succumb immediately died later of empyema. Dr. Finney took the point of view that every man should have "a run for his white alley," and always encouraged them to operate on anyone who was still breathing and to disregard statistics. In this way some apparently certain fatalities were avoided. Later, in the Aigonne fighting, a method of airtight, one-way drainage was devised that could be instituted at the time of operation, and he felt that, had this point been settled earlier—that is, primary drainage as a routine—the awful mortality rate from empyema which occurred in those whose transportation was delayed might have been largely avoided. When the wounded were received early, this method gave an immediate mortality rate of 4 per cent. in 52 consecutive unselected patients. As to the rapidity of recovery, one must please remember that military surgery was not a question of life and death alone; it was also a problem of getting the living men back into the line with the least possible delay. They had one Irishman with three hates: sobriety, peace, and the Boche. He was operated upon under the above means and this man was back on duty six weeks after a resection of part of his right lower lobe and a repair of his diaphragm. He cited this instance simply to show the rapidity with which recovery could be accomplished with positive pressure during operation, with accurate repair of the parietal and visceral pleuras, and the institution of primary drainage.

Dr. GEORGE J. HEUER of Baltimore, Md., said that there were apparently many ways of achieving good results in thoracic surgery. Dr. Yates had just told them what he considered important principles in the treatment of thoracic injuries. Their own experiences were in many ways less satisfactory than his, for they were not a special surgical team appointed to do thoracic surgery. They had no special anesthetist, and had no intrathoracic pressure anesthesia apparatus. Under the circumstances they used ether by the drop method in operations upon the thorax. In 160 cases of penetrating chest wounds there were 45 with open sucking chest wounds in which immediate operation was performed without a pressure apparatus. In not a single case was there disturbed respiration during the course of operation. There was no death upon the operating table, no death afterward which could be ascribed to their method of giving anesthesia. They came to feel, therefore, that thoracic surgery could be done without fear of respiratory upsets without the use of the pressure apparatus. They agreed with Dr. Yates that any involved lung tissue should be resected, and this method was constantly followed. In regard to the question whether it was easier to operate upon the lung when expanded or collapsed, they had no method of comparison, for all their procedures were done with the lung collapsed. From his experience in operating upon animals he could say that resection of the lung might be more easily done with a collapsed lung than with an expanded lung. As to the treatment of the postoperative pneumothorax: In large wounds of the lung, where large resections were necessary, they had the feeling that the pulmonary wound would heal more rapidly with the lung collapsed, and, therefore, did not remove the air from the pleural cavity at the end of the operation. Their x-ray studies showed that the pneumothorax disappeared spontaneously within ten days. In regard to primary drainage of the pleural cavity at the completion of the operation, they invariably closed the thorax without drainage. In their experience there was a much larger percentage of postoperative infectious complications when the pleural cavity was drained than when the thorax was completely closed. As to their results: Their mortality in the seriously wounded, in whom resection of the lung was often necessary, was 25 per cent. As he read the literature, this mortality, although not the very best, was a very presentable one.

Dr. NATHAN W. GREEN of New York said he was interested to see that Dr. Mann had worked out the experiments on the dogs, and that Dr. Hedblom had been ably supported by him in carrying out the clinical work. In 1906-8 the speaker did considerable work on dogs in regard to the open pneumothorax and he found that the results, as he remembered them, were somewhat similar to those shown by Dr. Mann. Among

other things he did at that time, he dealt with trauma of the chest directly, not trauma of distant organs, and showed that in the opening of the chest they had a distinct lowering of the temperature after keeping it open for a long time, say an hour. Also, they found that the chest, when it was simply opened and nothing done (just left open under artificial respiration, which they did under positive pressure), would show an infection and was occasionally the seat of suppurative pleurisy from simple exposure to the air. He was glad to see that Dr. Mann had thrown his weight in favor of artificial respiration. It seemed the only rational thing to do to use all mechanical means at our disposal in order to insure the operative safety of these cases. Everybody knew one could do a lot of thoracic surgery without artificial respiration, but when one was doing cases, not acute cases, like those reported by Drs. Heuer and Yates, but, for instance, chronic lung abscesses, and, having no adhesions, wanted to bring the lung out to the chest wall so as not to get an infection of the pleural cavity, one knew that with artificial respiration he could get more comfort and peace of mind and a better operative result. In most cases of sudden death during anesthesia from ether he believed the breathing stopped first, the heart continuing for a short time, and, therefore, it seemed if one had the artificial respiration apparatus present he could in some instances ward off the sudden death which might otherwise be not only very disconcerting to the individual surgeon, but disastrous to progress in the whole field of thoracic surgery. The speaker said one should develop a vision for the future of thoracic surgery and do nothing to discourage the attempts now being made along these lines. Dr. Heuer had mentioned infection of cases after primary drainage. If the president, Dr. Meyer, were present he would come out strongly on the subject of primary potential drainage. If the pleural space were obliterated by positive pressure and the drainage were so placed that it could be made actual drainage, but was not actual drainage at the time of closing, it would not induce infection and would be a very efficient safety valve in case the accumulation of fluid should become septic. This procedure was especially desirable in all cases where one had to deal with a suppurative process in the lung. These cases are depleted in vitality, while the cases mentioned by Drs. Yates and Heuer were taken up after exposure but were mowed down in the pink of condition. No doubt their resistance to infection was greater than in those individuals who had been sick for some time. He thought Dr. Mann and Dr. Hedblom were to be congratulated upon their paper.

III. Heart.—1. Routes of Access to the Heart. Lessons Gathered from the Experiences of the World War.—Dr. RUDOLPH MATAS of New Orleans, La., read this paper, illustrated with lantern slides. (See page 595.)

Dr. YATES said in his experience with nearly two hundred chest injuries he never saw one involving the heart directly. Upon one occasion a patient's heart stopped beating just as he was to be operated upon for the relief of a perforated chest wound. It was decided to attempt cardiac massage and the ordinary type of fifth rib section, as advocated by Duval, was done. With very little traction the heart was brought to the chest wall, but massage through the pericardium was ineffective. The pericardium was therefore opened, adrenalin injected into the heart cavity and then direct massage was effective. The myocardium had been cut when the pericardium was opened, so that both heart and pericardium had to be sutured. This was accomplished easily. One was always impressed by one's personal limited experiences. In the normal individual, with the more or less elastic mediastinum, it was easy, with the lateral thoracotomy, to displace the heart where one could reach it. One could see from Dr. Matas' beautiful picture that if one wished to approach the posterior aspect of the heart, after the elaborate method of exposure, one must rotate it upward so that rotation was not avoided thereby. Fortunately, roentgenologic diagnosis made it possible to know which lateral approach was necessary, and the lateral incision made this of very little trouble. He would ask his hearers please to notice that Duval, the great champion of open thoracotomy without positive pressure in his exposure of the heart, preached against the establishing of an acute pneumothorax.

Dr. PARHAM said Dr. Matas had certainly gone over this subject thoroughly, and he seemed to be convinced of the great difference between these conditions as seen in the war and those seen in private practice. It seemed to him that they ought to encourage those efforts to devise some method of doing this work in the chest cavity and on the heart, especially with less mental anxiety to the surgeon. He would like to say one thing in regard to reducing the postoperative pneumothorax. It seemed to him that the suggestion, made some years ago by Witzel, that where it was desirable to reduce the pneumothorax it might be satisfactorily accomplished by putting in a catheter as the wound was being closed and introducing water into the pleural cavity; this was allowed to run out as the lung gradually expanded.

IV. Pleura.—1. The Treatment of Chronic Empyema.—Dr. CARL A. HEDBLUM of Rochester, Minn., presented this paper. The author made a comprehensive historical review of empyema, discussed the general principles of treatment, and presented a study of 150 cases of chronic empyema treated at the Mayo Clinic during a little more than two years. An extensive bibliography of 193 references was appended to the article, which was profusely illustrated. The minimum duration of the empyema in the patients treated was three months, the maximum duration twenty-three years. The process had been present for more than six months in 112 instances and more than one year in 65. Operation had been done elsewhere in 117 patients, many of whom had received operative treatment several times. Fifteen lesions were definitely proved to be tuberculous. Thirteen patients gave a history of primary pleurisy with effusion; all of these had had open drainage treatment elsewhere. Four methods of treatment were employed, as follows: (1) Simple rib resection, forty-two cases; (2) Dakin's solution, with or without minor drainage operations, fifty-one cases; (3) pulmonary decortication, thirty cases, and (4) plastic operation on the chest wall, twenty-seven cases. The first group, for the most part, included patients who had had faulty drainage, although in some bronchial fistulas were found, and in several there were foreign bodies in the cavities. Simple rib resection brought complete recovery in twenty-six cases, a persistent sinus at the last report in four, and death in one. Eight patients could not be traced. Of the tuberculous patients, one was greatly improved, one somewhat improved, and one was not benefited. The technique employed in the second group of patients, who were treated with Dakin's solution, with or without a minor drainage operation for a small residual cavity, consisted in irrigation through a catheter inserted into the old sinus, or through a stab wound by means of a trocar and cannula. The results were complete recovery, thirty-four cases; sinus at last report, six; no late report, six; convalescence not completed, four, and not benefited, one (tuberculous). In the patients who had a decortication, the operation was done under ether anesthesia through a rib-spreading exposure. Fifteen patients were completely cured without further surgery, and five after a secondary plastic operation for a small cavity. Three had a persistent sinus at the last report, one died following the operation, three died from other causes some time later, and three were still under treatment. The results of the plastic operations were a complete cure in fifteen cases, a residual sinus at the last report in three, and death in two. Four patients had not completed their convalescence, and three could not be traced. Five patients were definitely proved to be tuberculous. Small bronchial fistulas were present in a considerable number of patients successfully treated with hypochlorite solution. Large bronchial fistulas, 0.7 cm. or more in diameter, were present in ten. Four closed spontaneously, following wide-open drainage of the cavity, one was closed by cauterization, one by suture, and four by a skin plastic operation. In two cases of tuberculosis the fistulas remained open. In one instance of multiple fistulas in a case of bronchiectasis a closure of only a part of the fistula was secured. In four fatal cases one death was caused by sepsis and inanition following a rib resection for drainage, one by cerebral abscess following a plastic operation, one by tuberculous meningitis, also following a plastic operation, and one by influenza pneumonia following a decortication. Dr. Hedblom closed the ar-

ticle with the following tentative conclusions: (1) Chronic empyema had been recognized and treated during twenty-six centuries, but it was only sixty years since the first rib resection for drainage was done. The successive stages in the progress or treatment since that time were as follows: (a) Increasingly radical treatment designed to obliterate the cavity by the collapse of the chest wall, involving successively more extensive operations, and culminating finally in a complete radical resection. (b) A conservative trend manifested primarily in the modifications of the complete resection, but more in the attempt to preserve the chest wall and to restore the lung to its structural and functional relationships, as first advocated by Delorme. (c) The adaptation of the Carrel-Dakin hypochlorite solution technique to the treatment of chronic empyema cavities. (2) Chronic empyema was a disease which was not incompatible with life nor with a fair degree of health and usefulness. The principles of treatment should, therefore, be, first, the preservation of life, and, second, as far as possible the conservation of function. Shortening convalescence, while very desirable, should always be a subsidiary consideration. (3) The choice of treatment must be made with cognizance of the variable etiology and pathology of the process and the general condition of the patient. (4) A major procedure was indicated only if non-operative or less extensive surgical treatment reasonably might be considered less effective. (5) In case of sinuses and small cavities, adequate drainage was usually sufficient to effect a cure, with or without short preliminary hypochlorite solution treatment. It was at least open to question whether a radical operation was indicated in these cases for the sole purpose of shortening convalescence at the risk of an appreciably increased mortality. (6) Dakin's hypochlorite solution treatment was the method of choice in the treatment of the ordinary type of empyema cavity of any size for the following reasons: (a) The general condition of the patient was, as a rule, improved to a remarkable degree. (b) The cavity might be obliterated or greatly reduced in capacity by the liberation and expansion of the lung (resulting from the treatment). (c) If the lung expanded in part, the extent of a later operation would be proportionately reduced. (d) If the lung entirely failed to expand, the cavity would have become relatively sterile in preparation for operation, thereby lowering postoperative morbidity and mortality. (e) Pulmonary decortication would be materially facilitated in some cases, owing to the softening action of the solution on the visceral pleura. (7) A pulmonary decortication through a rib-spreading exposure after preliminary hypochlorite solution irrigation was the most conservative treatment for cavities that were not obliterated by drainage or Dakin's solution treatment alone. If such an operation was successful the lung was restored to its normal structural and functional relationship, thereby obliterating the cavity. If the operation was only partly successful, the magnitude of a secondary destructive operation was proportionately decreased. (8) Since it was impossible to judge with certainty before operation of the relative expansibility of the lung in every recent non-tuberculous case, a decortication should be done rather than a destructive operation, thereby giving the patient the benefit of the doubt. (9) If the lung did not expand, or if a considerable cavity persisted following decortication, a plastic operation was indicated. (10) If the cavity was of considerable extent or the patient debilitated, a two- or three-stage plastic operation was recommended. (11) The recognition of tuberculous empyema was often difficult. A history of a primary pleurisy with effusion seemed more often to signify a tuberculous condition than did a pulmonary lesion, unless the latter was active and extensive. A tuberculous empyema might be present in the absence of clinical or x-ray evidence of pulmonary involvement. The typical microscopic picture in the sectioned pleura or the demonstration of the bacilli in the exudate might constitute the only evidence in such cases. (12) A tuberculous empyema not secondarily infected should not be drained and should not be aspirated only for a considerable accumulation of fluid. For a tuberculous empyema secondarily infected, either by operation or spontaneously, drainage was necessary. (13) In the absence of bronchial fistulas and of bleeding, secondarily

infected tuberculous empyema might be markedly benefited by antiseptic solution treatment. The amount of fibrosis or other pathological change in the lung in such cases determined the degree of expansion of the lung, whether following antiseptic solution treatment or decortication. (14) If the lung failed to expand in whole or in large part, a several-stage operation designed to collapse the chest wall was indicated. Tuberculous patients were relatively poor operative risks. (15) Adequate drainage was the first indication in cases of empyema cavities which were draining through large bronchial fistulas. The fistulas might be obliterated spontaneously following such treatment. (16) Operative closure of bronchial fistulas that was necessary to complete healing. It might be accomplished by decortication of the involved portion of the lung with cautery, suture, or skin plastic to cover the opening of the fistula. Occasionally healing resulted from simple granulation of surrounding tissue after destruction of the epithelial lining of the bronchial stoma. (17) Closing the bronchus that was draining pus from within the lung might result in a secondary lung abscess. (18) A large bronchial fistula was a contraindication to Dakin's solution treatment. (19) Sinuses of variable duration were common following more or less complete obliteration of empyema cavities; a large proportion eventually were obliterated without radical treatment; for those which persisted, plastic operation was indicated. (20) Operative mortality in chronic empyema had been due largely to shock and infection. Reduction of the extent of operation and preliminary sterilization would materially lower this mortality.

Dr. F. W. PARHAM of New Orleans, La., presented a patient from the country whom he wished to throw, as a case, into the discussion. This patient, who had given him a great deal of trouble, had chronic empyema with a bronchial fistula, and he had so far feared to do anything more than improve his general condition. This young man had a pneumonia six years ago and was operated on subsequently for what was supposed to be empyema: resection of the rib was done, but no pus was found. Subsequently he was again operated on with the relief of a large amount of pus. In 1917 he came to the speaker; in September of that year he operated on him in the attempt to get a good exposure of the lung. He could hear the air rushing in and out, and hoped to find the opening which was delivering air into the cavity, but his condition became so bad on the table that he did not accomplish anything, and had to discontinue the operation. A few months later he attempted an extensive posterior resection of the chest wall and got a very good exposure, but he failed to find the bronchial opening. His general condition had very much improved; a tube was left in his wound all the time, for when it was removed the wound closed and his temperature went up, requiring a reintroduction of the tube. He could not carry out the Carrel-Dakin irrigations because of the irritation to the lung. He also tried dichloramine-T, but failed to accomplish anything. The fluid would immediately enter the bronchus and set up violent respiratory embarrassment. The object in presenting him today was to get some suggestion as to the best manner of closing the fistula. At one operation he got a very good exposure and attempted decortication of the lung, when he found bleeding was so free that he could not carry out even Ransohoff's suggestion of the lattice-work incision. This was the first time the speaker had seen him in a year. He weighed 136 pounds and was able to carry on an active life on a plantation. The suction was not so evident as when he last saw him. This was a type to which he believed Dr. Hedblom had not called attention, a large bronchial opening being the apparent cause of the non-closure.

Dr. CARL EGGERS of New York said Dr. Hedblom had covered the subject of chronic empyema very well, and he had ably called attention to the important points. When confronted with chronic empyema one might divide the subject into two groups, thus: patients who had had empyema and had a superficial sinus, and patients with a real cavity. The superficial openings that persisted might be due to several causes which were usually quite simple. One cause was epithelialization of the tract. Simple excision of the tract with the surrounding skin and muscle followed by suture would

lead to a cure. Another cause was osteomyelitis at the site of a formerly resected rib. In such cases one resected the rib a little beyond the primary resection, removing all granulation and scar tissue, and closure then led to a prompt cure. A third cause was infected granulations. These might occur in cases in which one had done a primary resection of a rib or in which a tube was introduced through an intercostal incision. Bony bridges might form in either case, irregular in character, and they allowed infected granulations to hide behind them, where they were inaccessible to treatment. Resection of these areas would lead to a cure. For the persistent deep sinuses or cavities there were various causes which might be divided into avoidable and unavoidable. The unavoidable ones they did not have to criticize, but if they had a large series of chronic empyemata in which the cause was avoidable they could try to prevent repetitions. By far the most common cause of chronicity was inadequate drainage. One must, therefore, maintain drainage sufficiently long and adequate until all infected material had drained out. Another common cause was an improperly placed drainage opening, either too far forward, allowing a channel to form between the diaphragm and the chest wall, or too low an incision. Usually in empyema the costophrenic sinus became obliterated early, and the resection of the eighth or ninth rib would give the best drainage. Another cause of chronicity was pneumothorax. That was a vague term as ordinarily employed and some men called any persistent cavity a pneumothorax. Dr. Eggers had a different conception of the condition. He thought there was a difference between chronic pneumothorax and a chronic empyema cavity. The latter was a residue of the pus collection in the chest which had compressed the lung, which for one of the reasons quoted was unable to expand completely, leaving a chronic cavity. When they spoke of a pneumothorax the condition was different; it was always the result of a primary collapse of the lung, due to two causes, either a too early operation, or the perforation of a pulmonary abscess giving a pyopneumothorax and allowing collapse of the lung. Other causes of chronicity were bronchial fistula, tuberculosis, and foreign bodies. If one, therefore, was confronted with a chronic empyema, one thought of these various possibilities and tried to find the cause most likely to be responsible in that particular case and then tried to eliminate it. In many cases it was possible to do this. Adequate drainage, instead of inadequate drainage, followed by antiseptic treatment, would cure a great many patients. After one had healed by conservative means all amenable to this form of treatment, there were still a number of cases which did not heal, just what percentage he did not know at that time. Dr. Hedblom had 27 out of 150. The speaker had seen many hundreds of chronic empyemata, and they had operated on 125 to 150 by the radical method. In a certain number a radical operation was a necessity. He believed about 2 or 3 per cent. of empyema cases required radical treatment of some form. Recurrence of empyema occurred more often when the cavity was not chemically sterilized, but it also occurred after careful chemical sterilization. He had looked for the cause, since he thought it was interesting why, under such conditions, there should be a recurrence. There were two causes, one was a lighting up of infection in a narrow recess in connection with an old cavity. These recesses existed most commonly along the diaphragm or in the costophrenic sinus, either anteriorly or posteriorly. The second cause of recurrence, and he believed an important one, was the fact that the pleural layer of chronic cases was an infected membrane. In chronic empyema the thick pleural layer, which was a dense scar, was, on the average, half an inch thick, and he had in a great many cases had sections made of this membrane, and in many instances it showed military abscesses scattered through the wall. In some cases these abscesses contained streptococci. These organisms might multiply and a little abscess could break through and develop a recurrence that, in a way, sneaks in favor of radical operations, because by such operations one removed all infected membrane.

Dr. LEON T. LEWALD of New York said the roentgenologist also had his part to play in the diagnosis of empyema. The distinction between the type of case

which had been reported by Dr. Eggers and the keeping up of the condition by a tuberculosis of a rib or a tuberculosis of the pleura could sometimes be determined by x-ray examination. He would like Dr. Hedblom to reiterate the cases of tuberculosis pleuritis that were in his series. He did not think one ought to be discouraged by the presumptive evidence of a tuberculous complication in the absence of positive proof of the tuberculosis of the pleura. He had 5,000 post-mortem examinations at Bellevue Hospital, and at that time his examinations all proved tuberculous pleuritis were very much less common than the text-books led one to believe. At the present time, in general hospital work, he was frequently asked to confirm what was suspected of being a tuberculous pleura, and there was no evidence from the x-ray standpoint of tuberculosis of the lung on either that or the opposite side, and even guinea pig inoculations failed to substantiate the suspicion. Dr. Walton Martin had reported a case in which they knew they had a tuberculosis of the pleura, and in which he had done an extensive resection, taking out thickened pleura which was distinctly tuberculous and so proven on microscopical section, and had in this case obtained a complete cure. In regard to the foreign bodies, incidentally, he would like to suggest that if red rubber was used for the drainage tube, it gave a more definite shadow under the x-ray than did black rubber. He had an instance of this in a case of Dr. Mathews', in which Carrel-Dakin solution was being used with a number of tubes, and they could not identify the position of one of the tubes. He suggested that it was possibly made of black rubber, which proved to be the case. Occasionally a tube which was not very dense might not be made out radiographically in an extensive exudate in the pleural cavity, particularly if made of black rubber.

Dr. OSCAR M. SHERE of Denver, Colo., made the following remarks by invitation. They had a good opportunity in Colorado to study tuberculous empyema, probably a little more than in some of the other States, and he was, indeed, pleased to hear Dr. Hedblom express his opinion against operation in the purely tuberculous cases where mixed infection was present. His own experience during the past 16 or 17 years in the J. C. R. S. Sanatorium of Denver bore out in a most forcible manner the truth of this statement. In former years they used to see about 2 or 3 per cent. of empyema in their cases; at the present time this percentage was much higher, owing to the fact that a good number of their empyemas were the sequence of artificial pneumothorax, so commonly employed nowadays in the treatment of pulmonary tuberculosis. A few months ago their senior resident collected some twenty-odd cases of tuberculous empyema and published a paper, which appeared in the December issue of the *American Review of Tuberculosis*, which might be read with interest by anyone who cared to peruse it. While one hesitated to lay down any hard or fast rules in the treatment of these cases, yet he believed in a certain classification which served him well when the question arose as to the advisability of operative interference. Thus he divided tuberculous empyema in three distinct classes: (1) The very acute cases, in which the onset was sudden, such as following a rupture of some part of the infected lung. These cases must not be operated on when the diagnosis was first established. Delay usually offered a better prognosis for the patient. (2) The subacute cases, wherein the exudate gave rise to dyspnea, fever, and increased cough—simple withdrawal of the pus under the most aseptic technique from time to time was the best method of treatment. (3) The chronic cases, wherein the above treatment had failed and the patient continued to be dyspneic, running a degree or two of temperature above normal and accompanied by anorexia and gradually progressive asthenia—these they operated on by rib resection and tube drainage with antiseptic irrigation until the cavity was sterile. When the latter was accomplished they endeavored to close the cavity by means of Beck's paste or skin flap transplantation. A small number of these patients required a thoracoplasty for the complete collapse of the entire lung before a cure was finally established. All their operative work was done under spinal anesthesia, since their medical staff was opposed to the use of general anesthesia in these patients. Dr. Shere

hoped to present some experimental data along these lines at some future meeting of this Association, accentuating some of the points which he tried to present at this meeting.

Dr. HEDBLUM, in closing, stated that, with a few exceptions, these were cases of chronic empyema cavities. A number of the cases had bronchial fistulae. In one case of ten years' duration there was a bronchial fistula near the vertebral aspect of the left lower lobe. It was closed by granulations, following cauterization and open drainage. There were several other cases closed by suture of the edges or by skin flap. Several closed spontaneously, following simple drainage. A number of patients treated by Dakin's solution irrigation at times tasted the solution, indicating the presence of small fistulae. Tuberculous empyema secondarily infected they had found difficult to deal with. Diagnosis of the condition was uncertain unless the tubercle bacilli were demonstrated. Conservative treatment often was of no material benefit, while radical treatment resulted in a relatively high mortality.

(To be continued.)

THE PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, Held February 9, 1921.

THE PRESIDENT, DR. MORRIS PIERSOL, IN THE CHAIR.

The Serum Treatment of Pneumonia: Serotherapy in Pneumonia; Its Clinical Aspects.—Dr. TRUMAN G. SCHNABEL read this paper, in which he said that the use of antipneumococcus serum dated back to the Klemperer Brothers in 1891, although it had been five years before this date that Fraenkel had noted the possibility of producing in animals a protective immunity against lethal doses of a pneumococcus culture. In 1896 Weissbecker reported favorably on the use of convalescent serum in lobar pneumonia. It was Neufeld and Händel who first reported work which made it quite evident that pneumococci were capable of being grouped into several different types from the immunological point of view. In 1910, with the opening of the Rockefeller Institute, Dochez and others took one of Neufeld's cultures and began what has been one of the most noteworthy pieces of research accomplished in this country. As a result of their efforts it now seemed quite certain, after about a decade, that serum of a horse immunized against the original Neufeld pneumococcus was of some value in the treatment of a pneumonia due to the same type organism. This pneumonia was Type I lobar pneumonia, and this diplococcus was now known as Type I pneumococcus. This serum, when properly used in appropriate cases, quickly freed the blood stream of the infective organisms and arrested the spread of the pulmonary lesion. It furthermore ameliorated the subjective and objective symptoms and had almost certainly lowered the mortality rate for this class of cases. After the intravenous use of this serum, as might occur after the parenteral injection of any foreign protein, there might follow one or more of three reactions: anaphylactic shock, the thermal reaction, and the serum disease. The first reaction occurred infrequently and was preventable; the second reaction could probably be prevented by paying attention to the proper injection technique, while the third reaction occurred in from seven to fourteen days after the serum injection and occurred in a varying percentage of cases. The rational treatment of acute lobar pneumonia should now include early sputum, typing together with the determination of the patient's protein sensitiveness. If the infective organism was the Type I pneumococcus, the Type I serum should be used in sufficient dosage at the earliest opportunity and at eight hour intervals until the critical phenomena occurred. If the facilities for typing were not available, or if the infective organism was not Type I, then there seemed to be no sufficiently controlled scientific or clinical evidence that any other univalent or polyvalent serum should be used. The Pennsylvania State Laboratories were prepared to type sputa for physicians in any part of Pennsylvania. It had not been possible to create in animal sera satisfactory cura-

tive antibodies against pneumococcus lobar pneumonia consequent upon Type II, Type III, or Type IV infections. There were in the literature some exceedingly favorable reports on the use of other sera than the Type I variety, and careful observers had felt that often the results after their use had been most striking. If a serum did no good therapeutically we were not certain that the so called parenteral protein reactions were without harm. The use of other sera in lobar pneumonia as well as in bronchopneumonia and the post-influenza pneumonias had been favorably reported upon in the literature, and those who had employed them were often impressed by the good results obtained. Plain horse serum, the chicken serum of Kyes, and convalescent, or post-critical, serum all had their enthusiastic supporters and excellent mortality rates. The pneumonias were, however, well known for their unrivaled variability. Their picture changed with the seasons, with the age incidence, and with the infective type of organism. Their clinical course, duration and mortality were dependent upon a multitude of factors. To control a laboratory experiment properly was oftentimes a difficult problem, but to control properly a clinical experiment was many, many times more difficult. As the difficulty of experimental control increased, so must the caution with which interpretations were placed upon clinical results increase.

Notes on the Bacteriology and Serum Treatment of Pneumonia.—Dr. H. L. BROCKMANN read this paper, in which he said that it had been a common observation during the influenza pandemic that streptococcal pneumonia gained unusual prevalence, while pneumonia caused by recognized "type pneumococci" had been relatively less common than had formerly been the case. Among the influenzal pneumonia cases, streptococci (including pneumococci) had been found in larger number than any other organism. Later in the pandemic hemolytic streptococci had become relatively more numerous. Fifty-six cases occurring at the University Hospital between October 2, 1919, and March 30, 1920, had been tabulated; 24 were diagnosed as bronchopneumonia and 32 as lobar. Blood cultures were taken in 44 of the cases and of these 7 were positive. Six proved to be pneumococci which corresponded in types to those found in the sputum. Hemolytic streptococcus was found in one blood culture. The mortality rate among those giving positive blood cultures was practically the same as those in which the cultures were negative. Judging by this series of 56 cases, the impression to be obtained was that during the period of 1919-20 there continued to be prevalent to an unusual degree pneumonias caused by organisms other than the well recognized fixed types. It was recognized that in given cases of well developed Type I lobar pneumonia, serum for type I pneumonia had a distinct value, the mortality under good conditions having been reduced by its use from 30 per cent. or higher to 10.5 per cent. For pneumonia caused by the other recognized types of pneumococcus, as well as by heterogenous Type IV and by other organisms, it was not practical to prepare and give effective sera. There were instances, however, in which serum withdrawn from patients just convalescent from pneumonia of these types might be given with very apparent advantage to patients in the midst of attacks of the same type. Dr. Stengel in the February number of the *Medical Clinics of North America* cited instances of this kind drawn from his experience with a series of lobar pneumonia cases prior to our entrance into the war and with a 1918-1919 series of influenzal pneumonias. He considered the facts that after a pneumonia crisis the cardiac action was so rapidly restored, the pulse rate diminished, and normal respirations resumed without discoverable change in the degree of consolidation or in the other physical signs, as indicating that the embarrassment of these functions was toxic in origin rather than mechanical. We had not yet reached a definite knowledge regarding the formation of antibodies in lobar pneumonia; but we did recognize at least a transient immunity following recovery. This was probably at its height just after the crisis. It was for this reason that the serum was obtained as soon after the crisis as possible. The treatment had probably not been employed to a sufficient extent, especially with due care

being given to typing of the pneumonia cases, to be able to forecast the real extent of its value. Experience thus far fully justified its employment wherever practicable. The general plan at the University Hospital for handling cases of pneumonia was as follows: On admission .5 c.c. of horse serum was injected into the skin. If the patient was sensitive, reaction would probably appear before typing had been done and other preparations made for giving sera, in event the case was one in which this form of treatment was indicated. This preliminary injection of horse serum also helped to desensitize the patient. Assuming that it was a type in which serum treatment was indicated, and the patient showed no sensitization, 75 to 100 c.c. of appropriate serum were given intravenously, by gravity, allowing it to enter the vein slowly over a period of fifteen minutes to one-half hour. This dose was repeated every six or eight hours until favorable results were established, the average total dose being about 250 c.c. If the patient was sensitive, as shown by the skin test, small, frequently repeated doses should be given first, or 15 c.c. given slowly, about fifteen minutes for 11 c.c., and the patient observed for reaction. If no reaction (tachycardia, restlessness, suffusion of eyes, dyspnea, or urticaria) occurred the remainder of the serum might be given more rapidly. Great care should be taken with known asthmatics.

Dr. HERBERT FOX said that there seemed no question about the value of Type I serum. As to the advisability of using convalescent serum from other types for other forms of pneumonia it was open to question as to whether we were at present in a position to say that this was a generally applicable procedure. It had been established in several ways that it might be undertaken under properly controlled conditions. All those who had used post critical convalescent influenzal serum in influenzal pneumonia had small doubt that the chances of recovery of those influenzal pneumonias was increased by the use of the serum. That the same was true of lobar pneumonia of Types II, III, and IV he was not able to say quite so definitely, but surely we saw after the introduction of the use of convalescent influenzal serum a very different outlook of the individual's recovery than before it was used. The serum of Type I horse or preserved serum of immune cases, should be warmed before being introduced into the body, and by all means should be diluted.

Dr. EDWARD H. GOODMAN said that the dominating type of pneumonia in the Presbyterian Hospital had been Type IV. In Type I there was no question that the mortality was decreased, the patient was made better, the blood stream quickly became sterile and all symptoms improved. The thing that seemed to him of importance was laboratory cooperation to determine the proper type. There was no reason why a type should not be returned within twelve hours in a hospital. He thought it was wrong in any case to use polyvalent serum.

Dr. JOHN A. MURPHY of Swarthmore said that he believed very properly controlled and treated cases in Type II, and particularly in Type III, showed some benefit, and that had been found in cases where the dose had been considerably higher than the ordinary 50 to 75 or 100 c.c. dose.

Dr. FRANK M. HUNTOON said that we could produce antibodies from Type I, both in human beings and in horses. There was no evidence up to this time to justify us in using Type II serum, but how could evidence be obtained if we did not try it on cases? That such types could be influenced by antibodies had been shown by experimental work they had been doing. They were not using serum, but antibodies derived from serums.

Morphine Allergy.—This phenomenon is well known in the ordinary subject, and even in the concentration of 1-1,000,000 the needle puncture will cause a wheal. It is necessary for a first sensitizing injection to be made. The maximum intensity is seen about six hours after the first injection. The phenomenon is not confined, as some believe, to morphine, but is seen with atropine and other alkaloids. In atropine, however, the period of maximum intensity is one hour after injection.—*La Presse Médicale*.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

OHIO STATE BOARD OF MEDICAL EXAMINERS.

Columbus, December 1-3, 1920.

ANATOMY.

1. Describe the structure of the prostate gland and give its anatomical relations.
2. Describe the gross anatomy of the larynx.
3. Describe the diaphragm, its principal openings and nerve supply.
4. Give the deep and superficial origin, course, and distribution of the tenth cranial nerve.
5. What arteries, muscles, and nerves would be severed in a cross-section at the middle of the humerus?

PHYSIOLOGY.

1. Define leucocytosis.
2. What postmortem tests should be applied to prove that air has entered the lung of a supposedly stillborn child?
3. Describe the different glands of the stomach.
4. What is the function of each class of foods in the nutritive process?
5. Give the origin and uses of lymph.
6. What is metabolism?
7. Give the function of the epiglottis.
8. Define reflex action and give examples.
9. Of the functions of vision, what is understood by accommodation?
10. What are the sources of animal heat?

CHEMISTRY.

1. Define physiological chemistry.
2. Define a carbohydrate and a hydrocarbon, giving an example of each.
3. What are pepsines, and how are they produced?
4. What is the reaction of normal gastric juice, and to what is it due?
5. What is hemoglobin? Name some of its properties and its functions.

MATERIA MEDICA.

1. Name the official preparations of bismuth, giving doses of each and methods of administration.
2. In cases of hyperpyrexia, name the three antipyretics you consider most efficient and safest. Give mode of administering each.
3. Name two drugs used as (a) cardiac sedatives, (b) cardiac stimulants, (c) cardiac tonics. Give dose of each.
4. Define (a) serum; (b) vaccine. Give example of each with dose and method of administration.
5. Give the physiologic action, use, and dose of salicylate of sodium.
6. Name two drugs used in the treatment of intermittent fever. Write prescriptions showing how they are to be used.
7. What are the therapeutic uses of nitroglycerin? Give its dose.
8. Describe the action and state the dose and uses of mild chloride of mercury.
9. Give the composition, therapeutic use, and dose of Dover's powder.
10. Name the principal narcotics, giving dose of each preparation. In what conditions are they indicated?

ANSWERS.

ANATOMY.

1. *Structure of prostate gland.* "The prostate is a compound tubulo-alveolar gland whose ducts open into the prostate portion of the urethra. Smooth muscle fibers not only surround the organ, but interlace radially toward its center, forming a network in whose meshes the glandular parts are located. Areolar tissue and blood-vessels accompany the muscle tissue. The alveoli of the glands are lined by simple columnar epithelium, which sometimes show two rows of nuclei. These alveoli contain a serous acid coagulum and usually oval laminated concretions called *prostatic bodies*. The latter are more numerous in old men. The numer-

ous excretory ducts unite to form twelve to fifteen collecting tubes which open into the urethra, most of them into the *prostatic sinus*. These ducts are lined by simple columnar epithelium, except near their terminations where it is transitional. The organ dorsal or in front of the urethra is mostly smooth muscle tissue." (Hill's *Histology*.)

RELATIONS OF PROSTATE. *Anteriorly:* Symphysis pubis, anterior ligaments of bladder, branches of dorsal vein of penis. *Posteriorly:* Rectum. *Laterally:* Levator ani. *Base:* Surrounds neck of bladder, seminal vesicles, and vasa deferentia. The apex rests on triangular ligament.

2. "The *larynx* lies in the front and upper part of the neck, being placed below the tongue and hyoid bone and between the large vessels of the neck. It opens above into the pharynx and below into the trachea. It is subcutaneous in the middle line, being covered only by skin and cervical fascia; but laterally it is overlaid by the insertions of the sterno-hyoid and sterno-thyroid, by the thyrohyoid and origin of the inferior constrictor. Is composed of cartilages held together by ligaments, and moved by muscles, the whole being lined with mucous membrane." (*Aids to Anatomy*.)

Structures forming the larynx: Nine cartilages, viz., Thyroid, cricoid, epiglottis, two arytenoids, two cornicula laryngis, and two cuneiform. The thyrohyoid membrane, cricothyroid membrane, thyroarytenoid ligaments, capsular ligaments, hyoepiglottic ligament, thyroepiglottic ligament, and, interiorly, the vocal cords.

3. The *diaphragm* is a musculo-fibrous septum which divides the thoracic from the abdominal cavity; it is fan-shaped; the broad elliptical portion is horizontal, and the crura are vertical. It is attached to the ensiform, to the internal surfaces of the lower six costal cartilages, to bodies and intervertebral substances of first, second, and third lumbar vertebrae. Its openings are: (1) The aortic, transmitting the aorta, vena azygos major, and the thoracic duct; (2) the esophageal, transmitting the esophagus, pneumogastric nerves, and some small esophageal arteries; (3) the opening for the vena cava, transmitting the inferior vena cava, and small branches of the right phrenic nerve; (4) the right crural, transmitting the right splanchnic nerves; (5) the left crural, transmitting the left splanchnic nerves and the vena azygos minor.—*Nerve Supply:* Phrenic, lower intercostals, and sympathetic.

4. THE TENTH CRANIAL NERVE is the pneumogastric nerve. *Superficial origin:* Groove between restiform and olivary bodies. *Deep origin:* Nuclei in floor of fourth ventricle. *Course:* Outward across the flocculus, to jugular foramen through which it passes; here it is joined by the accessory portion of the spinal accessory nerve. As it goes down the neck, it lies in front of the *rectus capitis anticus major* and *longus colli* muscles. It passes in the carotid sheath behind and between the artery and vein. In the thorax the nerve on each side runs a different course. The *right* passes between the subclavian artery and vein, by side of trachea to root of lung, behind esophagus, through esophageal opening in diaphragm to posterior surface of stomach. The *left* passes between the subclavian and carotid arteries, in front of arch of aorta to root of lung, along anterior surface of esophagus, through diaphragm, to anterior surface of stomach. *Distribution* is shown by the names of the branches: Meningeal, auricular, pharyngeal, superior and inferior laryngeal, cardiac, pulmonary esophageal, and gastric.

5. In a cross-section at middle of humerus, will be severed: *Muscles:* biceps, coraco-brachialis, brachialis anticus, triceps; *arteries:* brachial, superior profunda, inferior profunda; *nerves:* median, ulnar, musculo-spiral, internal cutaneous, musculo-cutaneous.

PHYSIOLOGY.

1. *Leucocytosis* is an increase in the number of the white blood corpuscles in the peripheral circulation.

2. *Application of hydrostatic test, to determine whether a dead infant was born alive:* "Having opened chest, note position of lungs (before respiration they occupy a small space at upper and posterior parts of thorax); their volume (of course increased after breathing); their shape (before respiration, borders sharp or pointed; after it, rounded); their color (be-

fore breathing, brownish-red; after it, pale red or pink); their appearance as regards disease and putrefaction; and whether they *crepitate* on pressure (as they will after respiration). Take out lungs with heart attached, and place them in pure water having temperature of surrounding air. Note whether they float (high or low), or sink (slowly or rapidly). Separate them from the heart and weigh them accurately; then place them in water again, and note sinking or floating, as before. Subject each lung to pressure with the hand, and note sinking or floating again. Cut each lung in pieces and test floating again. Take out each piece, wrap it in a cloth, and compress with fingers as hard as possible, and test floating, etc., as before. The crucial test of *perfect respiration* is each piece floating after the most vigorous compression." (King's *Manual of Obstetrics*.)

3. Glands of the stomach are of two kinds: (1) *Fundus glands*.—These are branching glands with short ducts. Their epithelium is of two kinds. There is a continuous lining of cubical or polygonal cells which show granules in their inner part, the outer part being clear. These are the *principal, central, or peptic cells*. Scattered along the tube are large rounded cells, with a much greater affinity for acid dyes. These are the *parietal or oxyntic cells*, which are supposed to secrete the hydrochloric acid. They lie between the principal cells and the basement membrane. They are surrounded by a network of fine channels opening into a fine canal, which carries their secretion into the lumen of the gland.

(2) *Pyloric glands*.—The pyloric glands are longer, and are more branched than the fundus glands. They are lined by principal cells only. Close to the pylorus the glands may extend through the muscularis mucosae into the submucous coat.

4. *Functions of protein food:* Formation and repair of tissues and fluids of the body. Regulation of the absorption and utilization of oxygen. May also form fat and carbohydrate, and yield energy sometimes.

Functions of carbohydrate food: Production of energy and animal heat by oxidation. Form fats and possibly some proteids.

Functions of fat: Supply of fatty tissues, nutrition of nervous system; supply of energy, and animal heat by oxidation.

Function of salts: Support of bony skeleton, supply of HCl for digestion, regulation of energy and nutrition.

Function of vitamins: Growth and nutrition.

5. *Formation of lymph:* There are three main theories: (1) Ludwig's theory, or the filtration theory, coupled with osmotic changes between the lymph and blood; (2) Heidenhain's theory of lymphagogues; and (3) Starling's theory of the permeability of the capillary walls. The subject is summed up by F. A. Bainbridge as follows: "Lymph formation is not a secretory process, but is brought about by purely physical processes, namely filtration and osmosis; and the factors concerned in its production are (1) the capillary pressure, (2) the degree of permeability of the capillary walls, and (3) the metabolic activity of the tissues. There is no reason to suppose that in health the permeability of the capillaries alters, and therefore the formation of lymph is increased chiefly by variations in the first and third of these factors."

Function of lymph: (1) It conveys nutriment to all cells not directly reached by the blood; (2) in the intestines, it absorbs nutrient material (chiefly fat) and pours it into the blood stream for distribution; (3) it takes certain waste matters to the blood to be later eliminated by the lungs, kidneys, and skin.

6. *Metabolism* is the name given to the sum total of all the chemical changes which take place in living matter. These changes are of two kinds: (1) In which tissues or substances are broken down (*katabolism*); and (2) in which the tissues are built up from the nutritive material derived from the blood (*anabolism*).

7. *Function of the epiglottis:* (1) To overhang the larynx during deglutition, and so prevent the entrance of food and drink into the respiratory passage; (2) to direct the food and drink into the lower part of the pharynx; (3) it modifies the air currents in phonation.

8. *Reflex actions* are involuntary or unconscious movements, due to suitable stimuli. They depend upon

the integrity of the *reflex arc*, which is a complex made up of: (1) A surface capable of receiving an impression; (2) an afferent nerve; (3) a nerve cell capable of receiving and also of sending out impulses; (4) an efferent nerve, and (5) a surface capable of responding to the impulse conveyed by the efferent nerve.

Reflexes are classified as: (1) *Superficial reflexes* are such as can be elicited by stimulating the skin. *Example:* The cremasteric reflex. And (2) *deep reflexes* are such as are elicited by stimulating tendons or muscles. *Example:* The patellar reflex.

In the *cremasteric reflex*, irritation of the skin of the upper and inner part of the thigh causes a retraction or drawing up of the testicle. In the *patellar reflex*, if the tendon of the quadriceps extensor is struck with the edge of the hand while the leg hangs loosely over the other leg, there will be an upward jerk of the leg.

9. *Accommodation* is the power of altering the focus of the eye so that divergent rays are brought together on the retina; this is accomplished by increasing the convexity of the lens.

10. *Heat is produced in the body by:* (1) Muscular action; (2) the action of the glands, chiefly of the liver; (3) the food and drink ingested; (4) the brain; (5) the heart; and (6) the thermogenetic centers in the brain, pons, medulla, and spinal cord.

CHEMISTRY.

1. *Physiological chemistry* is that branch of chemistry which has to do with the composition and changes in composition of living things.

2. *Carbohydrates* were formerly defined as substances of unknown constitution containing carbon, hydrogen and oxygen. The molecule of carbohydrate contained six atoms of carbon (or some multiple of this number), and the hydrogen and oxygen were present in the proportion required to form water. While this definition is not, to-day, scientifically accurate, it suffices to "label" a definite class of compounds containing the sugars and starches.

Hydrocarbons are substances which contain only carbon and hydrogen; such are methane, ethane.

3. *Peptones* are substances produced by hydrolytic decomposition of proteins. During the course of protein digestion, the proteins are split up into proteoses, peptones, polypeptides, and amino-acids.

Peptones are produced, during digestion, by the action of pepsin in an acid medium, and of trypsin in an alkaline medium.

4. The reaction of normal gastric juice is acid, due to the presence of hydrochloric acid.

5. *Hemoglobin* is a protein, found mainly in the blood, where it is the pigment in the red corpuscles; it is crystallizable; it contains a small amount of iron in addition to the elements ordinarily found in proteins. It may be split up (by acids, alkalies, or heat) into globin and hematin. Hemoglobin combines with oxygen, carbon monoxide and other gases. Its function is to carry oxygen to the tissues of the body.

MATERIA MEDICA.

1. *BISMUTH. Official preparations and dose:* Bismuth betanaphthol, dose 8 grains; bismuth and ammonium citrate, dose 2 grains; bismuth subcarbonate, dose 8 grains; bismuth subgallate, dose 8 grains; bismuth subnitrate, dose 8 grains; bismuth subsalicylate, dose 8 grains; bismuth magma, dose 1 fluidrachm; *Bismuth may be administered in powder, or capsules, in milk; and it is also applied locally.*

2. *Three safe antipyretics:* (1) The use of cold water, which should be applied rapidly and followed by rubbing of the skin. Cold sponging, cold pack, or the use of a bath may be the method of application. (2) Antipyrin, dose about 4 grains; it is soluble in water. (3) Quinine, in the form of the sulphate, in powder or capsule, or in solution (with glycyrrhiza to disguise the taste); dose about 5 or 6 grains a day.

3. *Two cardiac sedatives:* (1) Tincture of aconite, dose 5 minims; (2) Tincture of veratrum viride, dose 8 minims.

Two cardiac stimulants: (1) Alcohol, dose one ounce of spiritus frumenti; (2) Aromatic spirit of ammonia, dose one dram in a little water.

Two cardiac tonics: (1) Citrated caffeine, dose 5 grains; (2) Strychnine sulphate, dose 1/40 grain.

4. "A *serum* is a product obtained by injecting into an animal, usually the horse, a culture (e.g. Diphtheria) or the toxin from a culture (e.g. Streptococcus) of the organism. Serums may be subdivided into—(a) *Antitoxic serums*, such as Diphtheria and Tetanus, which are obtained by injecting filtered cultures into the animal used to provide the serum. (b) *Anti-bacterial serums*, such as Anti-Streptococcus and Anti-Gonococcus, in the preparation of which unfiltered cultures are used. Serums are usually injected in the flank or between the shoulder blades, the skin having previously been cleansed and the syringe carefully sterilized. Cases are on record where they have been given intravenously with normal saline solution and also per rectum.

"A *vaccine* is a finely divided suspension of killed cultures of a microorganism which is injected directly into the human subject. The object is to stimulate the individual to elaborate his own antibodies, which results in increased resistance to the ravages of bacterial infection. Vaccines are of two kinds—(a) *Autogenous*—prepared from the organism isolated from pathological material taken from the patient. (b) *Stock prepared* from virulent cultures of the organism, isolated from other cases of similar bacterial origin. Vaccines are administered by subcutaneous injection by means of an all-glass hypodermic syringe. The site of injection may be the flank, thigh, shoulder, or back. The skin is first sterilized by a pledget of cotton wool saturated with a suitable antiseptic, e.g. lysol.

"Briefly, the difference is that with a serum the opposing influence to the toxins is produced outside the human body, while with the vaccine it is produced inside and the degree of immunity conferred is greater with the latter than the former. It should also be noted that the dose of a serum is much higher, from the standpoint of the amount of fluid injected, than in the case of a vaccine. With the former the dose usually ranges from 10 c.c. to 50 c.c., while with the latter it is, as a rule, not more than 1 c.c." (*Holland's Pharmacy Handbook.*)

Antidiphtheritic serum, average dose 1,000 units as a prophylactic, and 10,000 units for curative purposes, injected into the loose subcutaneous tissue of the back or abdomen.

Typhoid vaccine, given subcutaneously in the arm, 500 million bacteria at the first injection, and two further injections at intervals of 8 to 10 days of one billion bacteria.

5. *Sodium Salicylate. Action:* Antiseptic; irritant; strongly cholagogue; antipyretic; diaphoretic; diuretic (markedly increasing the excretion of uric acid). In exceptional instances skin eruptions are caused, and in some individuals a train of symptoms analogous to those of cinchonism, and designated as *salicylism*, results from the use of salicylic preparations.

Uses. Externally, as antiseptic and stimulating applications and for the checking of abnormal perspiration; also in parasitic and other skin diseases. Internally, rheumatic fever (in which this drug seems to act as a specific); gout; migraine; sciatica; diabetes; cholelithiasis." (*From Wilcox's Materia Medica.*)

Dose:—15 grains.

6. *Two drugs used in treatment of intermittent fever:* Quinine and arsenic.

R. Quinina sulphatis 5v
Acidi sulphurici q. s.
Aque q. s. ad 5iv

Misce et Signa: One teaspoonful to be taken two or three hours before the attack is expected, and then two or three times a day.

R. Masse ferri carbonatis 5vj
Arseni trioxidi gr. j
Misce et fiant pilule numero xx

Signa: Take one pill two or three hours before the attack is expected, and then three times a day.

7. *Therapeutic uses of nitroglycerin:*—It is indicated in angina pectoris, cardiac dyspnea, chronic nephritis, with high tension pulse, vomiting, epilepsy, hiccup, seasickness, asthma, and other spasmodic disorders.

Dose:—Spirit of nitroglycerin, one minim.

8. "*Calomel* is a white, odorless, tasteless powder, insoluble in all ordinary menstrua. The dose is from 1/10—10 grains. Calomel is used internally as a cathartic, as a diuretic, as an antiplogistic, and as an anti-

syphilitic. Externally it is employed as a stimulant, desiccant, and antiseptic.

External Use.—Zinc ointment to which calomel (5-15 gr. to the ounce) has been added makes an excellent application in subacute and chronic eczema. A dusting-powder composed of equal parts of calomel and zinc oxide is effective in venereal warts. Calomel is also efficacious in corneal ulcers and phlyctenular conjunctivitis when there is not much ciliary irritation. It should be flicked into the eye by gently tapping a camel's-hair brush loaded with the powder.

Antiphlogistic.—Some practitioners believe that calomel is of service in limiting fibrinous exudation in inflammatory diseases of the serous membranes. For this purpose it has been much used in pleurisy, meningitis, iritis, and pericarditis, but its beneficial effects are very doubtful.

Antisyphilitic.—Calomel has been used internally to combat syphilis, but the protiodide and the bichloride are decidedly preferable, since they do not induce salivation so quickly. It is a suitable preparation, however, for volatilization when the patient is to be treated by fumigation. Some surgeons have recommended deep injections of oily mixtures of calomel in syphilis, but grave symptoms have occasionally resulted from its use in this way." (Stevens' *Modern Materia Medica*.)

9. *Dover's powder* is Pulvis ipecacuanhæ et opii. It contains one part of ipecac, one part of opium, and eight parts of sugar of milk. The dose is from 5 to 12 grains. It is used for its diaphoretic effect, and in colds.

10. *Narcotics* are classified (by Bastedo), as:—(1) General anesthetics; (2) Intoxicants; (3) Hypnotics; and (4) Antihysterics. The general anesthetics are:—Ether, chloroform, nitrous oxide, ethyl chloride, and magnesium sulphate. The dose of ether by mouth is 15 minims, of Hoffmann's anodyne, one dram; the latter is used as a carminative and reflex stimulant; to relieve angina pectoris and allied cardiac disturbances; to relieve dyspnea; to allay hysteria and states of nervous instability; to relieve spasm. The dose of chloroform is 5 minims; spirit of chloroform, 30 minims; water of chloroform, 4 drams. Chloroform is used internally as a carminative, an antiemetic, an antihysterical and cerebral sedative. Whiskey and brandy are mostly employed to prevent or check a cold after exposure; to furnish food and stimulation in depressed conditions and in convalescence from acute illness, as a narcotic or sedative in states of nervousness, restlessness or delirium; as hypnotic in mild forms of insomnia as from mental work or continued nervous strain; in fever; in shock. Hypnotics: Chloral hydrate, dose 15 grains; used as a hypnotic, as a circulatory depressant in high arterial tension, chronic nephritis or arteriosclerosis. Sulphonal, dose 15 grains; veronal, dose 5 grains; trional, dose 15 grains; adalin, dose 45 grains; urethane, dose one dram; hedonal, dose 15 grains; all used in cases of insomnia, where the wakefulness is not due to pain; paraldehyde, dose 30 minims. Bromides, in doses of 10 to 30 grains, for nervousness and restlessness, to allay pain, to check vomiting, to prevent convulsions, to check spasmodic nervous affections, to quiet the reflexes. Opium or morphine may be used to stop vomiting, to check peristalsis, to quiet a nervous heart, to lessen pain, to check cough, to compel quiet and sleep. (From Bastedo's *Pharmacology and Therapeutics*.)

Benefactors of the French Academy of Medicine During the Century of Its Existence.—The usual act of the benefactor is to establish a fund for a prize essay. Portal, the first president, left in 1833 the sum of 12,000 francs for a prize in medical anatomy. Others have made various gifts and bequests, the largest by Mme. Ernesti, née Bader, daughter of a medical man, who in 1901 left the institution a legacy of 1,100,000 francs, her entire fortune. In 1877, Demarquay gave a fund of 100,000 francs to improve the installation of the Academy. In 1902 the Government awarded the great sum of 463,000 francs for the new building, and it is believed that this beneficence on the part of the State to a private body of citizens is unique. The total number of benefactors to date is nearly 80 and the revenues from the individual gifts run all the way from 120 francs to 130,000 francs.—*Le Presse Médicale*.

Miscellany.

NEW BOOKS AND OLD.

By JOHN RUHRÄH, M.D.,

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III. THOMAS MUFFET.

FOR the second time in the past fifteen years it has been my pleasure to have in my hands a copy of "Health Improvement: Or Rules Comprising and Discovering the Nature, Method, and Manner of Preparing all Sorts of Foods Used in this Nation," by Thomas Muffet. This is a rare treasure, not because it adds anything to the sum total of human knowledge, but because of the fact that Muffet, who was a considerable traveler, collected in his travels and from the various authors of earlier times, a lot of quaint material dealing with the subject of dietetics and he is, as far as I know, the first English physician to write a book devoted solely to this subject.

Muffet lived in the time of Shakespeare. A London lad of Scotch descent, whose father was a citizen and haberdasher of London, he was, at the age of sixteen, matriculated as a pensioner of Trinity College, Cambridge, but in 1572 changed to Caius College, where he was graduated as a bachelor of arts. During this period he also studied medicine under Thomas Larkin and John Caius, the latter mentioned in his "Health Improvement." He numbered among his friends and fellow students three boys who became distinguished as physicians: Peter Turner, Timothy Bright, and Thomas Penny. In 1576 he was expelled from Caius College because he chose to proceed as master of arts from Trinity and later he went abroad and received his degree of doctor of medicine at Basle in 1578. Whilst at Basle he was a student of Felix Platter and Zwinger. The following year he traveled in Italy and Spain and studied the silk industry, which he afterwards described in a long poem. The next year he was at Nuremberg and Frankfort, and during his entire life he seems to have been devoted to travel, as he mentioned that he visited Denmark, High Germany, Holland, Bohemia, Switzerland, and Wales.

On his return to England he was incorporated doctor of medicine at Cambridge and the same year, 1582, he visited Elsinore in Denmark. On this occasion he accompanied the diplomat who carried the Order of the Garter to the King, and so was able to partake of the royal hospitality. He mentions that the State banquets last from seven to eight hours. He practised at Ipswich and later on lived in London. In 1588 he was made a fellow of the Royal College of Physicians and one of the censors the same year. The latter part of his life was spent as a pensioner of the Pembroke family, and through the influence of the early Pembrokes he was elected a member of Parliament from Wilton in 1597.

Muffet was one of the earliest Paracelsians, or chemical sect, in England, and with John Herter was one of its chief exponents. His first publication was a defence of the use of chemical medicines. Like many physicians, he was interested in natural history, and he wrote a volume concerning insects, which was printed in 1634, and subsequently translated into English and published in 1658.

During his undergraduate course he was poisoned

by eating mussels, and he refers to shellfish, and chronicles the event in "Health Improvement," as follows:

Only Oysters of all fish are good raw (yet he was no Coward that first ventured on them).

For Diogenes died eating raw fish and Woolmer (our English Pandereus) digesting iron, glass and oyster shells, by eating a raw eel was overmastered.

Mussels were in credit, but amongst the poorer sort; till lately the lily-white *mussel* was found out about Romers-Wall, as we sail between *Flushing* and Bergen-up-zon, where indeed in the seat of Summer, they are commonly and much eaten without any offence to the head, liver or stomach; yea, myself (whom once twenty mussels had almost poisoned at *Cambridge*, and who have seen sharp, filthy and cruel diseases follow the eating of English mussels) did fill myself with those mussels of the Low Country, being never a whit dis-tempered with my *bold* adventure.

The status of dietetics in his day seems to have been much as it is now, as he says:

So how in our Daies the name Diet seems but a scarce-crow to the unwiser sort, who think it best diet, keeping no diet at all saying (as Will Somers said to John Rainsford) drink wine and have the gout, drink no wine and have it too.

Muffet was interested in the question of the value of odors in medical treatment and thought that they had considerable value, as he states: "The very smell of physick cures many." He considered the following observation of great value in establishing the effect of odors as preventatives against infectious diseases:

But here a great question ariseth, whether sweet smells correct pestelent aire, or rather be as a guide to bring it sooner to our hearts? To determine this question I call all the dwellers in *Bucklers berry* in London to give sentence: which only street (by reason that it is wholly replenished with Physick, Drugs and Spices, and was daily perfumed in the time of the plague with punding spices, melting gums, and making perfumes for others) escaped that great plague brought from Newhaven whereof there died so many, that scarce a house was left unvisited.

His chapter on unusual articles of diet and abnormal longings contains much interesting, if questionable, material. A short extract from it will give a very good idea.

The Sudanes desire to feed on lice, which a Muscovite abhors so to kill; lest unnaturally or unwittingly he slay his own blood.

It were strange to believe (yet *Fernelius* writes it for a truth) how a nobleman of *France* found a great sweetness in quicklime, then in any meat beside, refreshing his stomach and hurting no inward part with the continued use thereof. Others feed greedily on rags of woollen cloth and wall-morter. And *Anatus Lusitanus* remembereth a certain young maid of twelve years of age, who did usually eat stones, earth, sand, wool, cotton and floss; esteeming their taste and substance better than the finest and tenderest partridges. *Marcellus Donatus* saw a girle so longing after Lizards and Neayts, that she would hunt after the one in the Gardens, and after the other in houses with a bough in her hand as a cat would a mouse, and eat them without hurt.

Albertus Magnus (as *Caelius* reporteth) saw another wench in *Collen*, but three years old hunting as delightedly after all sorts of spiders, with which meat she was not only much delighted but also exceedingly nourished. Yea Doctor *Oethaeus* telleth a story of a certain farmer in the country of *Hirsberg*, that feedeth chiefly on potsherds finely beaten batling no less with them than *Marriners* do with eating biscuit. And *Joachim Comerarius* (my dear and learned friend) reporteth a certain girl in *Norimberg* did eat up her own hair, and as much as elsewhere she could get; neither could she be persuaded by her parents or friends, to think it an unpleasant or an unwholesome meat.

Of the quantity that can be eaten at one time, the following quotation is not without interest, especially in this day when there has been an almost total passing of these enormous eaters:

Of this crue was *Maximus* the Emporer (like our old *Abbey Lubbers*) ate till he sweat; yea *Sabellius* affirmeth that his one days sweat gathered up in goblets, did amount to the measure of six sectaries.

And though *Aurelianus* the Emporer fed moderately himself, yet he exceedingly loved and honored a great Gourmand, who usually at a meal did eat a Hogg, two weathers, and a whole brawn, drinking upon it a whole firkin of wine poured down his throat through a funnel.

Clodinus Albinus (commander of the Romans in *France*) is registered to have eaten at one sitting 500 figs, 100 peaches, 10 musk melons, 20 pound weight of *Raysins* of the Sun, 100 snites, 10 capons and 150 great oysters.

Of the length of time spent at meals, *Muffet* gives a personal experience:

Switrigalus, Duke of *Lithuanna*, never set fewer than six hours at dinner, and as many at supper; from whom I think the custom of long sitting was derived to *Denmark*; for there I remember I sat with *Frederick*, King of *Denmark*, seven or eight hours together at one meal. But of all long sitters at table, farwell *Hugutio Fagiolanus* who (as *Petrarch* reporteth) lost both the city of *Pisa* and *Lukes* at one Dinner, because he would not arise (although a true alarm was given) to repel the enemy till his dinner was fully ended, which was usually protracted two or three hours.

One of the most interesting parts of the whole books are his observations on milk and his words of advice on the "Chusing of a Good Nurse," are unsurpassed:

The nurse must be young, clean of skin, of a kindly smell, pure complexion, good temperature, wholesome and moderate diet, much sleep and little anger, neither too idle nor too toiling, no wine bibber, no eater of hot spices, no ordinary wanton, and void of all diseases; such a nurse is sooner wished for than found, yet such a one is to be chosen for sound children or sick Persons, lest drawing corruption in so fine a meat as milk is, our consumptions be increased so much the more, by how much poison given with drink is more dangerous.

Furthermore care is to be taken of their health, that give us milk; for as an unclean pocky nurse (which woful experience dayly proveth) infecteth most sound and healthy children, so likewise a clean, sound and healthy nurse recovereth a sickly and impotent child. Nay (which is more no man can justly doubt, that a child's mind is answerable to his nurse's milk and manners; for what made *Jupiter* and *Aegystus* so lecherus, but that they were chiefly fed with goat's milk? What made *Romulus* and *Polyphemus* so cruel but that they were nursed by she-wolves? What made *Pelias* (*Tyrus* and *Neptune's* son) so brutish but that he was nursed by an unhappy mare? Is it any marvel also, that *Giles*, the *Abbot* (as the *Saint-Register* writeth) continued so long the love of a solitary life in woods and deserts, when three years together he sucked a doe? What made *Dr. Cajus* in his last sickness so peevish and so full of frets at *Cambridge*, when he sucked one woman (Whom I spare the name) froward of conditions and of bad diet; and contrariwise so quiet and well when he sucked another of a contrary disposition.

Muffet was no vegetarian. He believed in good living, and on the question of abstaining from meat as an article of food, he adorns his work with a tale pointing a moral.

Thus much said *Baldwin*, Archbishop of *Canterbury*, of whom *Rainulphus* writeth this story. When *Baldwin* was chosen Archbishop of *Canterbury* he swore that from the time of his installment to his dying day,

he would never eat flesh; whereby his body so decayed that he fell into a consumption: an old woman meeting him on the way as he was carried on a open Horse-litter, called him a liar to his face; whereof being reproved by some of his followers, why (said she) do you rebuke us? doth he not lie, for saying that he never ate flesh since his installment, when his own face sheweth that he surpassed the savages in eating his own flesh? for indeed by the superstitious observance of his vow he had become an anatomie and lived as a cypher among men.

Muffet also wrote a poem on the silk worm which has the following title page:

The
Silkworms, and
their Flies:

Lively described in verse, by T. M.
a Countie Farmer, and an ap-
prentice in Physicke.

For the great benefit and enriching of England
Printed at London by V. S. for Nicholas Ling, and
to be sold at his shop at the West ende of
Paules. 1599.

From Hironimus Vidas, Bishop of Alba, he borrows the story of Venus, seeing Pallas and the other nymphs and goddesses taught by Saturn how to clothe themselves in lawn and cambric:

Fretted to see herself and boy new borne,
Left both to heaven and earth an open scorn.

She cried to Jove, offering to teach him the art of love, but he refused her aid. In order to brew trouble, Venus chose Phyllira, the daughter of Oceanus, and:

Straight lodged her son in fair Phillyraes eyes.
And caused him thence to dart up such a fire,
As he had consumed the very starres and skies,
Yea melted Saturn's wheels with hot desire.

Saturn responded promptly and sought to woo the maid, but:

He loved, she lothed, he liked, she disdained,
He came, she turned, he pressed, she ranne away.

Saturn then sought out Venus and offered her the richest clothing for the secret of her art, and to requite her:

He sent a Napkin ful of little seeds,
Tane from the tree where *Thisbes* soul did light,
To make herself and boy farre braver weeds,
Than *Pallas* had, or any of the sev'n.

With this gift of the mulberry tree, he sent along the art of weaving.

The first part of the poem ends with the following Kiplingesque appeal to the English people:

Dull witted dolts that huge things wonder at,
And to your coast coast daily from your ile
To see a Norway whale, or Libian Cat,
A carry-castle or a crocodile,
If lean Ephesian, or the Adberian fat
Lived now, and saw your madness for a while,
What streaming floods would gush out from their
 cries,
To see great Wittols little things despise.

The second part of the poem deals with the silk-worm and its care. The mulberry tree on which these worms feed is thus described:

I leave to tell how she doth poison cure
From adders goare or gall or lizards got,
What burning blaines she heales and sores impure,
In palat, jawes, and al enflamed throte,
What canckers, hard, and wolfs be at her lure,
What Gangrenes stop that make our toes to rotte:
Briefly, few greifes from Panders boxe out-flew,
But here they finde a medicine, old or new.

Muffet noted the infectiousness of the silkworm disease and directs the separation of the dead and sick:

Wisdom commands to part the dead and sick
Lest they infect the faultless and the quick.

He compares their sleep to the epidemic sweat:

Oft shall thou see them careless of their meate
Yea overtane with deepe and heavie sleepe,
Like to the strange and Epidemian Sweate,
When deadly slumbers did on Briton creep.

But I must make an end. Few of my readers will ever come across either of these books, but if you should, do not scorn them, they are full of interest. I have scarcely scratched the surface of what they contain. They are the legacy to the medical profession from one in the past, a gentlemanly physician, scholar, a devoted student of natural history.

11 EAST CHASE STREET.

Chemistry and the Problem of Feeding the Germans During the War.—A volume having recently appeared on this subject, the editor of *La Presse Médicale* for October 20, 1920, xxviii, 76, publishes a short digest thereof. Before the war Germany had been stocking up on cattle, cereals, and fertilizers, evidently in anticipation of a blockade. The stocks of bran and oil cakes were especially large. It was necessary to provide an abundance of food for cattle as well as fertilizers to safeguard farm and dairy production. A clash was foreseen between nitrogen intended for peace activities and nitrogen for munitions and explosives, for the same substances were used for both purposes. The beginning of hostilities would shut off most of the imports, and the problem of substitute foods would be active at an early period. Meat must be replaced by vegetables in human diet because of the ultimate shortage. The so-called mineral yeast was prepared on a large scale. This concentrated food was rationed at 50 daily grams a head. Some of the nitrogen of this yeast was extracted from the air. To meet the inevitable shortage of fats, oil-bearing seeds were planted in all of the conquered territory. The yield, however, was scanty and was eked out by oil extracted from spoiled meats and fish, animal cadavers, slaughter-house waste, etc., and corresponding vegetable substances which otherwise would have gone to waste. Attempts to make a fat-containing yeast were not successful. The sources of carbohydrate were well known during the war and need not be enumerated here. The problem of the alimentation of cattle brought out the fact that the nitrogen of ammonia could be made to supplant a certain amount of protein nitrogen. Thus ammonium acetate could replace a third of the albumin of the diet in milch cows without prejudice to the milk. The herbivora, unlike mankind, can utilize gelatin. For the ballast which is so very necessary to ruminant animals straw was largely utilized after first softening it with lye, and extra mass was given by the injection of compressed air. The cattle ate the prepared straw but it was not a complete success on account of the two per cent. of soda lye addition. Attempts to prepare a sort of diet carbohydrate from straw and wood by the addition of acids produced too much furfural and other toxic aldehydes.

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JAUNDICE.*

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A REVIEW of the various pathological conditions which are associated with jaundice establishes the fact that this is not a clinical entity *per se*, but a symptom. Jaundice, as is well known, may occur in conjunction with obstruction of the larger bile passages by gallstones, cicatrices, neoplasms; also it may result from obstruction of the bile passages within the liver, due either to infiltration of a primary or to a metastatic tumor into the liver parenchyma; or to a localized inflammatory process. And even in certain infectious conditions that have no apparent connection with the liver, jaundice may occur, as in pneumonia, typhoid fever, yellow fever, malaria, etc. Toxic poisons likewise often produce a yellow pigmentation of the skin, such as arsen, phosphorus, and the like. Icterus neonatorum is a well-known type of jaundice traceable to physiological conditions, and finally the psychic element is called into play in what is known as emotional jaundice.

The most common type of jaundice, however, is that in which absorption of bile is due to obstruction of the common bile duct by stone; less frequently, as in catarrhal and infectious jaundice, bile absorption takes place in the liver without gross duct obstruction; while in the hemolytic type of jaundice the discoloration of the skin is primarily due to disintegration of the red blood corpuscles by which hemoglobin is set free. For a long time this last type of jaundice was supposed to be independent of the bile-manufacturing function of the liver but extended experimental and clinical studies, especially by Minkowski, Naunyn, Rost, Brulé, and an army of others have demonstrated a close relationship between hemolytic jaundice and the behavior of the liver cells. Rost, in fact, finds an analogy between the jaundice due to obstruction and hemolytic jaundice. As a result of the diminished resistance of the red blood corpuscles, which constitutes the basis of hemolytic jaundice, the gallbladder loses its color and its walls become thickened, so that bile fails to be excreted by the pressure action of the liver, and owing to its accumulation in the liver, it is forced into the lymphatic system and the blood stream, with icterus as a result. Other authors have confirmed this theory by the observation that in hematogenous toxic icterus a similar rupture of the capillaries of the bile passages—bile thrombi—takes place as in obstructive

jaundice, so that the thrombosis of the bile capillaries may be regarded as the immediate cause of hemolytic jaundice (Rost). On the other hand, Brulé and other French authors develop a theory of descending infection and the lesion to the liver cells as the active factors in jaundice. They contend that the infecting organisms primarily enter the blood and in the course of elimination produce the injury to the liver parenchyma and the ducts. In all varieties of the disorder the lesions which lead to bile stasis, they believe to be of secondary importance. Brulé insists that the obstacle to the course of the bile lies upward in the small bile ducts and on the same level as the hepatic cells. The latter are seriously affected in numerous cases of severe infectious jaundice as well as in toxic jaundice and in icterus due to cirrhosis of the liver. Pathologically the relationship between jaundice, cholecystitis, and interstitial hepatitis has been frequently observed by Dr. Reiman, the pathologist at the Lankenau Hospital, during the past five or six years, and reported by him in a paper read before the College of Physicians of Philadelphia in 1919. In the examination of gallbladders extirpated with some liver substance attached he has frequently noted the existence of interstitial hepatitis. This fact is confirmed by Ewerts Graham and supported by the interesting experimental work of the latter by which he demonstrates that by the close lymphatic relationship between the gallbladder and the liver there is established a vicious circle of infection between the two organs. The protection of the liver, the most important organ of metabolism, therefore, forms an additional argument in favor of cholecystectomy in cases of cholecystitis.

To return to our subject. The liver cells are also probably affected in the milder types of catarrhal jaundice, except that in these the lesions are slight and easily recover. This can be demonstrated by special tests for determining the presence of bile retention by examination of the urine, the feces, and the blood. Hoover and Blankenhorn have devoted special attention to the study of the bile elements in the plasma in what is known as dissociated jaundice, a favorite subject of discussion among French authors. As its name implies, the term refers to the dissociation of the bile salts and pigments in the plasma. By the use of collodion sacs together with spectroscopic analysis they have been able to demonstrate that the bile salts formed within the liver may be sent on separately into the blood, although they are not certain that the same holds good for the bile pigment. At any rate they have demonstrated the existence of dissociated jaundice of hepatic origin. For the sake of clearness they propose the term "complete jaundice"

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for the cases in which both bile pigment and salts are present in the blood, and "hepatic dissociation jaundice" when bilirubin or bile salts are found separately in the blood, "due to one or the other of the bile elements being separately shunted into the blood stream"; while hemolytic jaundice indicates the presence in the blood of bilirubin without bile salts, when bilirubin is formed extrahepatically. In cases of complete cholemia of hepatic origin the pigment is present in the blood but not the salts. In these the latter have been yielded to and eliminated by the kidney, while the absorbed bilirubin has adhered to the plasma. For this they use the term "renal dissociation icterus." While this theory is probably correct, the analytic methods of these authors have been criticised. Nevertheless their results are of interest and without doubt indicate a fruitful field of investigation.

In its clinical manifestations jaundice may be painless or it may be accompanied by pain, fever, chills, and all the indications of a severe illness. The most frequent type seen is the mild catarrhal painless type associated with moderate digestive disturbances, loss of appetite, constipation, nausea, sometimes also vomiting, mental indifference, sluggishness, together with gradually increasing icteric hue of the skin and sclerae, dark urine and clay-colored stools. The absorption of bile here is probably due to some obstruction to the smaller radicles of the liver, that is a cholangitis, very often a mucous obstruction. This will generally yield to medical treatment but a recurrence is to be expected. When the condition is more acute, absorption is in all likelihood due to calculous obstruction of the bile passages. This type is, as a rule, characterized by sudden onset of severe colicky pains, sometimes radiating to the mid-back and to the right shoulder blade, accompanied by nausea and vomiting, followed in a few days by the typical icteric color of the skin and sclerae. If the calculus is in the gallbladder there is a spasmodic contraction which causes the pain, and which also allows a little bile to escape. While this type of jaundice and its concomitant symptoms will also subside under medical treatment, recurrence is practically certain and the damage to the tissues no less certain. After a second attack the question of surgical interference should be seriously considered, for the interval operation in these cases, it is needless to say, is much safer than when undertaken during an acute attack. Moreover, the clinical differentiation between jaundice due to an inflammatory process and that to malignant obstruction can scarcely ever be made. While the duodenal bucket and some other tests perhaps will indicate whether or not bile is entering the duodenum and also may be useful in estimating the sufficiency or otherwise of the pancreatic ferments, they do not aid us in detecting the presence of malignancy, which is the cause of jaundice in about 15 per cent. of the cases. In a considerable percentage also the pancreas is involved and in not a few carcinoma of the head of the pancreas is the underlying cause of the obstruction. It has been estimated that 50 per cent. of the cases of obstructive jaundice due to cancer are from cancer of the liver and the other 50 per cent. from cancer of the pancreas or of the gall bladder and ducts (W. J. Mayo). Even with the abdomen

open it is not always possible to tell whether the hardening of the pancreas which so often accompanies disease of the gall bladder is due to inflammation or to malignancy.

In hemolytic jaundice the symptom is not due to obstruction but is acholuric in character. It is usually associated with enlargement of the spleen and anemia, the latter often paroxysmal and of varying intensity. The red blood cells are diminished in number and in resistance to hypotonic salt solution, the urine usually shows excess of urobilin and urobilinogen. Two types of the disease are described, a congenital and a familial. In the congenital form jaundice may be present from childhood and the subject otherwise be in perfect health, the full picture developing as the years go on. The familial type is the more common of the two. Various members of one family present a similar history of jaundice and the associated syndrome. Cases are recorded, however, in which while one member presents the complete picture, the others show only jaundice and the splenic enlargement, without either the typical blood picture or the excess of urobilin and the urobilinogen in the urine.

According to some authorities, the behavior of the red blood cells enables the differentiation to be made between a hemolytic and a non-hemolytic jaundice. That is to say, in the former, the resistance of the red blood cells is decreased and in the latter it is increased. But Brulé believes the increase is not sufficiently constant to be reliable. Closely allied to this type of jaundice is that associated with cirrhosis of the liver, known as Hanot's disease. In this also the spleen is enlarged and there is anemia and jaundice with exacerbations.

Hemolytic jaundice with splenic enlargement is of special interest to the surgeon owing to the very satisfactory results that are being obtained by splenectomy in its treatment. The rationale of the procedure is indicated by the experimental work of Whipple, McNeely, and others, who show that bilirubin is not exclusively formed in the liver, but may be elaborated by the endothelial cells elsewhere in the body, for example the spleen, the kidneys, and the bone marrow. The primary cause of jaundice therefore is not always the liver but may be found in other organs. Here again, the removal of the spleen acts as a protection to the liver whose metabolic function is of such vital importance to the body economy.

Finally there is the surgical type of jaundice following operation on the biliary passages, either as the result of an extension of infection or from injury to the hepatic or the common duct. In the former the jaundice is painless and in most instances is due to an infective cholangitis, the result of extension of inflammation from the gallbladder bed, after cholecystectomy, or of inflammation extending up the hepatic duct, or more often the common duct. In either case the cause is the liberation of infection which is then carried by the blood stream or by the lymphatics; or infection may possibly have been forced into the cystic duct and by this route have reached the hepatic or the common duct. Jaundice resulting from operative injury to one or the other of these ducts is probably the most difficult to deal with, and I regret to

say that it is a type I am too often called upon to correct. While it is perhaps not always avoidable, this accident should not occur if the anatomical landmarks are recognized and the operation conducted without undue haste. Occasionally I believe it results from the attempt to control bleeding from the divided cystic artery when the ducts are accidentally grasped by the hemostatic forceps.

A type of jaundice which is not described in textbooks, so far as I know, was recently seen at the Lankenau Hospital. A young woman applied for admission on account of a peculiar yellowish hue of the face and a train of indefinite symptoms, the most pronounced of which was an apparent nausea. On examination, the sclera and skin elsewhere on the body were remarkably clear, and no cause for the abnormal pigmentation could be found until the nurse took the patient into the washroom and washed off the iodine with which she had painted her face in order to gain admission to the hospital. Removal of the patient to her home was the radical operation performed in this case.

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SOME REMARKS ON TONSILLECTOMY AND ADENOIDECTOMY.*

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PHYSIOLOGY.—The tonsils are the most specialized collections of lymphoid tissue in the body, leaving out the spleen. Their function seems to be to act as a barrier to infection, although some believe that they also have an excretory function for the nose and adjacent structures. Until diseased or overcome by attacking organisms they act as a protection, permitting the passage of but few live bacteria. When acutely or chronically diseased both toxins and living bacteria may pass through them into the blood and lymphatics. The mere presence of bacteria on their surfaces or in their crypts is no proof of their pathologic or pathogenic condition. According to Renn the findings of a preponderance of pus cells over lymph cells in the crypts points to inflammatory processes in the tonsils, the examination of course being made when the tonsils are not acutely inflamed.

The Inter-relation of Tonsils and the Vermiform Appendix.—Frankel, and his co-workers, have claimed that there is a close relationship between the tonsil and the vermiform appendix, that histologically they are markedly similar and that the removal of one is liable to affect deleteriously the other.

In 1,004 ear, nose, and throat cases treated by me in the out-patient department of the American Red Cross Military Hospital No. 2 at Paris, in 1917, 1918 and 1919, there were histories of 95 tonsillectomies and 68 appendectomies. Nine tonsillectomies were associated with appendectomies, 86 with no such association, 15 associated with either appendicitis or appendectomy. Of the 68 appendectomies, 9 were associated with tonsillectomies, 39 were associated with some history of attacks of tonsillitis or tonsillectomy, 29 with no

such association, and 59 were not associated with tonsillectomy. Expressed in percentages:

	Per Cent
In 1,004 cases, tonsillectomies (95).....	9.46
In 1,004 cases, appendectomies (68).....	6.8
Tonsillectomies (9) associated with appendectomies....	9.4
Tonsillectomies (86) not associated with appendectomies or appendicitis.....	90.6
Appendectomies (9) associated with tonsillectomies....	15.7
Appendectomies (59) not associated with tonsillectomies....	13.2
Appendectomies (39) associated with tonsillitis or tonsillectomy.....	57.3
Appendectomies (29) not associated with tonsillitis or tonsillectomy.....	42.6

These figures do not bear out any close relationship. Of course lymphoid tissue throughout the body is susceptible to similar toxins and bacteria, so that when the latter are present in the blood they may attack different collections of such tissue at the same time.

Indications for Tonsillectomy.—1. Hypertrophy sufficient to cause mechanical obstruction or interference with the palatal muscles. This is often a difficult question to decide. Some tonsils are not imbedded deeply and are thrust out when the tonsillar pillars are contracted, as during gagging. With the throat quiescent these same tonsils may be little if any obstructive. From the standpoint of the speaking and singing voice any considerable real hypertrophy is a handicap, interfering with the palatal muscles. But tonsillectomy in an adult singer should not be lightly undertaken on account of the psychological and temperamental factors, as well as the interference with their vocation for possibly several months.

2. Manifest pathological condition of tonsils as shown on inspection, the tonsillar crypts large, with gaping openings, infective material being easily expressed therefrom, and microscopic examination of a smear from the crypts showing larger numbers of pus cells than lymph cells (Renn.)

3. History of repeated tonsillar or peritonsillar infections.

4. Cervical adenitis associated with attacks of tonsillitis. The glands near the angle of the jaw are the ones usually attacked.

5. When tuberculous adenitis occurs in this region, it shows that the tonsils have not proved a barrier but a gateway. Therefore the removal of the tonsils should be considered if only for the sake of the removal of this path of tuberculous infection.

6. General or local infections, where there is the slightest suspicion that the tonsils are the starting points, but only during the quiescent stages, *e.g.*, acute or subacute articular rheumatism; arthritides, where the periarticular changes predominate (Crowe); endocarditis; glomerulo-nephritis early stage; appendicitis.

7. In thyroid diseases the tonsils should be carefully examined and even if only slightly involved should be removed.

8. History of frequent colds or attacks of otitis should direct one's attention to the tonsils and adenoids.

Indications for Adenoidectomy.—1. Obstruction in the nasopharynx sufficient to cause mouth-breathing.

2. Any demonstrable growth of lymphoid tissue in the nasopharynx, as it is liable to start inflammatory changes in the nose and ear. Otitis occurring in infants is usually of adenoid origin and should direct attention to the nasopharynx.

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Contraindications.—1. Diabetes mellitus. 2. Acute rhinitis, tonsillitis or peritonsillitis. Tonsillectomy has been done frequently in these conditions, but the risk of spreading the infection is considerable. 3. Acute infections from the tonsils—rheumatism, chorea, nephritis, endocarditis, etc., during the acute symptoms. 4. Low conditions of nutrition in infants and young children especially, (C. H. Smith). The nutrition should first be raised as much as possible. 5. Cardiac diseases during stages of decompensation. 6. All serious diseases associated with fever. 7. Status lymphaticus. In the male adult, suspect one with broad hips and scanty hair on the body, approaching the feminine type. In the female the hair on the body is also much below the normal, the skin is of unusually delicate texture, and often there are axillary pads of fat, with a scanty growth of hair (Symmers). 8. Hemorrhagic diathesis, until the tendency has been overcome, if that is possible.

Preparation of the Patient for General Anesthesia.—The preceding evening meal should be light, and a mild efficient cathartic should be given before retiring. If no movement occurs the following morning an enema should be given, especially in children. Calcium lactate has not proved to be of value in shortening the coagulation time of the blood. The ideal time to operate is in the early morning. No breakfast should be given and only water allowed. A hypodermic of atropine is given half an hour before the anesthesia. The dosage for a child of three years is gr. 1/250, five years gr. 1/200, fifteen years gr. 1/150. This markedly lessens the secretion of mucus and saliva, making the anesthesia smoother and thus lessening the danger of pulmonary complications.

Local Anesthesia.—If local anesthesia is to be used there need be no reduction in the diet unless there is a strong tendency to gagging, when the last meal can be cut in half or omitted. Ten per cent. cocaine is applied several times to the tonsils, the uvula, and the nasopharynx. The adenoid region is given special attention if the adenoids are also to be removed. Novocaine, 1 per cent., or cocaine, 1/10 per cent., is then injected into the capsular regions of the tonsil, either through the anterior pillars in two spots—one at the upper end, and the other at about the middle of the anterior pillar and both about 2/3 cm. anterior to the pillar's free edge,—or as suggested by Jacob Braun, to use a slightly blunted needle and insert this through the tonsil in three places until the needle reaches the capsule. Then force the needle a few millimeters into the capsular tissues, injecting about one cubic centimeter at each spot. The points of entrance of the needle should be near the anterior pillars. If the solution spurts out on injection the capsule has not been penetrated. The direction of the needle should be outward and backward. Others content themselves with injections just beneath the mucosa of the pillars. Adrenalin is avoided for two reasons,—first, and principally, on account of the subsequent dilatation of the blood vessels, causing more frequent secondary hemorrhages, and second, on account of occasional deaths reported as occurring during its use, said to be due to injecting into a blood vessel.

General Anesthesia.—Ethyl-chloride-ether se-

quence is very satisfactory in children. The former is given by the open chloroform mask drop method until the child is barely under, as determined by the dropping of the arm or the ceasing of counting, talking, or crying, never continuously after the first tendency to snore. Ether is then given by the drop method, using a rubber dam with a small hole for the ether, over the mask when necessary. The anesthesia must be deep enough to abolish the oropharyngeal reflex and is continued during the operation through a hooked tubular mouth-piece extending over the edge of the left corner of the mouth. The ether vapor is forced to the mouth either by the pump or the suction apparatus, or by using a tank of oxygen connected to a bottle of ether, the oxygen and ether vapor is delivered into the mouth. Gas-ether sequence is preferable in adults. Some anesthetists prefer to continue the anesthesia during the operation with chloroform vapor forced through the mouth-piece with a hand or foot pump, as required. If chloroform is used, it must be sparingly, remembering that status lymphaticus occurs most frequently in individuals with lymphoid hypertrophy of the throat and that status lymphaticus is a contraindication to the use of chloroform.

Choice of Operation.—Tonsillectomy as done today can be divided into two distinct methods, the various dissection procedures, and those done with the guillotine.

Dissection Methods.—The removal of tonsils with the finger has been discarded by most operators on account of the unnecessary amount of trauma and resulting inflammatory reaction. The ability easily to recognize the tonsillar tissue limits with the finger made the operation attractive. The partial separation of tonsils from their pillars and fossæ with blunt, semi-blunt or sharp instruments, followed by snaring through the pedicles, is the operation of choice with many laryngologists. Compared with the various guillotine methods there is bound to be the opening up of more avenues of infection into the various tissue planes surrounding the tonsils, more tearing and bruising and therefore greater resulting inflammatory reaction. The truth of this assertion can be demonstrated readily by trying the two methods on the same patient. On the completion of the two operations, on the side operated on by the guillotine method the tonsillar pillars appear uninjured and standing in their normal position unstretched; while on the other side there is more bruising of the pillars, which appear to be stretched and not as perpendicular as those of the other side.

The Guillotine Operations.—On the advent of the dissection methods, this operation fell into disrepute owing to the fact that the instrument in most cases was not accurately applied around the tonsil. The result was a tonsillotomy and not a tonsillectomy. Sluder, in 1911, changed all this by his new method of applying the guillotine. He reversed the application of the old McKenzie tonsillotome, scooped up the tonsil from its bed until it formed a mound just above the junction of the two tonsillar pillars, gently manipulated the tonsil into the ring of the guillotine where necessary, dragged the tonsil bodily forward until the fenestrum of the instrument was opposite the slight projection (alveolar prominence) below the last molar tooth of

the mandible, applied the instrument strongly against this projection, rammed the blade through the mucous membrane and loose capsular tissues, and drew out the tonsil from the slight remaining attachments. The blade of the guillotine was made rather dull with the object of crushing off the tonsil and thus minimizing hemorrhage. With young children the method is excellent, but with tonsils that have thickened capsules it would seem that too much force had to be used in tearing the tonsil from its attachments. To overcome this, Sluder invented a lever which could be attached to the guillotine in order to more thoroughly cut through the capsular attachments before tearing out the tonsil. He advocated removal of a slight edge of the anterior pillar. This is entirely unnecessary and can be avoided by watching the cutting blade as it approaches the tonsil, shifting the direction of the shaft of the instrument so as to cut directly behind the anterior pillar. Beck suggested removal of the tonsil as soon as the latter was manipulated through the fenestrum without drawing the tonsil forward to the alveolar eminence. Considerable pressure has to be used with the finger in keeping the tonsil thoroughly through the fenestrum, so that it is easy to tear through this spot. The use of gloves lessens this materially. This procedure of Beck is often successful, but the percentage of failure is usually higher than by the method of pressure advocated by Sluder. A more satisfactory method in the Sluder operation is to use a sharper blade, cutting through slowly. This decreases the forcible tearing and the slightly greater hemorrhage can be readily controlled.

There are three main modifications of Sluder's method: 1. The use of a snare surrounded by a strong ring, the instrument being applied in a fashion similar to that of Sluder. The Beck, Schenck, and Baum instruments are examples. The Beck and Schenck instruments are rather hard to handle, but when the technique is mastered the results are ideal. The Beck and Schenck instruments, by using two, one for each tonsil, can be left in place as long as seems desirable, thus having a bloodless field during the application of the second snare. Dr. Harry L. Baum has devised a very satisfactory snare, shaped like the Sluder tonsillotome. It has a strong trigger grasp for pulling the snare and also a threaded wheel, so that the enucleation can be done as slowly as desired. It is easier to handle than that of Beck, and the wire is drawn from the large fenestrum through a groove into a slightly contracted space, bending the loop very little, so that it can be used for several operations without replacing the wire. Baum uses the Beck technique. As the wire approaches the anterior pillar he pulls gently away from the pillar so as to avoid grasping any portion of it. Some shreds of tissue are drawn into the groove, so that the tonsil does not fall into the throat. This avoids the use of a grasping instrument for the tonsil.

2. The use of a combined crushing blade outside the tonsil, together with a cutting blade close to the former but between that and the tonsil. The crushing blade acts as a hemostat and the cutting blade cuts beyond the crushed vessels, so that there is scarcely any bleeding. The La Force instrument is the main example of this type. The objection to

the method is that the crushing blades are rather thick, so that the resulting picture shows a little more traumatized tissues than in the other guillotine methods. Then the danger of late hemorrhage seems to be increased through the greater sloughing and thus greater exposure of the cut blood vessels. However, many use it exclusively.

3. This type consists of a dull Sluder tonsillotome which grasps the tonsil completely, together with a snare that is applied between the blade and the tonsillar fossa. In other words, the guillotine acts as a grasping instrument and the snare cuts through the mucous membrane edges of the tonsil and the loose areolar tissue just outside the capsule of the tonsil. The Braun snareto me is of this type. The usual Sluder procedure or the Beck modification can be followed, care being taken to apply the blade directly behind the anterior pillar. After ramming the blade through the fenestrum, the shaft of the instrument is rotated slightly backward, showing a dimpling of the tissues just in front of the anterior pillar. This is an indication that the entire tonsil has been grasped (Braun). Now the wheel of the snare is turned until the loop reaches the anterior pillar, and just as the loop is passing this the guillotine blade is slightly loosened so that the loop passes by the anterior pillar without bruising it (Braun). The snare automatically becomes detached from the guillotine as it tightens, so that the latter can be removed and the snare tightened as slowly as wished. It is usually best to tighten it until there is a sudden slight lessening of the resistance, showing that the wire has passed through most of the tissues and is now crushing the pedicular blood vessels. Leaving this in place, the other tonsil is now attacked in similar fashion with another snare.

Less trauma is produced by the two snare modifications of the guillotine operation of Sluder than with the latter. There is no injury or button-holing of the anterior pillars or of the aponeuroses of the superior constrictor muscles, and there is less hemorrhage. The ability to attack the second tonsil with a bloodless field is also a great advantage.

There are a few failures with the various guillotine operations where it is necessary to fall back on the dissection methods. Thin, flabby tonsils are especially difficult to grasp with the guillotine.

During tonsillectomy the tonsils should be wiped or the suction tube applied frequently, especially before, during, and after the application of the snare, guillotine or other squeezing procedures. The suction tip should also be pressed occasionally against the adenoids in the nasopharynx. Observation of this precaution should minimize the danger of septic pneumonia and pulmonary abscesses. During general anesthesia great care must be observed in keeping the respiration unimpeded, especially in children. The latter are frequently subnormally developed and the respiratory centers may easily succumb if cyanosis is long continued. Rubber gloves should be worn by the operator; they do not interfere materially with the sense of touch and prevent adding further infective bacteria.

After removal of the tonsil, the tonsillar fossa is carefully inspected for remnants of lymphoid tissue. The most important area is the supratonsillar fossa. Remnants left there may subject the patient

to attacks not only of tonsillitis, peritonsillitis and peritonsillar abscesses, but may also be a source of infection elsewhere. The lymphoid tissue in the infratonsillar and lingual regions must also be carefully removed. Failure to remove the infratonsillar nodes may result in the refilling of the tonsillar fossæ with lymphoid tissue.

Control of Tonsillar Hemorrhage During Operation.—In sponging, the sponge should be placed gently in the tonsillar fossa, without any rubbing or rough movements over the pillars and adjoining tissues, then pressure applied for a few moments. The electric suction apparatus is very satisfactory for clearing the field of operation and keeping the oropharynx free from blood, saliva, and secretions, and reduces sponging to a minimum. Two sponges can be kept in the tonsillar fossæ on sponge holders so that the shanks of the instruments cross each other, or by inserting the sponges in the fossæ and then opening the blades of a sponge holder so that the blades impinge against the sponges, as strong pressure as desirable can be maintained with the one instrument (Braun). On removal of the sponges the pillars should be retracted and the fossæ inspected first for any remnants of tonsillar tissues and then for hemorrhage. The former should be clipped off with a good biting forceps, great care being taken not to remove or tear any part of the pillars or aponeurosis of the superior muscle. The hemorrhage is controlled by clamping the bleeding spots with hemostatic forceps, straight or curved at the end (Sawtell) leaving them in place for a few moments and then removing them without twisting. Twisting off increases the amount of sloughing and the area of post-operative cellulitis. If the hemorrhage is general oozing of the capillaries and does not cease with pressure or clamping, thromboplastin is often very effectual. Adrenalin can be applied on a sponge until the hemorrhage ceases, followed by 12 per cent. nitrate of silver solution. The former temporarily contracts the blood vessels and the latter contracts all the tissues, ensuring a more permanent clotting of the blood vessel openings. Subcutaneous injections of horse serum, hemostatic serum, or blood transfusions can be tried where the clotting of the blood seems to be at fault. It is rarely necessary to clamp or suture the pillars together.

The Adenoid Operation.—Under general anesthesia it is important to use suction of the adenoid region before removing the adenoids, exerting some pressure with the suction tip so as to squeeze out any excess necrotic material from the crypts. Then palpation should be used to find out the amount, character, and situation of the growths. The La Force adenotome is the most satisfactory instrument in most instances. It usually removes the excess tissue with one or two attempts,—the tissue is brought away entire in a box together with all its infective material,—the blade cuts upward so that if it does not entirely cut through the tissue grasped, the drawing away of the instrument pulls toward a surface already denuded, so that there is no possibility of stripping the mucosa beyond the cut area.

Palpation of the nasopharynx after the first cutting will reveal whether any tissue remains to be removed; if so, the instrument can be reinserted

and pressed toward the spot remaining to be guillotined, another cut being made. This can be repeated as often as necessary. Small collections of adenoid tissue situated in Rosenmüller's fossa, not always reached by the adenotome can be scraped away with the finger covered with a layer of gauze over the rubber glove or, where this is impossible, with a small adenoid curette. Rarely, the adenoid growth may be strongly fibrous and globular in shape, so that it can not enter the box of the La Force adenotome. In such cases there can be a preliminary loosening or cutting of the tissues with a curette, or adenoid grasping forceps, completing the operation with the La Force adenotome.

Removal of the mucosa over the posterior surface of the soft palate is an accident which is liable to produce adhesion with the posterior pharyngeal wall, resulting in mouth breathing, and is exceedingly difficult to overcome with operative procedures. With care it should never occur.

As soon as the adenoid tissue has been thoroughly removed, a small gauze sponge on forceps curved at the end, such as a Sawtell hemostatic forceps, is passed into the nasopharynx and pressure is exerted upward and backward toward the denuded area for a few moments or until the hemorrhage is somewhat controlled. Suction in the oropharynx meanwhile keeps the air way clear. The sponge is now removed from the nasopharynx, the soft palate is drawn forward with a Davis pillar retractor, and the nasopharynx is inspected. If there is still some bleeding, the denuded areas are grasped with Sawtell forceps, which are shifted to different spots until the hemorrhage ceases. Sometimes the bleeding points can be seen and visibly clamped. The forceps are then withdrawn. During this entire procedure suction is used in the oropharynx to keep the field clear. Thromboplastin or some similar preparation can be applied with pressure when the oozing of blood is obstinate, or adrenalin followed by 12 per cent. nitrate of silver solution.

After-Treatment.—There is considerable pain and discomfort after the operation. An ice-bag applied to the neck for awhile relieves this somewhat. If there is very much distress and tendency to hysteria, an analgesic dose of morphine in an adult or codeine phosphate in a child can be given hypodermatically. The dose should not be sufficient to cause sleep, as quite a hemorrhage can pass into the stomach during sleep without attracting attention until it is vomited, and it is important to know the existence of a hemorrhage as soon as possible. For infants and children there should be rest in bed from four days to a week, depending on the condition. For older individuals three days of rest partly in bed materially assists convalescence and the avoidance of complications. A mouth wash or spray of a saturated solution of boric acid every three hours should be used for infants and young children. A mild antiseptic saline solution spray every three hours for the nose and throat for older children and adults keeps the nasopharynx and tonsillar regions fairly clean. There is not much desire for food during the first three days. Cold fluids can be taken first. Hot foods, acid or highly spiced foods, should be avoided for a few days. Constipation must be avoided by appropriate measures.

Other complications. Abscess of the lungs occurs rarely, and almost never after tonsillectomy under local anesthesia. It is probably an inspiration infection occurring during the deep anesthesia, permitting the suction of infectious materials squeezed out of the tonsils or adenoids during the operative procedures. More frequent and continuous use of suction during the operation should reduce the occurrence of this rare accident. Deep cellulitis of the neck may occur but can be minimized by careful avoidance of needless trauma. Metastatic inflammations in other parts of the body may be reduced by the selection of operative procedures causing the least amount of trauma and the avoidance of introducing new infections by the use of gloves and attention to aseptic precautions. Acute otitis in children can usually be prevented by keeping the nasopharynx clean and by the careful supervision of every hygienic detail during the first ten days of convalescence.

27 WEST SIXTY-EIGHTH STREET.

CLINICAL AND LABORATORY TESTS IN HYPERTHYROIDISM.

By HENRY R. HARROWER, M.D., F.R.S.M. (Lond.).

GLENDALE, CAL.

THE diagnosis of early hyperthyroidism is difficult if not impossible without recourse to the laboratory. It is easy enough to "spot" the typical cases with the four pathognomonic symptoms; but if the diagnosis is not made in the incipient stage, treatment is not by any means satisfactory. Hence every effort should be made to differentiate hyperthyroidism as early as possible, and for this reason the clinical and laboratory tests deserve to be better known and more often used.*

One of the most constant results of hyperthyroidism is a condition of sympathicotonus, in which the nerve endings of the sympathetic and the vasomotor systems are markedly sensitized to the influence of adrenin; so much so, that slight doses of this principle give a more rapid and decided reaction than is seen in the normal individual. Several tests have been originated which involve this effect, while others, equally or more efficient, are outlined here.

Loewi's Mydriasis Test.—Loewi discovered this test while experimenting with artificial diabetes in animals. He found that the instillation of a couple of drops of 1:1000 adrenalin chloride into the conjunctival sac causes the pupil to dilate within a half an hour, and that this condition remains from 10 to 18 hours after arriving at the maximum divergence, which occurs within an hour after the adrenalin is applied. He reasoned from this that here was a possibility for forming a test to determine sympathetic irritability. The adrenalin stimulated the sympathetic, in turn controlling the dilator fibers of the pupil. Hence, the facts when followed in order argue for the application of this test in latent hyperthyroidism. The thyroid and adrenals are synergistic and both stimulate the sympathetic; therefore, in hyperthyroidism the sympathetic would be irritated and an abnormally early response would follow the entrance of adrenalin into the al-

ready irritable sympathetic system. This does occur and has become widely known. The test is not absolute, but as a routine is of some advantage in filling out a puzzling clinical picture. In Loewi's test it is well to remember that in addition to the mydriasis there is a diminution or total absence of convergence miosis, but the light reflex remains undisturbed.

Goetsch's Test.—Another more popular adrenal test is that of Goetsch, of Brooklyn, a test also based on the excessively irritated state of the sympathetic in hyperthyroidism. Here the adrenalin is injected hypodermically. Eight minims of the 1:1000 solution are diluted with an equal amount of sterile water and injected into the arm. Immediately the area around the point of injection blanches and at the margin of this is a red areola gradually shading off into the normal skin color. In about half an hour the center of the area becomes lilac or lavender in color, and in from one and a half to two hours the red areola becomes of a lavender color, while the similar color at the center disappears. The lavender areola is the characteristic part of the test and lingers for about four hours after the primary injection. The local reaction may be accompanied by augmented hyperthyroid symptoms, such as tachycardia, exaggerated tremor, and anxiety.

Goetsch's test is particularly valuable in the group of cases in which the excessive functioning of the thyroid is responsible for psychoneuroses, psychasthenia, and neurasthenia, without any appreciable ocular, vasomotor, or cardiac symptoms. It is also especially helpful in establishing a diagnosis in latent cases, and has been recommended highly in the differentiation of incipient tuberculosis from early thyroid hypersecretion, as the response is negative in tuberculosis that is uncomplicated by hyperthyroidism. Goetsch believes that a positive reaction in a tuberculous case is accurate proof that hyperthyroidism is present. This procedure has been thoroughly tested at the Trudeau Sanatorium and has been shown to be of value in determining borderline cases with thyrotuberculous symptoms.

Thyroid Function Test.—My own gland feeding test has been used quite extensively in determining the prehyperthyroid state and also to check up clinically on the capacity of the thyroid gland to respond to endocrine stimuli in a given case. A detailed explanation of this test is given elsewhere. It may be well to cover its most salient points here and let the reader's own desires and interests carry him further into the literature. The test is based on the fact that thyroid influence makes its early manifestations by way of the heart, i.e. an increased pulse rate. If the thyroid is irritable and about to start out on a rampant hypersecretory campaign, the pulse will show an early rise and will continue to be rapid for two or more days following the test. A normal thyroid will be but mildly surprised and react accordingly—a slight, fleeting increased rate. The hyposecreting gland pays but little attention to the nudge given it by the ingested glandular substance, and little or no change is observed.

The recommended application of the test consists in giving four daily doses of thyroid extract for three days. The first day $\frac{1}{2}$ grain is given, the second day 1 grain, and the third day 2 grains at

*Metabolimetry is the subject of another paper to be published later.

8, 10, 12, and 2 o'clock. The pulse is taken five times at regular intervals (9, 12, 3, 6, and 9 o'clock) for one day preceding the test, during the three days of the test, and for two days following the discontinuing of the capsules.

This thyroid function test obviously is not a measure intended to be used in frank hyperthyroidism, for the pulse rate in these cases already is high and often irregular. The test was developed by me in the study of latent dysthyroidism, especially those cases presumed to be complicated by a thyroid functional *apathy*. While it is true that latent thyroid *sensitiveness* also is discovered by this measure, it cannot be used when conditions have reached a stage of cardiac irritability and tachycardia. In early cases, however, it is useful and the chart will show clear-cut evidence of the difference in the reaction of a case of thyroid *apathy* as compared with one of thyroid sensitiveness.

A critique of this test is made by Bram, of Philadelphia, and his statement is willingly published here: "The administration of thyroid extract to a patient already suffering with thyroid toxemia nearly always aggravates the symptoms. It is for this reason that it has been administered in specified dosage at stated intervals during three or four days or longer, in order to observe whether existing symptoms are aggravated, or vague symptoms rendered clearer. This test is mentioned merely to be condemned, for not only is its reliability as an accurate and useful supplement in diagnosis called into question, but a hyperthyroidism formerly more or less latent may be whipped up to become very active and malignant in its course." This merely emphasizes, in perhaps a somewhat exaggerated way, what I have repeatedly stated, namely, that the thyroid function test is not a test for frank hyperthyroidism.

Glucose Tolerance Test.—Since the work of Tachau in 1911, much has been done in the study of alimentary hyperglycemia in hyperthyroidism. The older methods of blood analysis were slow and complicated, and hence such investigation could not be carried out extensively until the simpler methods of blood sugar determination were brought into practical use by Lewis and Benedict, Meyers and Bailey, and other technicians.

As in the estimation of the basal metabolism, the discussion of which must be left for another paper, it is necessary to eliminate all sources of error by fasting and resting, so in the blood analysis for glucose it is necessary that the patient fast before the blood is taken. The patient is then given 100 grams of glucose by mouth. One hour following its ingestion a second blood specimen is taken, and in another hour a third sample is drawn. It is well to examine the urine before the test and at the time of withdrawal of each blood sample, although the glycosuria that may be present is not of such diagnostic importance as one might at first think, as the urinary sugar would only involve what is termed "the renal glucose threshold" rather than the thyroid function. A normal individual who has ingested 100 grams of glucose does not show an increased blood sugar content that lasts an hour. There is, however, an immediate increase of blood sugar, but this soon subsides before the hour is up. A few exceptions occur to all rules but the hour

limit is a safe one to set for normal people. Probably half an hour is usually sufficient to lower the crest of the sugar wave. The technique of the method is found in the papers of Wilson, Smith and Janney.

In hyperthyroid cases the sugar wave, plotted from the several findings, reaches its crest at the end of the first hour—falling to normal by the end of the second hour in the great majority of cases. So constant is this finding in hyperthyroidism that it corresponds favorably in diagnostic import with the basal metabolism test. It makes no difference to the diagnostician whether the findings of the basal metabolism test or the blood sugar results are due to a direct action of the thyroid or indirectly are brought about by the influence of that gland—the fact remains that these two tests are constantly positive in hyperthyroidism and are highly necessary to the physician in accurately determining the prognosis and treatment of his suspected thyroid cases.

McCaskey's final decisions regarding the value of the study of the alimentary hyperglycemia are as follows:

1. That alimentary hyperglycemia following 100 grams of glucose is present in probably every case of thyrotoxicosis.

2. That it is rarely, if ever, present at the end of the first hour in normal persons, although it may have occurred at the end of about thirty minutes.

3. Its presence, therefore, in one hour and especially in two hours always indicates abnormal carbohydrate metabolism unless the gastrointestinal function is delayed.

4. It occurs in latent, and of course in manifest diabetes, in alcoholism, malignant disease, arthritis, and very probably in a considerable number of infections—acute, subacute, or chronic—in the same category with arthritis.

5. Before attaching a positive diagnostic value to alimentary hyperglycemia in suspected hyperthyroidism, these conditions and possibly others of which we are now learning must be excluded.

6. While its positive value can only be considered corroborative, its negative value in excluding hyperthyroidism is very great and probably exceeds 90 per cent.

7. In hyperthyroidism there is no constant direct ratio between its intensity and the height of the alimentary hyperglycemia, although in general the blood sugar values are high in severe cases.

8. Too much importance should not be attached to alimentary blood sugar values below 140 mg. of sugar in 100 c.c. blood, although sharp lines of demarcation cannot yet be drawn.

The Quinine Test.—Bram of Philadelphia has recently reported a procedure which consists in the progressive administration of quinine by mouth: "The patient is given a dozen capsules, each containing ten grains of the neutral hydrobromide of quinine, with instructions to take one capsule four times a day, to be washed down by an ample quantity of lukewarm water, an hour or two after meals and at bedtime. By the time thirty, forty, or fifty grains have been taken by persons whose thyroid function is not excessive, there develops a sense of fullness in the head, impaired hearing with tinnitus, often dizziness and headache, and occasionally a

feeling of slight gastric and bladder discomfort. Persons possessing a degree of susceptibility or idiosyncrasy will experience these symptoms after the first or second capsule, while those to a degree tolerant may not complain until sixty to one hundred grains have been taken. In the presence of a hyperactive thyroid, no symptoms develop from the daily administration of quinine hydrobromide even if given during a period of weeks or months; on the contrary, improvement in the Basedowian syndrome is frequently observed." Subjects of thyrotoxicemia are exceptionally tolerant to quinine administration during the course of the disease, and for a long time, usually years after the cessation of the thyrotoxic process. In fact, this toleration to the drug in moderately large doses practically amounts to an immunity.

According to Bram, "the quinine test seems valuable and quite reliable because of its simplicity in application, its harmlessness, and the fact that it does not require an especially trained individual to make the observation. Though there may be a 5 per cent. to 10 per cent. error in its use, it is especially commendable since its interpretation does not depend upon an aggravation of the symptoms of hyperthyroidism, but there is rather an improvement of the Basedowian syndrome in many instances.

Aberhalden's Ferment Test should be mentioned, though I do not believe it to be practicable in the hands of the clinician. Rosenbloom of Pittsburgh gives a recent and very comprehensive consideration of this subject and the somewhat complicated technique of the method. Lampe of Halle and others have thought that the serum of hyperthyroid individuals contains a specific antibody to thyroid tissue and they suggest that this can be determined by following the somewhat complex system of determination originated by Aberhalden.

The Pituitary Test, originated by Boudouin and Porak of Paris, is also used to determine the presence of excess thyroid principle in the blood stream. One milliliter of the extract from the posterior lobe of the pituitary gland (Liquor Hypophysis, U. S. P.) when injected into the patient causes the pulse to become slower within two minutes of the injection. In thyroid toxemia this effect disappears in about eight minutes. In normal individuals the injection of a similar amount of liquor hypophysis causes an acceleration of the pulse, which shortly becomes stationary in five to seven minutes and usually returns to the normal within fifteen minutes.

Marañón's Skin Reaction.—A certain dermatographic sign, believed to be quite commonly present in hyperthyroidism, has been described by Marañón of Madrid. Since he noted it present in 92 out of 100 cases, irrespective of their clinical type, it seems worthy of mention here: "By slightly rubbing or pressing with the fingers the integument of the throat an intense vasomotor reaction may be provoked. It is not confined to the area rubbed but may extend to the anterior wall of the thorax. In goitrous subjects the distribution is markedly influenced by the area of the goiter, whether unilateral or bilateral. The red area may be continuous or dissociated, and in certain cases an urticarial component is evident, the area showing slight elevation. The mere fact that the practi-

tioner is about to compress or stroke the skin may cause the phenomenon without actual contact. A blush may appear independently on the thorax or other distant point. A proportional or quantitative behavior has not been seen, and the vasomotor irritability is quite independent of the degree of hyperthyroidism in a given case. The author claims a certain priority in calling attention to this symptom, although Chvostek has called attention to the unmotivated blushing of the hyperthyroid subject. The author believes that excess of thyroid or altered thyroid secretion has sensitized the vasomotor apparatus and he would place the phenomenon under sympatheticotonic manifestations. It is seen predominantly in women, in the young, and at the menopause."

A French cardiologist, by name Lian, believes that tenderness in the region of the thyroid is an early sign of a tendency toward hyperthyroidism. The cardiac symptoms in the minor forms of hyperthyroidism may be mistaken for a cardiac neurosis. The tachycardia may be moderate and occur only when standing or working or under emotional stress. Certainty is attained in these questionable cases by the pain expressed when the thyroid region is palpated or explored with the point of a pin.

Berkeley and Koopman report a new test for checking up on a clinical diagnosis of tentative hyperthyroidism. From their statements it would appear that this test bids fair to be as reliable as the blood Wassermann for lues, having been used by them in hundreds of cases with controls to offset error. The reaction is thought to be due to a specific thyroid substance which combines with the antibody in the patient's blood.

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REESTABLISHMENT INSURANCE.

ORGANIZATION FOR THE PURPOSE OF ADDING MATERIALLY TO LENGTH OF DAYS AND ENHANCING PRODUCTIVITY.

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The most useful, practical, and paying field of medicine is only beginning to be developed. That is systematizing the resources and measures for raising and prolonging the coefficient of working powers in those of middle life, while one is at the zenith of one's trained capabilities.

The profession has attained ample knowledge and expertness in maintaining survival and productive values, but as to this the public is slowly awakening or appreciating. Having aimed at this objective for a life time, and like others suffered discouragement from indifference, it has become my conviction that the only way to seize and hold attention to this self-sacrificing enterprise is to reduce to a strictly business basis the problem of preventing decrepitudes. Not until a captain or private of industry can be shown how he can earn or save more money, is it feasible to get and hold his attention to a health conserving proposition.

Like all novel ideas, or unfamiliar applications of established principles, this one of adding not only to length of days but to working powers, will take some time to make itself a part of customary business procedure. Reasons for acceptance may be complete but realization comes slowly, conviction more slowly, and action most slowly. Only after long years of demonstration, through vast accumu-

lations of evidence, is it possible for a novel business method to become established in the folkways of society.

It is an accepted fact of the mind workings of the group, of social psychology, that currents of human conduct depend on leadership. Such leadership is the product of business foresight, rather than that of urgent or conspicuous economic needs. The want may exist, the urge may be strong, but the demand will not become expressed until the way is pointed out, clearly, repeatedly, and through a mass of experiences and demonstrations. The first deciding factor is the offer of an attractive safe business proposition.

Life insurance as an enterprise developed slowly, but it is now esteemed as a human necessity, just like government, banking, or public utilities, or transportation, or sanitation, and the like. From the enterprise of insurance on lives, there evolved other forms, safeguarding against loss through accidents, the supplying of annuities, etc. An equally important demand is now becoming felt for the insurance of personal capabilities for sustaining productivity, for postponing decrepitudes, for fortifying the individual against the evil days of incapacity, of dependency on the earnings of others. Leadership is here plainly needed and is to be supplied by insurance companies, whether through the amplification of those organizations now established, or for the organization of new ones especially designed for the reestablishment of waning powers.

The objectives of life insurance at present seem confined chiefly to supplying funds to the survivors, financial aids, annuities, borrowing values, credits, and the like during the life of the insured person or "risk."

Other objectives should be, and can readily be, supplied of equal or greater value. The chief of these objectives, the one here being presented, includes three new economic advantages, (a) practical and scientific measures devised to prolong life, and (b) the prevention of premature senility, decrepitude, disability, hence dependency, (c) thus adding to the earnings of the companies.

The question before us is: can this be done, and if so how can it be made to become a desirable business proposition, and how to render it worth the while of the insurance companies?

This problem was explained, and a plan for its solution offered by me, in a paper in the *New York Medical Times* May, 1920, entitled: "Conservation for Mature Adults as a Fine Art in Medical Specialization, with Special Reference to Amplifying the Scope of Life Insurance." These facts and propositions were submitted to the medical directors of all the larger life companies as many as four times and forms. No notice, practically, was taken of my communications. Why?

Competent business men, and also insurance experts confidently assured me that the reason for this indifference to my sendings was the fact that no strictly or definitely business proposition was offered, no obvious method of reducing the proposition to a dollars and cents basis, for the life companies to work upon. It would seem that as yet money making is the chief, perhaps the only, consideration and not the essential welfare of the in-

sured person. This omission it is my purpose now to offer means for supplying.

I will sketch out the present proposition and then proceed to outline succinctly the scientific basis for the economic recommendations:

One of two forms of policy may be offered, either (1) to supplement the present forms and conditions by adding a clause to the effect that, in addition to any existing contract the insured person shall further covenant to accept and abide by the advice of qualified experts in human conservation designed to raise the coefficient of survival and productive values, to prevent premature senility, decrepitude, or disability, hence dependency, upon a basis to be set forth, or (2) to organize a separate company to issue a particularized form of policy, which contract can be sold at a much less price than the older forms because the risks will thus be materially reduced, and to a point of far less premium price than is possible with the forms of contract now in use. This policy may be described as "Reestablishment insurance" or some other suitable wording.

Now as to the improved conditions readily made available: The periods of greatest mortality are in infancy and maturity; the causes of increased mortality at both periods almost solely arise in ignorance or carelessness.

We will deal here only with the perils of maturity. Advances in medical knowledge have made it entirely possible to reduce mortality and decrepitude by the simple device of employing and following expert supervision of conduct, improvements in methods of living, or working conditions, in short, conservative personal hygiene. This enterprise by no means places any demands upon individuals to change in any objectionable way their present conditions of living or of working, except in certain rational particulars and in accord with even fuller satisfaction than before.

As to details, particulars, methods, etc., these are set forth in a book by me, now in press, entitled "The Man Who Would Be Young at Fifty."

Almost limitless resources are supplied by reconstructive hygiene, or a better term reestablishment, or conservative personal hygiene. This is the taking of an individual at any age, in any condition of life, and revising the living conditions on an economic scale, thus bringing out latent, unused, or unelaborated forces or potentialities through the use of specified improvements, here and there, in personal conduct. Thus it becomes perfectly feasible not only to raise the energy status, to overcome primary developmental defects, but also materially to remedy many effects of previous depression, deterioration, or disease or injury.

It is obviously worth while to induce an insured person to understand the significance of these facts—they are fully established matters of knowledge common to the medical profession—also for clients or risks to be induced by monetary considerations to assume a contract obligating them to learn precisely what their survival and productive status at that time is. By conforming to certain recommendations it will become practicable that their lives shall be prolonged in a manner, and to a degree, consistent with their hereditary, constitutional, or acquired endowments.

A necessary condition would be that the policy holder conscientiously shall abide by the findings of experts, in order to enjoy the special privileges provided by a contract which specifies these privileges and obligations.

Thus a purchaser of insurance gets what he pays for, a greatly enhanced productivity and expectation of life. Also he pays less by reason of accepting these conditions. The company offering the contract simply makes specific conditions through special experts, the chief of which are recommendations as to what to do and what not to do. These experts act in the interest of the companies quite as much or more than in the interest of the insured.

Such consultants would of course vary as to their knowledge in different particulars. The paramount desideratum would be to supply capabilities for raising the coefficient of efficiency in the organism as a whole. This would include skill in dealing with disorders of personality as well as of structure and function.

Proposition for Reestablishment Insurance.—The proposition includes the selection by the companies of a group of qualified experts in life prolongation and of constitutional reestablishment. These expert consultants may be as many as shall be determined, or as can be secured, and in locations and in positions accessible to policy holders.

The mode of procedure might be somewhat as follows, details to be worked out: Let there be organized a group of qualified experts in life and invigoration conservation. From these men the family medical adviser of the insured shall be privileged to select one or more, or to change as desired. The consultant acts upon his own accountability, in accord with his own capability.

The consultant selected shall make, or have made, all necessary examinations, also an appraisal of the conditions or status of the "risk"; or he may indicate what special laboratory or other examinations shall be made, convenient to the risk, or through the collaboration of the family adviser. He shall then assemble the findings, formulate a series of recommendations in accord with the needs as found, and then send copies in triplicate: (1) to the insured individual, (2) to the family physician for his comment and consideration and to carry out details, and (3) to the medical director of the company. Thus there is a four-cornered copartnership of interested individuals or parties, the insured person being the fourth.

The insured persons should submit themselves for conference and inspection to the expert consultant once in so often, consonant with the needs of the conditions found, or as may be agreed.

In the instance of an individual of excellent physical status and habits and capabilities, willing to cooperate in spirit as well as letter, the supervision need be only occasional. The conditions for success are, however, consistency and faithfulness in cooperation, and a recognition of the special obligations.

Remarks.—That period of life—full maturity—when one's powers of mind, of body, and of proficiency are at their highest, is also the period when the most serious perils, or organic deteriorations, assail. The gravest carelessness or ignorance is then too often exhibited as to personal welfare.

At full maturity the earning powers are at their zenith through multiplied and elaborated experiences, habitudes, and special trainings.

These earning proficiencies and facilities are called "automatics" whereby one is capable of doing many times more work than before, and with the least expenditure of effort. This zenith of productivity remains for only a few years at best. Capabilities can be indefinitely prolonged by wise economies of energy, of structure, and of functional integrity.

Obviously it is desirable that every effort shall be made to conserve these productive automatics, as well as elaborated powers, for service and enjoyment. At least it is well worth while to postpone decrepitude, a state of dependency on others.

As a people we are too prone to let well enough alone. We need rational or financial inducements to bring and keep our bodily and mental fitness up to par. We have, however, been sharply impressed of late with the economic value of sustaining physical and mental soundness. Emphatic evidences are adduced by the confusions and blundering prodigalities wrought by the world war.

We have been subjected to extraordinary and severe stresses upon body and mind, many of which become destructive, but are capable of remedy by judicious regulation of conduct. In short, the average citizen needs expert explanation, counsel, and consistent encouragement to pursue right courses of action. The tendency of the individual is to neglect seeking such counsel unless urged upon a pecuniary basis. This endeavor the life insurance companies can, and should, encourage to the advantage of both the company and the individual.

It is a matter of common knowledge that while there are available, in every civilized community, many physicians fully competent to reach admirable diagnoses and to treat conditions of disorder, disability, or acute or chronic illness, there are relatively few who also interest themselves in the more practical aspects or systematic methods of raising the coefficient of efficiency in accord with personal equipment and design.

Obviously it is desirable that those who are qualified to contribute to raising the coefficient of robusticity, productivity, and survival, should be encouraged to do so and be given adequate opportunities for specializing and in rendering service. It is equally obvious that such expert counsellors could be enabled to contribute their powers to human welfare, and that the best means of doing so is through economic and beneficent organizations on a business basis.

1504 PINE STREET

The Emotional Reaction.—Waller of London described before the Société de Biologie de Paris what appears to be a variation of the psychogalvanic reflex (although he does not make use of that expression). If the hand and later the forearm of certain subjects are intercalated in a Wheatstone bridge, the passage through the sensorium even of a minimum emotion will cause a sudden diminution of the electric resistance measured from the palm to the back of the hand. We may make three types in regard to resistance: normal, supernormal, and subnormal. In the supernormal the test is positive even in the forearm, while in the subnormal the reaction is absent even in the hand.—*La Presse Médicale*.

TRIPLE CALCIUM PHOSPHATE AS A STIMULANT FOR BONE REPRODUCTION (HEALING) IN FRACTURES.

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In the winter and spring of 1912 and 1913 Dr. Schultze and myself were engaged in a series of experiments to determine the manner in which embolism occurs from fractures, especially when they take place in old tuberculous areas and ankyloses, when, during an attempt at reduction the bone is fractured. In one year at Professor Lorenz's Clinic in Vienna, two patients died during the forcible correction and reduction of an ankylosed joint. It is nothing unusual for a fracture, especially in the old, to lead to embolism of the lung and death.

While engaged in the work of determining the cause of the frequency of these emboli, we became interested in the factors which are active in causing bone to unite after a fracture. The two essentials necessary for the union of a fractured bone are first, cells, which are active in forming the structure of new bone; and second, calcium phosphate, which is deposited in such bone and renders it hard. The cells, which are concerned in the formation of new bone are practically always present at the site of fracture. They are supposed by some to be the connective-tissue cells, which metamorphose in one direction into fibroblasts, and in the other direction to cartilage, and then to bone forming cells. At the site of the fracture there are two types of cells, the fibroblasts and lacunar cells, which are also present in bone. The lacunar cells consist of two varieties, the osteoblasts, which form the bone; and the osteoclasts, which are the phagocytes, the destructive elements in bone, i.e., the cells, which form the lacunar spaces. These osteoclasts are possibly a further development of the osteoblasts; some claim they are marrow cells.

For the formation of bone it is necessary that a matrix be present. This is in the form of connective tissue joining the ends of the bone. This connective tissue deposit is likely the result of the activity of the fibroblasts. Later from the osteoblasts, which are drawn out from the haversian system and the lacunar cavities, the deposit of calcium begins to take place. Cavity formation corresponding to lacunar spaces is formed. These cavity formations finally become larger and are broken down by the osteoclasts, until typical bone develops between the fragments, and union takes place. The question now arises, how and in what manner are these regenerative factors stimulated into activity? What is the influence that causes fibroblasts to increase in number, and draws out the osteoblasts from the bone spaces? In the work which Dr. Schultze and myself did, and recorded in the *Münchener medizinische Wochenschrift* in Dec., 1913, we found a negative pressure 0.8 mm. water in the medullary cavity of the tibia of the dog.

This negative pressure in the cavity of bone would have a tendency to keep the cells intact and to draw the blood from the cortex into the large medullary spaces. If suddenly, through a fracture, the con-

tinuity of the bone is interrupted, this pressure would be changed, so that instead of being negative, it would be positive. The tendency would be for the bone to bleed on its ruptured surface, so that cells and other materials would be thrown out of, instead of being drawn into, the medullary cavity, and would be emptied from the surface of the bone, or at least from the broken ends of the fragments. In this way bone cells would likely be included in the blood clot.

However, in an experiment which was made by us, we were unable to develop any bone from a centrifuged specimen of 10 c.c. of blood, which had been collected at the site of a fracture.

Other elements may be active in stimulating bone regeneration, such as the presence of a chemical substance at the site of the fracture, this chemical substance acting as a stimulus. It is known that all cells have an exciter, which stimulates them to vital activity and reproduction. In animal cells, it is generally some toxic body which has been cast off.

Ross, in his work on reproduction in cancer, found that a substance which he called cadaverine, when supplied to cells, will cause an increased reproduction. He also found that this substance resembled theobromine, which has a similar action. In the study of Ross's work, we were impressed with the fact that there is in every tissue a substance which will stimulate cellular reproduction of the cells of that tissue. We were also impressed with the fact that where there is inflammation of the bone there is a great deposit of calcium salt in the inflamed area, and that this calcium salt seems to be taken away from the surrounding bone structures. This is particularly in tuberculosis of bones in the neighborhood of joints. We were also impressed with the fact that the more extensive a fracture, the greater is the amount of callous formation.

In inflammation of the bone, the bone is destroyed and calcium is liberated. This liberated calcium evidently must act as a stimulating factor for increased bone production. Where there is considerable destruction of bone tissue, the same thing takes place. The fragments of bone become dissolved and the calcium is freed, thus permitting it to stimulate to an abnormal degree in bone cells, which are present in the area of its deposit. With these facts in view, it was thought that calcium or phosphorus or the combination of both in the form of calcium phosphate might be the stimulating agent for bone growth and it was decided to use calcium phosphate and see what effect it would have upon bone reproductive activity. These experiments were performed, and I give them below.

The following experiment, made on Jan. 17, 1913, indicates the effect which calcium phosphate has upon new bone formation. On this date the medullary cavity of the tibia of a dog was opened by a drill hole through the cortex and a considerable quantity of calcium phosphate was introduced into the medullary cavity. The hole was then plugged with an ivory peg. On Feb. 9, twenty-three days later, the dog died. At first it had been slightly ill, but then improved. Recently, it had become very sick. Examination showed that the bone had greatly increased in size. It was as thick again as normal, extremely hard and dense. The growth seemed to be subperiosteal.

The following experiment performed also indicates that there is likely a bone formation when calcium phosphate is used. On Feb. 17, 1913, a trephine opening was made into the tibia and some of the marrow was removed. This, along with calcium phosphate, was inserted into the abdominal muscles on the left side. The opening of the bone was then filled with calcium phosphate, which was also sprinkled in between the muscles.

On examination, March 3, 1913, a small lump was found at the place where the marrow had been implanted in the abdominal muscles. On sectioning, there was no evidence of bone formation. On March 7 the dog was killed. The periosteum was found much thickened. The trephine opening in the bone was already closed by a hard mass. The calcium phosphate showed as a dark chocolate-colored grumous mass, between the muscles and over the bone.

On March 5, 1913, a piece of muscle was inserted between the periosteum and the bone on the tibia of a dog. Calcium phosphate was also inserted between the muscles. When the dog was killed, the limb from which the periosteum was dissected free, and muscle tissue inserted beneath showed a thick layer of fascia separated from the bone with a longitudinal depression corresponding in shape to the free slit of periosteum. Closer inspection showed a thin layer of tissue resembling cartilage.

On Dec. 16, 1912, a piece of periosteum from the tibia was carried through the muscles on the outer side of the same limb. One end of the periosteum was left attached to the bone. On March 6, when the dog was killed, the periosteum, which had been passed through the muscles, could hardly be recognized as such. It, and the adjacent surrounding fibres, formed a thick mass of tissues.

From the above experiments it seems that in no case were we able to definitely form anything resembling bone, except in those cases where calcium was in association with bone itself. In these instances, the calcium seemed to be an active inciting agent for the formation of new bone.

Even after the bone structure has been laid down there may be an absence of calcium salt at the part. This exhibits complete ossification. Calcium salts can be supplied by two methods: first, through the blood, and second, by direct implantation. In supplying calcium through the blood it is well to feed the person upon tissues containing plenty of calcium. At the same time they must have a normal amount of vitamins in order to supply the fundamental principles necessary for the cellular reproduction. These vitamins are contained in vegetable foods and in fresh milk, which has not been sterilized. They may also be found to a certain degree in yeast. However, the chief essential is calcium, and this can be supplied directly by using it in drug form in the different solutions of calcium phosphates, etc., which are now on the market. A direct supply of calcium phosphate is brought about by the surgeon when he inserts bone fragments around the line of a fracture. Every surgeon knows that the insertion of these fragments will stimulate bone growth. He also knows that these inserts do not live; therefore, it is due to the breaking down of the fragments and their absorption that calcium phosphate is freed. We have made use of this fact

and have supplied calcium directly to the bone by injecting it through needles with a syringe, in cases in which a fracture is not uniting rapidly. In cases requiring an open reduction we have smeared the ends of the fragments with calcium phosphate in the form of a paste made of calcium and water, or have rubbed the calcium phosphate directly into the bone tissues. Calcium phosphate in both of these conditions seems to have a great stimulating effect upon the regenerative powers of bone.

These results were confirmed experimentally by Dr. Albee in work done at the U. S. Army General Hospital, No. 3, at Rahway, N. J. (See *Annals of Surgery*, 1920, lxxi., pp. 32-40.)

JENKINS ARCADE.

A CONCEPT OF X-RAY PATHOLOGY.

XI. ESOPHAGOPATHY.

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UNDER ordinary conditions the gastroenteric tract is of varying degrees of radiolucency and even radiopaque; so that it is necessary, for the determination of x-ray pathology, that there be introduced into the canal a radiopaque mixture. The desired qualities of the radiopaque mixture are determined by the part of the tract examined.

It is well to conceive the gastroenteric tract as a continuous muscular tube lined throughout with mucous membrane and at every point dominated by the sympathetic nervous system. There has been much to indicate the importance of the autonomic control of the viscera; but there seem to be relatively few who take any especial cognizance of the effects of the sympathetic control when studying the gastroenteric tract, by its motility, under the fluorescent screen.

It would appear that, anatomically, there are two types of physiological activity present in the vegetative nervous system. The one has been termed sympathetic; and the other parasympathetic or autonomic. The nonvoluntarily influenced organs, smooth muscle structures, heart muscle, and glands derive their innervation from the spinal cord from the first dorsal to the fourth lumbar segment, and in a narrower sense, belong in the sympathetic system. All other structures are controlled through the parasympathetic or autonomic system. Both systems are mutually antagonistic in their muscular effects, but are mutually cooperative in maintaining a physiological balance in the parts by them innervated. The interdependence of the two systems is at once obvious; and any influence that may affect one system may indirectly yet positively affect the second system. That this is so may be inferred from the clinical division of sympathetic and autonomic system disorders into three major groups: (1) Angioneuroses; (2) trophoneuroses; (3) organoneuroses.

Among the organoneuroses there are well established gastrointestinal syndromes. In this group would be included tabetic gastric crises; but equally important to the x-ray pathologist are also the vagotonic manifestations in the gastrointestinal tract including esophageal cardiac spasms, sialorrhea, retarded peristalsis, hypersecretion, and hyperacid-

ity accompanied by pylorospasm. These disorders are not yet completely analyzed, but they are of extreme clinical importance, they being particularly accentuated and their manifestation offering markedly impressive phenomena during the x-ray investigation of the gastrointestinal tracts of those suffering from war neuroses.

X-ray pathology of the gastrointestinal tract is elicited from studies in contour. These studies are directed first to the determination of the absolute contour and secondly to the time study of the rate and manner of food-bolus progress. For purposes of x-ray study the tract may be divided into six sectors: (1) The esophagus; (2) the stomach and the duodenum; (3) the jejunum and ileum; (4) the ileocecal locus; (5) ascending, transverse, and descending colon; (6) the sigmoid flexure and rectal ampulla.

ESOPHAGUS.—For the elicitation of esophageal pathology the patient should preferably stand or sit so that the esophagus is vertical; he should be rotated at an angle of about 45° to procure an oblique view, preferably right anterior oblique position. The exact angle is determined beforehand by fluoroscopic examination, rotating the patient until the greatest space is obtained between the shadow of the vertebral column and that of the heart and aorta. After satisfactory posture, the patient is fed the bismuth mixture recommended by Hirsch.* As the bismuth-acacia descends the esophagus it coats the walls along its path. Each mouthful may be followed along the entire course of the esophagus. Other methods have been suggested by various writers for outlining the esophagus. Bassler used a tube with a distensible rubber bulb at the end which he introduced into the stomach, filled the tube and bag at the tip with water, and pulled the tube up so that the water distended bag blocked the cardiac orifice. After thus sealing the esophagus he introduced a barium suspension through the mouth.

Crimp used a sealed sausage skin, which he had the patient swallow, and then distended it with an opaque suspension. This method often requires co-cainizing the pharynx.

Since the form study of the esophagus is instrumental in arriving at an inference of the type of pathology present, obviously the x-rayist should be familiar with the anatomical normality of that organ. It presents a total length of about twenty-five centimeters; it has an irregular caliber presenting five definite constant constrictions. These are (Carman): (1) At the introitus, (2) at the aortic arch, (3) at the crossing of the left bronchus, (4) at the esophageal hiatus, (5) at the cardiac opening.

Carman divides the swallowing act as observed with the x-ray into two phases, a pharyngeal and an esophageal. At the first phase the food mass accumulates before the esophageal introitus, where it exerts pressure until the sphincter relaxes. In the second phase, the food courses down the esophagus arriving at the cardiac sphincter, where it is momentarily halted, and then enters the stomach. The time required for the passage varies a great deal

*Bismuth subcarbonate, one-half ounce, in mucilage of acacia, one dram. When first mixed the paste is dry and granular; but by continued stirring it becomes smooth and homogeneously viscid.

with the consistency of the suspension. There seems to be little significance attached to the peristaltic waves of the esophagus. They may be present or absent; but they attain no known pathological significance unless exceptionally exaggerated, as in stenosis, or their direction reversed, as in obstruction. Both of these variations are not frequently visualized.

The shadow of the esophagus may retain a normal morphology, the entire tube changing its relatively normal position by reason of the pressure exerted against it owing to the concomitant presence of an aneurysm or of pleural, pulmonary, or mediastinal inflammation, tumors, substernal thyroid, vertebral disease or deformity, or cardiac enlargement. The displacement is quickly recognized as is sometimes the cause; or the morphology may change as the result of an addition as in the case of diverticulum; or the normal diameter at any point or along the entire tube may be increased owing to dilatation, or decreased owing to a stricture or stenosis; or the continuity may present a tear as the result of rupture; or the normal smoothness of the esophageal wall may show local roughening due to ulcer or marked deformity due to cancer. In addition to the morphological changes, one must observe the character and rate of the food passage particularly with reference to the possibility of an arrested progress at any point.

Spasm of the Esophagus.—Spasmodic stricture of the esophagus may be met in hysterical patients and in cases of chorea, epilepsy, and particularly hydrophobia (Osler). There is no complete survey available in the literature that deals with the autonomic reflex morphological changes that affect the esophagus as a result of neuropsychiatric disturbances; but it should be remembered that the sympathetic control of the esophagus is real and may be so perturbed as to induce form changes that simulate organic pathology.

Sometimes the irritant point exciting reflex spasm may be situated along the esophageal tract itself. This is so in those cases where a foreign body lodges in the esophagus and by its mechanical presence and pressure induces a reflex spasm at the point of irritation, or above or below. Spasm may also result when there is present in the esophagus a small abrasion or ulceration. In some cases the size of the ulcerative lesion is apparently out of all proportion to the severity and persistence of the spasm induced. Barclay also subscribes to this opinion and adds further his belief that esophageal ulcer is probably of greater occurrence than is generally taught. The esophageal spasm offers little difficulty in its recognition. Paralysis of the esophagus, a very rare condition and most often due to central disease, may sometimes simulate esophagismus. If the x-ray examination is conducted after an attack of diphtheria, and spasm is elicited, the possibility of a peripheral origin paralysis must be excluded. Belladonna tincture, in ten drop doses, may relieve esophageal spasm.

In esophageal spasm the law of contrary innervation is sometimes beautifully exemplified. The law is a practically derived one and amounts to this: that there are essentially two innervating systems, one dilatatory and the other constricting, involved in the musculature of the entire length of the

alimentary tract. At any given point in the course of the tract the lumen is determined by the algebraical sum of the two phenomena. If a lesion exists at any locus, and that lesion exerts a depressing or stimulating effect on either set of nerves, there is a break in the balance of the forces with the result that either the dilatatory or the constricting action is increased. At the site of the lesion the irritation is initiated. Above the site there may be dilatation, below the site, constriction; or, the reverse may be true, there being constriction above and dilatation below the point affected.

In spasm the point of constriction in the lumen is immediately recognized by the conical tapering of the shadow; and it will be observed that distal to the constricted point, the lumen is greatly narrowed, whereas proximal to the constricted point the lumen is distended with equal greatness.

Cardiospasm.—When the spastic constriction is localized at the entrance of the esophagus into the stomach, the condition is known as cardiospasm. It is typified, in its x-ray pathology, by either a blunt or a regularly conical obstruction at or near the stomach with dilatation of the esophagus above. It is important to note that in cardiospasm the tapering bismuth opacity is everywhere smooth. There seems to be, in some cases, a tendency to extreme dilatation, strongly bearing out the law of contrary innervation. When the spastic constriction is intense, the proximal dilatation is great; and when the spastic constriction is more moderate, the proximal dilatation is less exaggerated.

The x-ray appearance of cardiospasm in no way differs from that of ordinary obstruction at the cardiac orifice excepting that in cardiospasm the initial proximal dilatation is primarily the result of neurorelaxation, while in obstruction from other cause the proximal dilatation is primarily the result of muscular loss of tone. When the condition of obstruction, whether from cardiospasm or other cause, has persisted for some time, the proximal dilatation in both cases is the result of muscular atonicity.

It is unfortunate that constriction resulting from traumatic origin may sometimes give a regular and smooth tapering of the bismuth radiopacity; so that it is not always possible from the x-ray pathology alone definitely to state that the constriction is a spastic one in contradistinction to the anatomical strictures following trauma or new growth.

In cardiospasm the constriction may be dilated with a hydrostatic bag. In some cases the administration of atropine may relieve the spasticity. There were two cases of cardiospasm and four of organic stricture in which the bismuth acacia suspension was medicated with adrenalin hydrochloride.* In the two cases where the cardiospasm was pure, marked peristalsis was not induced in the walls of the dilated esophagus; but in the four cases where the constriction was organic, the adrenalin bismuth mixture initiated markedly violent peristaltic undulations in the expanded esophagus. It may well be that the use of adrenalin may make for x-ray differentiation in the cause of cardiac esophageal constriction.

*Bismuth subcarbonate, half oz.; mucilage of acacia, one dram; solution adrenalin hydrochloride (1:1000), fifteen minims.

Diverticulum.—Zenka's classification of pressure and traction diverticula forms a convenient x-ray classification. Pressure diverticula are most common at the junction of the pharynx and esophagus, and seem to favor the posterior wall. Traction diverticula affect primarily the anterior wall and are generally situated in the region of the bifurcation of the trachea.

Those of the pressure or pulsion type are more numerous. They may vary in size from five to fifteen millimeters. As the bismuth suspension flows along the esophagus some of the opaque mixture may enter the pouch and remain there, while the rest of the fluid flows into the stomach; so that the x-ray pathology of diverticulitis is that of a smooth radiopaque area at the junction of the pharynx and esophagus. Traction diverticula are associated with inflammatory conditions involving the bronchial gland. By extension the inflammatory glands impinge upon the esophagus and incite, at the common focus, sympathetic inflammation. The process may go on to chronicity and there may remain a permanent adhesion between the inflamed glands and the esophagus. As the inflammation assumes greater chronicity, gland tumefaction recedes. The receding gland pulls with it the attached esophagus and occasions a pouch in the inner wall of the gullet. Traction diverticula are relatively rare. They are best demonstrated with the patient in a recumbent oblique position rather than in an upright posture.

Carman speaks of deep-seated diverticula. The topic calls for no lengthy discussion, as there are no special criteria to distinguish deep-seated diverticula from any other sort. There can be no doubt that one source of error for failure in the x-ray elicitation of diverticulous sacs rests with the fact that the pouches are food-filled at the time of ingestion of the opaque mixture. Obviously, there being no room for the opaque mixture in the already filled sac, the pouch is not demonstrated with the x-ray. It would seem desirable to effect esophageal lavage prior to the administration of the acacia mixture in the x-ray study of diverticula.

Stricture of the Esophagus.—One classification of the causes that may lead to esophageal stricture is the following:

Congenital stenosis: (a) Complete, (b) Aero-fistulous.

Cicatricial: (a) Irritant poisons, (b) Specific infection, (c) Healed ulcers.

Tumefaction: (a) Intrinsic (cancer, or other tumor), (b) Extrinsic (aneurysm or other enlargements).

Congenital stenosis of the esophagus may assume complete occlusion of the lumen when the middle of the tube becomes a fibrous cord-like structure. A more common congenital form is that in which the lower part of the esophagus opens into the trachea or one of the bronchi. Both forms are recognized at an early stage, the one by the pronounced and extensive constriction, the other by the invasion of the bronchial tract after feeding bismuth into the esophagus.

Cicatricial stenosis may result from irritant poisons. If there is any characteristic in the x-ray pathology of an irritant poison cicatrization it is that of the extent and irregularity of the lesion.

Of course, in mild cases only irregularity remains. Specific inflammations such as tuberculosis and syphilis present nothing that is particularly diagnostic. The scars that result from healed ulcer are local. They are manifested as irregularities in the lumen of the esophagus. Stenosis of the esophagus may come from tumefaction by reason of the growth of tumors in the wall usually of cancerous nature. Cancer of the esophagus will be considered under a separate caption. There may be external pressure bearing on the esophagus and leading to stricture. Usually, external pressure causes only a displacement of the gullet. When the esophagus rests against a resistant structure and an extrinsic tumor bears upon it, compression stricture may result. It is usually possible immediately to identify the fact that the esophageal contraction is the result of extrinsic pressure.

Cancer of the Esophagus.—The site of cancer is more common as the cardiac orifice is approached. That is, they are exceedingly rare at the pharyngeal introitus, more common near the tracheal bifurcation and still more common in the cardiac portion. To elicit an esophageal cancer the x-rayist depends upon changes in the outline of the tube and upon the amount of obstruction present. When the obstruction is marked one sees a tortuous irregularity of the stenosed lumen. Occasionally, antiperistalsis may be noted about the point of constriction. Early cancer unaccompanied by marked obstruction is more difficult to detect. One must depend upon irregularity of outline, which irregularities must be carefully differentiated from other filling defects that may sometimes be present. Cancer of the esophagus is most usually epithelioma. The disease is not too common. It is more frequent in males than in females and it may be observed in quite young persons. It appears to be first confined to the mucous membrane. The cancer gradually increases and soon ulcerates. The crater of the ulcer lends irregularity to the outline of the gullet. Sometimes the ulcer crater can best be visualized if the patient is in the horizontal position. As the ulcer forms, the lumen of the tube becomes narrowed; but where the ulceration is extensive stricture may sometimes be less marked. The ulcer may perforate the trachea or a bronchus, the lung, the pleura, or any of the adjacent structures. By the x-ray picture the position of the ulcer and stricture may be determined. When the growth is very dense it may cast a radiolucent or even radiopaque shadow.

Not uncommonly the only x-ray sign is that of some degree of obstruction; and a certain diagnosis can be made only after considering carefully the clinical features of the case.

Other tumors of the esophagus are rare. Their x-ray features are not distinguishable from the pathology that would be produced by carcinoma.

Extrinsic Tumefaction.—Esophageal compression may result from external pressure. Aneurysm is especially guilty in this respect and should always be considered as a possible cause of stenosis. It can be detected by either plate or screen study.

Less frequently new growths in the neck, mediastinum, or lung may expand so that they bear on the esophagus and cause its compression. Enlarged glands may act similarly. The diagnosis of these conditions has already been considered in its proper

place and it is sufficient to remark that the x-ray can often be of positive benefit.

Rupture of the Esophagus.—Rupture of the esophagus may occur under circumstances of prolonged or violent emesis. The rupture may take place at a site near the scar of an ulcer where the wall is weakened. The condition is extremely uncommon and calls for no comment.

THE CONTRIBUTIONS OF THE PRESS TO THE LAY CONCEPT OF MENTAL ILL-HEALTH.

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ALL animals exhibit a fundamental trait of inquisitiveness which is termed curiosity. Especially is this true of the animal which we are conceited enough to designate as the human animal. In childhood this curiosity of the human animal is exercised much after the curiosity of the primates. Objects are handled and picked apart, things tasted and smelled. The curiosity of youth, on the other hand, takes issue not so much in the properties and qualities of things as in his own abilities and powers. This shifting of the center of curiosity in youth contributes to the popularity of athletic sports and other tests and provings of abilities both general and specific.

In the adult human the expression of curiosity is perhaps not so plainly evident, but it is present and is a very potent factor in the life of the organism. One might be led to think that in the adult curiosity is outgrown because it is uncommon to find an adult taking time-pieces apart to see what makes them tick, or tasting and smelling pebbles to discover their gustatory and olfactory qualities. We do find adults, however, picking the body apart piece by piece to find out how it is put together—the anatomist; examining its functions to ascertain just in what manner it works—the physiologist; or experimenting with its integrated behavior—the psychologist. What do these pursuits serve to satisfy, aside from all pragmatic considerations, but this instinctive curiosity?

With the advance toward maturity the sphere of human curiosity is thus once again seen to shift even as the impersonal inquisitiveness of the child emerged into the personal curiosity of the youth. This curiosity of maturity has two characteristics which distinguish it from the other stages of curiosity. It is more thoroughgoing, tending even in the unscientific minded to approximate a degree of scientific thoroughness, though, unfortunately, seldom with a corresponding degree of scientific accuracy and reliability. The curiosity of the adult also serves more practical ends than in childhood and youth. It is the basis of most everyday working hypotheses. To borrow terms from the field of physical science, or medicine, for that matter, we may say that in the long run of humanity adult curiosity is an applied rather than a pure function. It is exercised, in the adult, for the guidance of the entire organism rather than to satisfy the single function.

For our purposes we may also distinguish two

general trends which curiosity may follow. It is usually introverted^{*} and directed primarily toward facts and situation which center primarily around man, as in medicine, education, sociology, and the humanistic subjects. It may also be projected so it centers not primarily in man and his environment as it affects him, but into the environment itself and for its own sake, as in pure geology and mathematics. By and large, however, the introverted type is the more common. Mankind is usually interested in (that is, curious about) its own welfare and happiness. Man is interested in things as they affect him; he has his own welfare and pleasures to further and his inquisitiveness is chiefly directed toward influences that have to do with his own well-being and functions. Man's curiosity about his own well-being is reflected in the popularity of patent medicine and health secret brochures, family "doctor books," and the syndicated medical advice of the newspapers. Man's curiosity about his functions is limited in the main to two, namely, the sex function and the function that is more or less erroneously termed mind.

It is with the fundamental curiosity which is manifest toward the nature and functions, but more especially toward the disorders, of the mind with which this article is concerned. There are perhaps no other functions of the human organism which, to the layman, are as mysterious and still as practically interesting as the mental functions. And at the same time there is no group of diseases so dreaded and so universally feared as mental diseases.[†] Neither is there a group of diseases which is so commonly avoided in discussion as mental disorders and which are still intrinsically an object of great curiosity to the human mind.[‡] The main avenue through which the layman's inquisitiveness regarding mental ill-health is satisfied is the press. All other avenues, such as personal observation, preconceived notions, frank discussion, and so on, are subsidiary to this mode of satisfying one's curiosity in this case.

This contribution rests upon the thesis that in satisfying man's propensity for knowledge concerning the functioning of his mind in health and ill-health the information given should possess several characteristics which may be summed up under the caption of *wholesomeness*. That the present conceptions are undeniably unwholesome I have demonstrated in the first reference given above. That wholesome concepts are essential is a prominent conviction under which the National Committee for Mental Hygiene is forwarding its great work. In the concepts of mental ill-health it seems that the following factors are elements which contribute to wholesomeness: first, accuracy; second, the information should be presented with no unwarranted elaboration which would tend to overemphasize cer-

*The terms introverted and projected are used not in a psychoanalytic sense but as convenient phrases which best convey the distinction which is being made.

†For a justification of this statement and other statements in this paragraph see my article "Does there exist a need for a program of education in mental hygiene?" *Mental Hygiene*, iv, 2, April, 1920, pp. 393-403.

‡Some of the more influential reasons for this I have already indicated. See "Psychopathic Nursing" in the *American Journal of Nursing*, xx, 9, June, 1920, pp. 685-689.

tain points or permit of groundless interpretations by the reader; third, the information should be broadly representative of all the facts available, not playing up a few overt characteristics; fourth, the information should not savor of the supernatural or of the mysterious; fifth, the connotations should be such as to cause no vicarious transfers of unpleasant associations; sixth, factual and theoretical interpretations should be made only by one well qualified.

With this prolegomenon in mind, the four leading papers in point of influence as well as circulation in Iowa City were carefully clipped for a period of one month extending from November 15 to December 15, 1920. The papers, with the numbers of news and editorial items pertaining to mental health found in each, are given in the following table:

TABLE I.

1. The Chicago Tribune	27
2. The Cedar Rapids Republican	14
3. The Des Moines Register	12
4. The Iowa City Press-Citizen	12
Total	65

A person taking all these papers thus is seen to have an average of about two items a day on the topic of mental health. A subscriber taking only one of the above papers, on the whole, would have access to only one item of this nature every alternate day. This hypothetical subscriber to one paper only may reasonably be taken as the type. The paper with the largest circulation (1) and emanating from the largest center has double the items touching upon our subject.

It is plainly evident that our hypothetical subscriber to one newspaper has his concepts of mental ill-health refined and enlarged by the influence of his press. Not a week passes without several items which by their news nature, as is shown in the following paragraph, and their intrinsic appeal to curiosity are read and add their cumulative contribution to the lay concepts. It is our chief purpose at present to determine if this contribution of the press is wholesome as measured by the six criteria listed above.

There were 13 of the 65 items of sufficient news and interest value to make the first page. Out of the 65 items 3 were of an editorial nature, and of the 62 straight news items and features 57 carried headlines, one item, indeed, having a seven-column flare in 72-point type across the entire front page bore the message: "REFUGEES SLOWLY GOING INSANE!"

As causes of mental ill-health we glean the following with the frequency indicated:

TABLE II.

Advancing age	4
Brain pressure	1
Confinement	1
Drink	2
Gassing (war)	1
Glands, neck	1
Glands, thyroid	1
*Gout, internal	1
Headaches	1
Lack of food	1
Strain, financial	1
Strain of world war	1
Strain of railroad life	1
Sunstroke	1
Worry	2
One item stated mental ill-health to be not inherited.	

*Internal gout was stated to cause 20 per cent. of mental ill-health.

sions: Inaccuracy is most prominent in the cases of goiter (see especially the footnote to the table), headaches, lack of food. Reportorial elaboration is responsible for most of the causes given under strain and worry, apparently, out of consideration to the family reputation, trying to advance some cause which will dispel the popular delusion of organic degeneracy as the infallible cause of causes. This list of causes is decidedly misrepresentative; advancing age being the most prominent in point of numbers, while in point of emphasis the endocrine glands of the neck perhaps surpass age. It is well known, outside of the laity, that in the experience tables of institutions these causes are not nearly so influential as this month's reading would lead one to believe. In only one instance was there evidence of the interpretations or the information having been prepared by one qualified; this was in the instance of the statement that mental ill-health is not inheritable, which appeared in the health column of one of the papers. Even this statement is both true and false, but in a way may have been fair mental hygiene in dispelling worries, and at the same time poor mental hygiene in not emphasizing the seriousness of heredity. The statement regarding the causal role of goiter was made by an evangelist whom one would have expected to place the responsibility on drink rather than on the relatively offenseless thyroid.

There was little agreement in the items regarding onset and prognosis. Two items stated mental diseases were recurrent, one that the reason was recovered in time, and another (contributed by a lawyer) that it was incurable. The onset was variously described as sudden and gradual.

In the matter of symptoms we find the material particularly rich. For convenience they will be grouped in the three groups as given in Table III.

TABLE III.

<i>Subjective:</i> Mind hazy; unable to think; headaches; gloomy; lapse of memory; sleepy; funny thoughts.
<i>Objective:</i> Dangerous; raving maniac; suspicious actions; staring into space; no emotion; go without food; invent things; actions.
<i>Criminal:</i> Suicide (15 times); murder (10 times); wife beating; forging (2 times); attack on children; bigamy; burns buildings (3 times); enticing to murder; lewdness.

The accuracy of many of these symptoms as indicating mental disease is decidedly questionable as well as indefinite. Again, a tendency on the part of the reporters to elaborate must be recorded, as many of the items carried internal evidence of a serious inharmony of symptoms. The facts are not broadly representative in view of the emphasis the objective and more especially the criminal receive. One must commit suicide before any evidence of mental disease is obtained or be murdered before it is discovered that he is living with one in poor mental health. Several instances of unwarranted interpretations are seen in the items which carry a heading such as "Commits Suicide While Insane," while the item itself tells only of the suicide, with not a single reference to the mental condition. Such is the headliner's art, and the statement made earlier in this report regarding the interest in mental ill-health is mirrored in this capitalization of it to create news-value.

Seven items brought out the point that the mentally ill were legally irresponsible, and one item that in one State mental sickness was a cause for divorce.

Applying our criteria of wholesomeness to the above list of causes, we reach the following conclu-

In one instance a physician from a State hospital testified that it was possible for a person to be sane on business matters while eccentric to the point of abnormality on others.

In a recent minor experimental study* I have determined the connotative value of certain terms in use in the field of mental health and disease. For example, the term *lunatic* was the most repulsive, disagreeable, and disliked, while the term *insane* was not quite so low in connotative value and in general more desirable than *lunatic*, but still less desirable than *mental*, which in turn was less desirable than *nervous*. Arranging some of the terms used in the news items in the order of their connotative value with the least desirable (as experimentally determined) at the top, with the frequency of their use in items, we obtain Table IV.

TABLE IV.

Lunatic	1
Insane, insanity	31
Mental disease, aberration trouble, failing.....	12
Nervous	3
Psychiatric	1
Psychopathic	8
*Crazy	5
*Madness	2

*I have not the connotative value for these terms.

The above data indicated that the terms which have the most repulsive feeling-tone are most in use. And those are the terms which, from the approach of wholesome conceptions, should not be used.

Even the news-value of such terms is questionable, for not only do they create a feeling of repulsion for the subject with which they are used, but there may be a transference of this uncomfortable feeling-tone to the general situation or elements of it, and the repulsion may fasten itself on the newspaper or on the chair in which it is read. The continual use of these terms *lunatic*, *insane*, and *crazy*, however, does tend to fixate the affective state on the topic of mental ill-health itself, and this disagreeable emotional tone which enters into the lay concept is undoubtedly influential in creating a mild repression which is responsible to some extent in hindering a frank and open formation.

To summarize.—The role of natural curiosity in the formation of concepts of mental functioning has been indicated and the place of the press in satisfying this curiosity pointed out.

It was found that the contributions of the press are inaccurate, unrepresentative of the true conditions, and presented with undesirable connotations. Moreover, there is an undue amount of elaboration of the facts in this topic and of unwarranted interpretation by illy qualified persons in the publication and editing of news items.

*"Some factors involving the mental health of the community," to be read at the August, 1921, conference of the Minnesota State Board of Control.

Sudden Death from Caseous Degeneration of the Adrenals.—Cneyx and Ragot report two cases of sudden death which proved on section to have been due to tuberculous degeneration of the adrenals. Research before death as to the presence of hypoadrenia had proved to be negative. Both patients had died suddenly without any prodromes, while in less sudden deaths attributable to the same cause we find collapse, the simulation of acute irritant poisoning, or "dry cholera," and the picture described by Sergent.—*La Presse Médicale*.

Medicolegal Notes.

Payment Under Contract with Employer May Exceed Amount in Compensation Act.—In an action by a physician and surgeon against an employer of labor to recover the value of hospital services and medicines, it appeared that the services were rendered at the request of the defendants, a firm, to one Boltz, one of their employees, who was injured while in their employ. The defendants and Boltz were both within the scope of the Minnesota Workmen's Compensation Act, which made it the defendants' duty to provide Boltz with medical and surgical supplies up to \$100. The defendants contended that a contract to pay more than that amount would not be implied from a request to perform this service, and that the verdict of \$325 could not be sustained for more than the amount fixed by the act on theory of an express contract. The Minnesota Supreme Court sees no good reason why the defendants might not agree to furnish medical and hospital attention and supplies to their employee in excess of their statutory obligation, if they saw fit to do so, and no reason why they might not obligate themselves to pay the plaintiff the full value of such services, furnished to their employee at their request. The question was: Did they so obligate themselves? The evidence on behalf of the plaintiff was, in substance, as follows: The plaintiff testified that Rasmussen, one of the defendants, called him and that, while they were on their way to attend Boltz, the plaintiff asked, "What about my pay?" and that Rasmussen said: "We carry insurance; we get our money from the insurance company, and then we pay you; you don't need to worry about that." The fact probably was that neither party thought or knew of the limitation of the Compensation Act. The court thought the jury might construe the language used as a contract to pay the value of the services the plaintiff should render to Boltz. The plaintiff was permitted to say that he performed his services on the credit of the defendants and not of Boltz. This was held proper. The defendants offered proof tending to show that he gave credit to Boltz. This was a material question in the case. It was proper that the plaintiff should testify, directly, to whom credit was given. This is within the general rule that, whenever the motive, belief, or intention of any person is a material fact to be proved, it is competent to prove it by the direct testimony of such party. Verdict for the plaintiff was affirmed.—Collins v. Joyce et al., Minnesota Supreme Court, 178 N. W. 503.

Death from Blood Poisoning Through Gum After Extraction of Tooth Not Accidental.—Death through injury to the gum, caused by the pulling of a tooth which made a port of entry for bacteria into the circulatory system and directly resulted in blood poisoning, was held not within a policy insuring against "bodily injury through accidental means exclusive of all other causes." It was not alleged that the tooth was pulled by accident, nor that any accident happened while the tooth was being pulled. The means by which the gum was injured were intentionally and purposely applied. The insured knew that the inevitable result of pulling the tooth would be to break down and lacerate the gum tissue. It was the result that followed the pulling of the tooth and the laceration of the gum tissue that was unlooked for, unexpected and unforeseen. There could be no inference from the allegations that there was any accident in connection with the pulling of the tooth.—Ramsey v. Fidelity & Casualty Co., Tennessee Supreme Court, 223 S. W. 841.

Sufficient Indictment of Unlawful Sale of Cocaine.—The Circuit Court of Appeals, Ninth Circuit, holds that an indictment charging the defendant with purchasing, selling, dispensing, and distributing cocaine in and from a certain tin box, which was not the original stamped package containing said cocaine and having in his possession said tin box containing cocaine, which did not have affixed thereon appropriate tax-paid stamps as required by the Harrison Narcotic Law, states an offense under section 1 of the act, making such purchase or sale, except from original stamped packages, an offense, and the possession of unstamped packages prima facie evidence of such offense.—Dean v. United States, 266 Fed. 694.

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CERTAIN CLINICAL MODALITIES OF INFLUENZAL LUNG PROCESSES AND THEIR TREATMENT.

AMONG the very numerous manifestations of influenza which arise in the respiratory apparatus those most ordinarily met with can be grouped under the following modalities: A more or less generalized bronchial catarrh, pulmonary congestion with disseminated foci, pneumonia and bronchopneumonia, splenopneumonia with slow resolution, and complicated forms of pleural empyema. To these clinical types it is proper to add the hypertoxic form with more or less latent pneumonic foci, the asphyxic form with progressive edematous congestion, the prolonged form with persisting congestion, all serious processes; while among the mild forms should be mentioned delayed bronchopulmonary signs and the prolonged form with successive foci.

The hypertoxic form with more or less latent pneumonic foci gives rise to a temperature around 104° F., with marked prostration. Dyspnea varies in degree, cough and expectoration are slight, but the sputum is apt to be blood-stained. Auscultation reveals a few discreet rales over a limited area and obscure respiration. There is massive albuminuria and Hay's reaction is positive. The situation remains thus for some time with a temperature at a high level; the pneumonic focus reveals itself or remains latent. The dyspnea becomes more marked, likewise the blood in the sputum, epistaxis occurs, the tongue becomes dry, and vomiting or diarrhea develops. There may be delirium, and in spite of the good quality of the pulse the patient dies on the third to the eighth day, usually fully recognizing the gravity of his illness.

The asphyxic form with progressive edematous congestion gives rise to a high temperature, marked oppression, cyanosis of the lips and face, paroxysmal coughing, and if there is any expectoration whatsoever, it is frothy and pink. Auscultation reveals subcrepitant rales soon filling both lungs. This condition lasts a few days with a temperature around 104° F., and when improvement from bleeding does not continue, the edema returns, a true pneumoplegia takes the place of active congestion, albuminuria arises, Hay's reac-

tion becomes positive, the heart weakens and death occurs from progressive asphyxia.

In the prolonged type the lungs are filled with subcrepitant rales which resist the ordinary means of revulsion, the temperature varies between 101° and 103° F., and prostration is great. Cough is severe but with little expectoration. These patients die suddenly or death results from progressive dyspnea.

In mild forms with a delayed pulmonary focus or successive foci the prognosis is good. In the former there is no albuminuria and Hay's reaction is negative; the pulse is good, although asthenia is considerable. The temperature drops, but two or three days later bronchopneumonia develops and must be looked for.

Expectoration varies in these various forms of influenzal lung processes. It may be nil or very slight without influencing the prognosis, but the same cannot be said in the case of the hypertoxic or pseudophymic forms and in pneumonia or bronchopneumonia, because here, the absence of expectoration indicates paralysis of the lung. Bloody sputum, hemoptysis and dyspnea are serious symptoms, while nausea, vomiting and severe diarrhea belong to the severe forms of influenzal lung processes. Icterus is not favorable from the viewpoint of prognosis. Hyperazoturia is common but is not always related to uremia or albuminuria. The liver is markedly involved in these cases, generally being the enlarged yellow liver. Albuminuria is usual and when massive or progressive indicates that the situation is serious. The syndrome of renal insufficiency often combines with that of hepatic insufficiency, and they should be detected without delay, as they control both prognosis and treatment. Hypotension is the rule in influenza and appears to be dependent upon suprarenal insufficiency. The heart usually keeps up but the blood pressure and state of the myocardium should be watched. If the former progressively drops it is a bad sign. Occasionally the cardiac and suprarenal insufficiency become associated toward the end of the lung process and the patient dies from these late occurring phenomena. Delirium, tremor, and mental disturbances are of bad omen, and if the temperature remains at 104° F. without oscillations the outlook is bad. This also applies to temperatures between 101° and 103° F. which continue for more than ten days without remission. When the temperature goes up after an apyrexia of three or four days, it indicates the development of new congestive foci, while a progressive rise after complete apyrexia of some duration implies that a complication in the pleura is taking place.

To sum up it can be said that the lesions are in the lungs but the danger resides in insufficiency of the liver, suprarenals and kidneys, as well as the severity of the general infection.

In the hypertoxic forms of influenzal pulmonary processes a fixation abscess and colloidal metals are our most potent therapeutic measures. The latter should be given intravenously. In the asphyxic form bleeding to extent of from 500-600 c.c. is indicated

and a bad prognosis should be made when the blood does not flow freely or does not coagulate. Should the pulmonary edema recur bleeding should be repeated in two or three days. For paralysis of the lung strychnine is quite as active as any drug. Should the hepatorenal syndrome become evident—massive albuminuria, positive Hay's reaction—urotropin by mouth or intravenously is indicated, while marked asthenia and hypotension require adrenalin subcutaneously at first and later exhibited by mouth. Strychnine, sparteine and comphorated oil are the best cardiac stimulants, especially the latter given intravenously, in doses of 2 to 4 c.c. morning and evening.

NONSURGICAL TREATMENT OF CANCER.

DESPITE our ignorance of the nature of cancer it is possible to lay down certain generalizations concerning it which will stand every test in practice. In the *Bulletin général de thérapeutique* for January, 1921, clxxii, 1, Albepsy undertakes to set some of these forth, drawing upon recent works by A. Robin, Lumière, and Laumonnier. We are justified, he says, in the assumption that the cells of one subject are not entirely identical with those of another, although he may be of the same species, or even near of kin. Such an individual quality has to be considered in connection with a disease like cancer. In some individuals there is a special reactivity toward certain agencies, so that proliferation occurs more readily. It is taken for granted that in a cancer subject a point of lowest resistance must have been present—else of course there would be a far greater number of multiple primary growths. The tumor thus formed need not be malignant but the presence of a cancerogenous factor may cause it to become such. At the same time this cancerogenous agent may cause the appearance of cancer *de novo*. According to these theses we cannot expect to cure cancer by the knife but may hope to reach it by serotherapy and especially autoserotherapy. The first conclusion that the cells of each individual have their own special reactivity is applicable to the whole of disease. Two individuals of the same race, sex, age, etc., will show individual reactions in pneumonia, in typhoid fever, and in anaphylaxis. In a so-called cancer family the type of cancer may show the greatest variability. There are, of course, entire races which show immunity toward cancer. The primitive negro who seldom has cancer is by no means free from benign growths, and he has a special predisposition to fibroma and keloid. We have, therefore, to bear in mind that this sclerogenous tendency may antagonize the proliferation of the cancer cells, as seen especially in schirrus of the breast in old and spare women.

That cancer appears by preference at the point of lowest resistance is well known, although surgeons speak simply of precancerous lesions or areas of irritation. But when they say that the growth results from trauma or chronic irritation alone they go too far—else every excessive smoker would have

cancer. There is a *tertium quid* in addition to the lowered resistance associated with the cellular autonomy of the individual. The mere chemical or mechanical irritant is not necessarily the cancerogenous agent, Albepsy thinks, for first we must fully exclude the existence of some low form of life such as excites the production of tumors in plants and perhaps in certain animals. Without the presence of a constitutional factor it is difficult to understand the relations of benign to malignant tumors: for either type of growth may exist without reference to the other, or the benign growth may become malignant—while conversely under treatment a malignant growth may apparently become benign. We know that simple irritation will cause benign growths in predisposed subjects and areas; but to cause cancer in a benign growth some special causal agent would seem requisite. When a cancer has become passive and innocuous under radiation it suggests that this special cause has been inhibited for the time.

Since cancer is due so largely to the patient's individuality, the author says, we are forced to think that a curative agent can come only from the patient himself; which view is strengthened by the few recorded cases of spontaneous cure and numerous others of cure from various forms of nonsurgical treatment. For autoserum the author suggests the patient's own blood serum with or without the addition of an extract of the cancer itself. Lumière, who is working along this line in his laboratory, expects soon to report his results.

In view of the great activity shown in recent years in the study of endocrinology it is not surprising that the hormone therapy of cancer has received some attention. This is not strictly new, for the use of thyroid extract was recommended many years ago by Dr. Robert Bell as an adjuvant in the nonsurgical treatment of cancer, but it has received fresh impulse of late. About a year ago Dr. Naamé, a well known practitioner of Tunis, published a volume on cancer under the term "dyscytogenesis." The conception of the author of the nature of cancer was that it was such as should respond favorably to otophary. There is a lack of harmony, he says, between cytopoiesis, or cell production, and cytolytic, which may call for the exhibition of what he terms eutrophants or substances which make for normal growth. The cases selected by him to test his views were apparently mostly superficial epitheliomata, occurring especially in old men and women. For women he prescribed thyroid and ovarian extracts, while the men got thyroid and testicular extracts. In a case of anorectal cancer in a very old woman he gave a mixture of thyroid extract, dried bile, and pancreatine. He believes that with pluriglandular therapy something can be done for cancer. To thyroid, which is the corner stone of all treatment, he would add other extracts, depending on the seat and character of the disease. Mammine would be indicated especially in cancer of the breast with thyroid and ovarine. Men would require thyroidine, orchitine, and perhaps the substance of the organ in which

the cancer had developed (he goes no further than to suggest suprarenal extract in malignant tumors of that origin). The author has learned that Dr. Sajous of the United States holds ideas on the opotherapy of cancer which resemble his own, but understands that this endocrinologist gives suprarenal extract in all cancer. Korschewsky has recently shown an experimental basis for the influence of the endocrines on cancer development.

A SIMPLE PROCEDURE FOR AVOIDING ANAPHYLACTIC SHOCK.

ANAPHYLACTIC shock can be avoided, as Roux, Bessredka, Banzhof, and Fumelener have shown experimentally, by inducing hypnosis before the injection is given, by means of chloralose, chloral, or urethane. More recently still, Kopaczewski and the Roffos have noted that it was possible to prevent the production of acute anaphylactic accidents by means of ethereal solutions without going to the extent of producing anesthesia and these observers have attributed the preventive properties of all these substances to a common physical character they present, namely, that of decreasing the surface tension of the serum. They came to the conclusion that in the future all influence of the nervous system that has been supposed to exist in the genesis of anaphylactic shock is to be discarded, as this phenomenon depends principally on a reaction of colloidal flocculation and asphyxia correlated to occlusion of the capillary networks by aggregations of micellæ. Although regarding with reserve the part that these observers attribute to surface tension in the production of anaphylactic shock, Lumière and others have for some time suspected that the serum injection provoked the formation of a precipitate in the blood plasma which might be the initial cause of the phenomena observed.

This explanation is in accord with the well-known fact that when an animal is prepared by the injection of foreign albuminoid matter its serum at the end of a few weeks acquires the property of producing flocculation in the solution of albumin employed. It is therefore logical to suppose that the hemoclastic paroxysm induced by the secondary injection of this same albuminoid matter in the prepared animal is attributable to the formation in the blood of a precipitate susceptible of profoundly disturbing the capillary circulation. Richet, by injecting an untreated animal with a mixture of the blood of a sensitized animal and the substance giving rise to the paroxysm, obtained the usual results. Briot, Friedberger, Friedmann, and several others have also provoked anaphylactic shock by treating normal animals with mixtures of sera reacting on each other and giving rise to flocculation.

In order to verify the above hypothesis, Lumière and Chevrotier have carried out a series of experiments with the attempt to discover the chemical combinations capable of preventing the production of this flocculation. They injected sheep's serum into an ass in small but repeated doses, and forty days after the last injection the ass was bled and

the serum obtained was distributed in tubes to which various substances, including sheep's serum, had been added in order to determine those which prevented mutual precipitation of the sera. Contrary to what they expected, these observers found only a very few reagents susceptible of fulfilling this condition, the precipitate being remarkably insoluble in almost all the bodies assayed, and of those which they thought would be the best—sodium sulphocyanide, sodium ethylsulphate, and sodium hyposulphite—had not the power of absolutely preventing all precipitation.

On account of its low toxicity, sodium hyposulphite appeared to be the best of all for the prevention of anaphylactic shock, and in order to be assured of the exactitude of this supposition these observers prepared two lots of guinea-pigs by injecting into each 1 500 c.c. of normal sheep's serum. Thirty days later the animals composing one lot being taken as control animals were given an intracardiac injection of $\frac{1}{2}$ c.c. of the same serum to which was added $\frac{1}{2}$ c.c. of an 8:1000 isotonic solution of sodium chloride. Without an exception they all died in one or two minutes, after presenting paralysis of the hind legs and convulsions. In the animals comprising the second lot prepared in the same way, the NaCl solution was replaced by the same volume of a 5 per cent. solution of sodium hyposulphite and it was found that no anaphylactic accident occurred. The serum in the dose which had produced shock in the control animals gave rise to no symptom. The same experiments were repeated with antidiphtheritic serum and gave exactly the same results. Sodium hyposulphite does not appear to destroy or even attenuate the properties of the antitoxic sera, and these observers are now undertaking experiments to ascertain the influence of a prolonged contact of these bodies, with the object of demonstrating that no ill-result ensues from the use of such mixtures. They point out that they have not yet determined the action of sodium hyposulphite so far as late anaphylactic accidents or secondary serological effects are concerned, but from the results so far obtained they maintain that we now have a simple and entirely safe means of preventing anaphylactic shock.

THE DRUG LAW MUDDLE.

In a recent report of the Committee on Drug Evil of the State Magistrates' Association, Judge Collins reviews the muddled situation as it now exists in this State, and makes some suggestions for finding a way out. Since the Magistrates' Association is in a measure responsible for the present unsatisfactory law, it is very proper that it should now be endeavoring to correct the mistake then made. The report suggests that the law itself is good and indeed necessary, since it claims that the Harrison law could accomplish little or nothing in the way of repression of the evil. Then why not, in the name of all that is decent and seemly, repeal the Harrison law? Are there not enough useless and worse than useless laws already without retaining

this oppressive measure! But this only by way of parenthesis. As a matter of fact the Harrison law works fairly well—far better than the New York law—in some of the neighboring States, and if we must have one let us put up with that. But two laws are at least one too many. "It was believed," Judge Collins says, "that the Commission of Narcotic Drug Control would work out so well that any of the inadequacies of the law could be modified or changed by regulation. It seems, however, that regulations were adopted, from time to time, which aroused the intense resentment of the medical profession and the drug trade, both wholesale and retail, and undoubtedly revived peddling in the so-called underworld, and caused a great increase in the number of cases coming into the Courts, and tended to the discouragement and disgust of practising physicians and apothecaries, almost to the extent of preventing practice or prescribing."

One of these measures was the monstrous Fearon-Smith bill, supported for some perhaps inscrutable reason by the representative of the Medical Society of the County of New York, which would forbid physicians to treat drug addiction outside of institutions. Another absurd measure introduced at the same time would give legal force to the false statement that drug addiction is a communicable and pestilential disease.

The Committee does not favor the repeal of the State law for the reason, as before said, that it thinks the Harrison law could not be enforced in the State, and that under it peddling and the distribution of drugs would exist in its worst form. Judge Collins therefore in this report recommends the drafting of a bill abolishing the Department of Drug Control which has so bungled the enforcement of the law, but retaining the essential provisions of the State Law. In spite of the fact that the Magistrates' Association has before given bad advice, as the sequel has proved, it might perhaps be well to give it a chance to redeem its error, and when the new attempt fails, if it does, the way will be open to do away entirely with the State law; and then, if the Harrison law is as ineffective as Judge Collins thinks, that too may be repealed. The situation would then be no worse than it is now and might be far better—at least as good as it was before the present laws gave an impetus to peddling and led to the deliberate manufacture of drug addicts among school children in order to increase the profits of the illicit sales.

CERTAIN NEW METHODS OF TREATING EPILEPSY.

It is of course not pretended that curative remedies have been found for epilepsy but there is always room for improvements in the control of the seizures. Christin of Geneva has an article on this subject in the *Schweizerische medizinische Wochenschrift* for February 3, 1921, li, 5. He refers first to the salt free or salt poor diet which is now old, but which serves to indicate what constitutes a real advance in treatment. Along the same line is the constant effort to get relatively nontoxic bromide—containing synthetics and

bromine substitutes. The author does not seem convinced that any real advance has been made in the former field. In 1912 the introduction into practice of the veronal derivative known for short as luminal has resulted in a very extensive tryout of the latter and reports show that it not only quickly antagonizes the seizures but diminishes the post-convulsive confusion. The drug is rapidly eliminated and may be taken for weeks and even months without disagreeable by-effects. It has no power over *petit mal*. One may lessen the dosage of bromine by mixing with luminal. All in all the author regards it as a distinct advance compared with salt-poor diet, but naturally it is in no sense curative. The former use of borates has led to the introduction of a boricitrate of potassium which, it is claimed, can cut down the number of major attacks and change them to *petit mal*; and then reduce the number of the latter. This points at first sight to a curative property but time shows that this singular power is only transitory. The author has tested this salt side by side with luminal, and prefers the latter. He concludes with the latest recommendation to use strychnine in heroic doses (Hartenberg). The results claimed have not yet been confirmed.

SUCCESSFUL TRANSPLANTATION OF THE ILEOCECAL VALVE IN THE DOG.

CAUCCI publishes a preliminary communication on this subject in *Il Policlinico*, February 7, 1921, xxviii, 6. The author desired to make a termino-lateral implantation of the ileum with the valve into the colon, leaving the valve intact with the aim of watching its behavior. He wished to determine whether it would conserve its functions in its new situation. He excised a collaret of colon 5 mm. from the mouth of the ileum and then resected the cecum and implanted the ileum with valve termino-laterally in the descending colon. The function of the transplanted valve was tested by injecting water into the rectum at a constant mercury pressure under radioscopic control. In the five experiment dogs the valve was found to be intact and able to function normally in its new position. The highest pressure tested with the mercury manometer was 15 cm.—more than the valve in its normal position in the cadaver withstands. In the early days after operation there was some inhibition of the sphincteric action of the valve, while section of the small intestine or mesentery close to the valve abolished the function of the latter.

News of the Week.

Medicinal Distribution of Beer and Wine Regulated.—Tentative regulations for the prescribing of beers and wines for medicinal purposes, made public on April 7, are as drastic as could possibly be imposed under the terms of the Palmer ruling. The text of a summary of these regulations places the limit of beer which may be prescribed for any patient in any monthly period at 4 1/7 gallons, or two glasses a day, of wine at 3 gallons. The patient is entitled to get this maximum amount from only one physician and may not lawfully accept and have filled a prescription from another physician. Only

physicians may issue these prescriptions and only druggists may fill them, and both will be held to strict accountability for prescriptions issued and filled. Brewers and wholesale druggists may not employ registered pharmacists to fill prescriptions. A physician may not fill prescriptions for his own use. Only a duly qualified brewer or wine maker may manufacture beer or wine for medicinal purposes and on the property where the manufacture is specified. This new measure is very elaborate and contains a great deal in the way of detailed instruction. Emphasis, however, is laid on the fact that these regulations are merely tentative. Commissioner Williams is delaying their approval on the theory that his tenure of office is uncertain and that a new commissioner who would have the duty of enforcing these regulations should have the right of approving or disapproving them.

Christian Science Legalized in Nebraska.—A bill legalizing the practice of Christian Science was passed by the Nebraska House of Representatives on April 7. The bill subjects Christian Scientists to the State quarantine laws. An amendment to make the practice subject to the State public health laws failed. The bill has not yet been signed by the Governor.

Higher Tax on Alcohol.—A new revenue bill has been proposed by Congressman Good of the Appropriations Committee which includes a provision to increase the tax on alcohol used in the preparation of medicines to such an extent that the price of alcohol would be four times that before the war. This would make the cost of tinctures excessive, if not actually prohibitive.

Comprehensive Organization of Medical Interests Proposed.—At the stated meeting of the Medical Society of the County of New York, held on March 28, Dr. Byron C. Darling introduced resolutions calling attention to the many medical problems demanding solution; the fact that the medical profession had allowed things to drift until they had neither the information, the plan, nor the machinery to meet their problems, and that there were in New York sixty more or less scattered independent medical societies without an interlocking organization. The resolutions make the following recommendations for dealing with the situation: (1) the appointment of a commission to make a comprehensive survey of medical practice including National and State Health Departments, charity organizations, hospitals and dispensaries, Chambers of Commerce and civic associations, industries, industrial insurance companies, etc.; (2) the establishment of a weekly news organ either separately or by arrangement with a weekly journal already in existence; (3) the appointment of an executive secretary in common for the State and County Societies, or one for each, inasmuch as the duties of these offices are too burdensome for the active practitioner of medicine.

Governor Miller Would Oust Hospital Commissioners.—Formal charges of inefficiency and unwillingness to cooperate with the State Administration in its effort to achieve efficiency and economy, were served by Governor Miller against Dr. Charles W. Pilgrin of Poughkeepsie and Dr. Frederick A. Higgins of New York. According to press reports the only offense of the hospital commissioners was a protest against a reduction of the appropriations

to the State Hospitals, which they believed would result in a lowering of the standard of medical care and nursing service. The New York Psychiatric Society, at its meeting on April 6, adopted resolutions in the form of a telegram to Governor Miller protesting against his demand for the resignation of the Commissioners and requesting that he defer action until a full investigation can be made in connection with which the society has offered its co-operation. It has also requested the Commissioners to withhold their resignations for the present. In addition to the New York members out of town members signing the protest were: Dr. Adolph Meyer, Johns Hopkins University; Dr. C. MacFie Campbell, Harvard; Dr. A. Ross Diefendorf, Yale; Dr. Stewart Paton, Princeton, and Dr. Henry A. Cotton, Trenton, N. J.

Henry Phipps Institute Establishes Diagnostic Clinic.—A diagnostic clinic for the examination of employees is about to be opened at the Henry Phipps Institute in Philadelphia, under the direction of Dr. Frank A. Craig. The clinic will be neither a charity nor a money-making scheme but will be conducted entirely at cost. The Phipps Institute is equipped to conduct health surveys for any plant, to examine its men and to act in an advisory capacity, particularly for industries which have their own medical service but wish expert opinion on special cases. The group of physicians associated with the new clinic is composed of the following: Dr. H. R. M. Landis, Dr. Frank A. Craig, Dr. John S. Scouller, Dr. Walter E. Lee, Dr. Robert M. Luykens, Dr. Thomas B. Holloway, Dr. Henry K. Pancoast, Dr. Hugh Miller, and Dr. Charles C. Norris.

New Medical Regiment for New York Guard.—A new medical regiment to be attached to the Twenty-seventh Division, New York National Guard, is in the process of reorganization. It will be known as the 102nd Medical Regiment and its headquarters will be those of the present sanitary train at the armory at 56 West Sixty-sixth Street. The regiment will consist of the following: The Second Ambulance Company of Rochester, redesignated as the 104th Sanitary Company; Third Ambulance Company, New York, reorganized as the 104th Ambulance Company; Fourth Ambulance Company of Syracuse, motorized ambulance company, to be the 105th Ambulance Company; Third Field Hospital, Brooklyn, redesignated the 104th Hospital Company; Second Field Hospital, Albany, redesignated 105th Hospital Company.

Opera Singer Sues Doctor.—A suit to recover \$100,000 damages for alleged disabilities resulting from an operation have been filed by Octave Dua, formerly of the Metropolitan Opera Company, against a New York surgeon. The plaintiff claims that as the result of an operation on his nose he had lost the sight of one eye and been otherwise seriously disabled. The defendant has filed a general denial of the allegations.

Two New Typhus Cases.—Two new cases of typhus fever have recently been reported in Brooklyn, N. Y., both in natives of Russia who have been in this country for some years. The Health Department has been unable thus far to trace the source of the infection.

Dr. Antonio Fanoni of New York City has received word from the Italian Secretary of State of

his promotion by the King of Italy from the rank of chevalier to officer in the Order of the Crown of Italy, in recognition of his services during and subsequent to the war.

Dr. George Goodrich has tendered his resignation as Secretary of the State Board of Health and Superintendent of Public Health of Arizona to take effect as soon as a successor can be appointed.

Dr. Eugene Chimene has been elected county health officer of Guilford County, N. C.

Dr. L. Emmett Holt has resigned the Carpenter professorship of diseases of children in the College of Physicians and Surgeons, Columbia University, to accept the appointment of clinical professor of diseases of children. He will continue to give clinics at the Babies' Hospital as in former years.

Dr. Thomas J. Cummings has resigned as head of the State Hospital at Phoenix, Arizona.

Dr. A. Goldman Retires from the Presidency of the Bronx Hospital.—On Sunday evening, March 27, a dinner was tendered by the board of directors of the Bronx Hospital to Dr. Alexander Goldman, its retiring president. Dr. Goldman has held the position of President of the Bronx Hospital for ten years. He resigned the presidency of the Board and is taking up his duties as chairman of the executive committee of the Medical Board. In the appreciation of his services, the directors of the hospital at the dinner presented him with the proper set of resolutions and endowed a ward in his honor to be called the Dr. Alexander Goldman Medical Ward.

American Legion Demands Hospital.—Claiming that afflicted world war veterans should not be made to suffer because of the State retrenchment plans, the American Legion posts of the State have begun vigorous action to deter the Legislature from abandoning construction of a hospital for insane veterans. Assemblyman James T. Carroll will introduce a bill providing for the State construction of a hospital as provided for by a bill passed last year, appropriating \$3,000,000 as the State's share of the cost of construction of such a hospital to be located at Creedmoor.

Professor Joseph Jastrow of the University of Wisconsin will read a paper on "The Psycho-Pathology of the Belief in Spirits," at the New York Academy of Medicine, 17 West 43rd Street, on the evening of April 22. The lecture will be illustrated by unusual lantern slides showing the historical side of the belief and the theories by which its recent support has been guided. The meeting is under the auspices of the Eastern Medical Society of the City of New York.

The Western Electrotherapeutic Association will hold its third annual meeting in Kansas City, Mo., April 21 and 22, 1921.

The American Institute of Homeopathy will meet in Washington, D. C., June 19-24, 1921. Dr. Frank A. Swartwout is chairman of the local committee on arrangements.

Doctors, Dentists and Druggists Organize.—Waukegan and North Chicago doctors, dentists, and druggists met on March 26 and formed a temporary organization. Dr. C. S. Ambrose was elected president, and Dr. W. Stanford Pearce secretary.

The Lancaster County (Pa.) Medical Society

was organized at a meeting held in Lancaster, March 28, 1921, and the following officers elected for the ensuing year: *President*, Dr. R. C. Brown; *Vice-President*, Dr. J. D. Funderburk; *Secretary*, Dr. S. L. Allen.

An Artificial Limb Manufacturers' Association has been formed by twelve houses in this branch of industry which were called to Washington at the time of our entrance into the war to consult with the Council of National Defense. The Council warned them of the necessity of preparedness in order to give skilful aid to returning soldiers who had lost one or more limbs. Membership is stated to be open to all reputable manufacturers of artificial limbs in this country and Canada, and the Association has appealed to the medical profession to give support only to its members.

Obituary Notes.—**Dr. HASSO A. MEILIKE**, a graduate of the Sioux City Medical College, in 1888, died at his home in Clintonville, Wis., on March 29, at the age of sixty-six years.

Dr. JAMES F. CROWLEY of Batavia, N. Y., died suddenly of heart failure on March 20, at the age of sixty-one years. He was a graduate of the University of Buffalo Medical Department in 1885, and had held the positions of village health officer and village physician of Batavia.

Dr. HERMAN E. LUCAS died at his home in Champlin, Minn., on March 11, at the age of seventy years.

Dr. ALFRED HAKANSON of Chicago, died in Mobile, Ala., on March 23, at the age of fifty-four years. He was a graduate of the University of Nebraska Medical College in 1890.

Dr. S. A. STERRETT METHENY, a graduate of the University of Michigan in 1889, and of Jefferson Medical College in 1894, died at his home in Philadelphia on March 26, at the age of fifty-one years. He was a member of the Royal Microscopical Society of London and served for some years as a medical missionary in Syria.

Dr. FLETCHER BLAGBORNE, a graduate of the Michigan College of Medicine in 1883, died at his home in Marine City, Mich., on March 16, at the age of sixty-six years.

Dr. JULIET E. HANCHETT, a graduate of the Woman's Medical College of Pennsylvania in 1885, died at her home in Syracuse on March 29, at the age of sixty-four years.

Dr. DAVID KINDLEBERGER, a medical director in the United States Navy, retired, died at his home in New York on March 6, at the age of eighty-four years. He was appointed assistant surgeon in the Navy in 1859, and at the time of his retirement, in 1896, was the oldest medical officer on the active list. During the course of his service he had charge of the Washington Naval Hospital and served as a member of the Medical Examining Board of the Navy.

Dr. JOHN JOSEPH LEARY of Utica, N. Y., died of diphtheria in New York City on March 18, at the age of thirty-three years. He was a graduate of Syracuse University Medical Department in 1916, and was a member of the United States Army Medical Reserve Corps during the late war.

Dr. JOHN MARTINZA CARDEZA, a graduate of the Long Island College Hospital in 1906, died from pneumonia at his home in Brooklyn, N. Y., on

March 30, at the age of forty-one years. He was a visiting surgeon at the Long Island College Hospital, and in the service of the Metropolitan Life Insurance Company.

Dr. GEORGE F. COTT of Buffalo, died on March 22, at the age of sixty-six years. He was graduated from the University of Buffalo Medical Department in 1884, and shortly afterward became professor of otolaryngology in this institution. He was a Fellow of the American College of Surgeons, a member of the American Triological Society, and a Major in the Medical Reserve Corps of the Army during the world war.

Dr. IRVING I. WALLACE of Syracuse, a recent graduate of the University of Pennsylvania Medical Department, died suddenly in a local hospital on March 24.

Dr. AUGUSTUS H. CONSON of Gainesville, Tex., a graduate of Bellevue Hospital Medical College, in 1874, died on March 29, at the age of seventy-two years.

Dr. BARTLETT L. PAINE, of Lincoln, Neb., a graduate of the Medical College of Ohio, Cincinnati, in 1875, died from cerebral hemorrhage, on March 13, at the age of sixty-nine years.

Dr. SAMUEL PRITCHARD FETTER, a graduate of the Miami Medical College, Cincinnati, in 1904, died at his home in Ashland, Ky., on March 8, at the age of thirty-eight years. He was at one time president of the board of health of Ohio, and local surgeon for the Chesapeake and Ohio Railroad.

Dr. RUDOLPH MENDER of San Antonio, Tex., a graduate of the University of Leipzig, Germany, in 1874, died, on March 15, at the age of sixty-nine years. He was formerly city physician of San Antonio.

Dr. A. T. SLEMONS, a graduate of the University of Tennessee Medical Department, in 1888, died suddenly of heart failure at his home in Clinton, Tenn., on March 29, at the age of fifty-five years.

Dr. SAFFORD R. HAMER, formerly city physician of Cincinnati, Ohio, died at his home in Denver, Colo., on March 25, at the age of seventy-four years. He was a graduate of the Medical College of Ohio, in 1868, and a Civil War veteran.

Dr. PHILIP N. MATLOCK of Masonhall, Tenn., a graduate of the University of Nashville, in 1866, died, on March 25, at the age of seventy-eight years.

Dr. W. P. BERRY, for many years a practising physician in Memphis, Tenn., died at Pasagoula, Miss., March 23, at the age of eighty-seven years.

Dr. GEORGE RICHARD HILL of Kandall, Wis., a graduate of the Bennett Medical College, Chicago, in 1886, died of a complication of diseases, on March 18, at the age of sixty-nine years.

Dr. ELBRIDGE GERRY CARPENTER of East Greenwich, R. I., died after a long illness, on March 30, at the age of seventy-one years. He was graduated from the Medical Department of the University of Vermont, in 1874, and afterward studied in Jena, Leipzig, Berlin, and Vienna. He was a former president of the Kent County Medical Society and a member of the Rhode Island State Medical Society and the American Medical Association.

Dr. KARL R. MELOY of Detroit, Mich., a graduate of Wittenberg College with the degrees A.B. and A.M. in 1902 and 1905, and of Johns Hopkins Medical School, in 1906, died on March 30, at the age

of thirty-nine years. He was made director of the Grace Hospital Laboratories, Detroit, in 1914, and was professor of bacteriology and pathology at the Detroit College of Medicine and Surgery.

Dr. GEORGE H. POST of Fithian, Ill., a graduate of the Eclectic School of Medicine, Cincinnati, in 1876, died of cancer of the stomach in a hospital in Danville, Ill., on March 10, at the age of seventy-four years.

Dr. R. T. OLMSTED of Versailles, Ind., a graduate of the Medical College of Ohio, Cincinnati, in 1879, died as the result of injuries received in a fall, on March 25, at the age of seventy years.

Dr. FRANK GARTEN, a graduate of Albany Medical College, in 1908, died at his home in the Bronx, New York, after a short illness, on April 4, at the age of thirty-nine years.

Dr. JAMES A. DALE of Houtzdale, Pa., a graduate of the College of Physicians and Surgeons, Baltimore, in 1895, died from cerebral embolism, on March 11, at the age of fifty-nine years. He was a member of the Medical Society of the State of Pennsylvania.

Dr. SAMUEL THOMAS WEIRICK of Washington, D. C., a graduate of the University of Maryland, Baltimore, in 1865, died in Los Angeles, on March 16, at the age of seventy-seven years. He was a retired Captain in the Medical Corps of the United States Army. He served as a private in the First Ohio Volunteers in the Civil War, as captain and assistant surgeon of volunteers in 1901, was appointed Lieutenant, M. C., U. S. A., in 1908, and was retired with the rank of captain.

Dr. HARRY J. HARTZ, a graduate of Jefferson Medical College, in 1908, died of acute indigestion at his home in Philadelphia, on March 31, at the age of thirty-eight years.

Dr. SEWELL S. HEPBURN, JR., of Annapolis, Md., a graduate of the Medical College of Virginia, Richmond, in 1897, died suddenly of heart disease on April 5, at the age of forty-seven years.

Dr. J. A. WHITE of Portland, Ore., a graduate of the Charity Medical College, New Orleans, in 1873, died on March 27, at the age of seventy-one years.

Dr. JOHN BENJAMIN ROE of Oregon, Ill., a graduate of Bennett Medical College, Chicago, in 1895, died from the effects of being gassed during the war, in a Chicago hospital, on March 28, at the age of forty-nine years. He served as lieutenant in the army medical service and was gassed while working in close proximity to the firing line.

Dr. DANIEL WEBSTER YOUNG, a graduate of Hahnemann Medical College, Chicago, in 1899, died at his home in East St. Louis, Ill., on March 20, from heart disease, at the age of fifty-three years. He was a Major in the M. C., U. S. A., being in charge of the x-ray work in a number of field and general hospitals in France and Germany.

Dr. WILSON D. WALKER, of Kelloggsville, Ohio, a graduate of the Pulte Medical College, Cincinnati, in 1895, died of pneumonia, on March 16, at the age of fifty-two years.

Dr. ROBERT W. GLAUBIT, a practitioner of Brooklyn, N. Y., for more than thirty years, died suddenly of heart disease at his home in Rockville Center, L. I., on March 27, at the age of fifty-six years. He was a graduate of New York University Medical College, in 1888.

Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent)

LONDON, March 22, 1921.

Tuberculosis Bill.—The Parliamentary Correspondent of the *Daily Telegraph* states that the object of the Public Health (Tuberculosis) Bill to be introduced by the Minister of Health is so to meet the altered situation that there shall be no break in the provision made for the treatment of tuberculosis when sanatorium benefit ceases on April 30. The bill proposes to transfer to the county and county borough councils the responsibility for providing institutional treatment for tuberculosis which, under the provisions of the National Health Insurance Act of last year, is to be taken from the insurance committees so far as insured persons are concerned. A large majority of the county and county borough councils have already made arrangements for the institutional treatment of tuberculosis within their areas, and the bill imposes no fresh obligation upon these councils so long as their schemes remain in operation. A very small proportion of the total number of councils has not yet made sufficient provision for the treatment of tuberculosis, and the bill provides that if any of these councils fail to make adequate arrangements the Minister himself may make such arrangements as may be necessary for the purpose and recover the cost from the council. Other provisions are designed to facilitate cooperation between councils in the exercise of their powers for the treatment of tuberculosis and to enable them to place on their tuberculosis committees or subcommittees, persons, including members of insurance committees, who are not members of the council. With the exception of the few cases in which the council has not yet made adequate provision for institutional treatment of tuberculosis, the bill imposes no additional charge upon the rates. It is proposed that the councils should receive the same financial assistance in aid of this service as they have received in the past under the old arrangements.

Venereal Disease in the British Army on the Rhine.—Sir. L. Worthington Evans stated in Parliamentary Debates the other day that the incidence of venereal disease in the British Army of the Rhine was not satisfactory, and had been the subject of much anxious consideration ever since the area was first occupied. During the first quarter of 1920 the ratio admitted to hospitals for venereal disease was 45.81 per 1,000 of the strength. The ratio of the last quarter of 1920 was 40.22; and for the month of January last it was equal to a quarterly ratio of 37.80.

Science and Crime.—At the Society of Arts, London, on March 16 last, Mr. Charles Ainsworth Mitchell read a paper on "Science and the Investigation of Crime." Mr. Mitchell showed in his paper how the development of science and its many branches had narrowed down the criminal's chances of escape since the early days of last century, when anyone who committed a secret crime had an even chance of evading capture. He suggested that mistakes of identity had been

a more fruitful source of miscarriages of justice than all other causes put together. The world contained some 400,000,000 of people (this is surely an underestimate), and notwithstanding the infinite variety of human features, there was hardly anyone alive to-day who could not be mistaken for someone else. He concluded that no one could hope to keep in touch with all the branches of science, and what was wanted was a certain degree of coordination among scientific workers so that new methods most suitable to any particular problem might be immediately applied. Sir Basil Thomson, Assistant Commissioner of Metropolitan Police, said that for the five years, 1903 to 1908, there were in Paris (population 2,500,000) 737 murders, in London, 106 murders, and in Chicago (2,000,000 population) 693 murders. The comparison was striking and a curious thing was that the number of arrests in respect to these crimes was nearly the same in each case, viz., 60 per cent.

Vital Statistics of 1919.—The Registrar-General's Report for England and Wales for 1919 has just been issued. During this year the birth and death rate conditions were far removed from the ordinary. In the first half of the year the birth rate fell to the lowest point on record, but in the latter part of the year it recovered considerably. The death rate for 1919 was the lowest on record with the exception of the rates for 1910 and 1912, and this notwithstanding the heavy mortality from influenza in the spring. It may be noted that in 1919 the cancer death rate was the highest yet recorded in England and Wales. The report states that the statistics of 1919 support the general belief that the best criterion of the health of a people consists in the mortality in the earlier days and weeks of life. In 1919 there were comparatively few deaths of infants under one year of age. The rate was 12.2 per cent. In 1901-10 the percentage was 22.6. Infant mortality as regards total births, was equal to 89 per 1,000, and was 15.2 per cent. below the average in the ten years immediately preceding. The increased mortality of the first four weeks after birth is shown by statistics in this report to be limited to the first two, the third and fourth having remained almost stationary. As for the causes of infant mortality it may be gathered from an analysis of the figures in the report that in each period after the first four weeks the mortality from the principal causes, except influenza and respiratory affections, was lower in 1919 than in the years immediately preceding the war. A distinctive feature of the report is that in the rural districts of the north of England there is a great excess of infantile mortality exceeding that of the northern towns, great or small. In 1919 mortality during the first five years of life was very small in England and Wales. Although influenza raged during the spring of 1918 and largely raised the mortality among children under five years of age in that year, the corresponding mortality in 1919 was extremely low. In 1919 mortality in the second year of life was lower than in any other of the past few years and therefore almost certainly the lowest yet experienced.

The Pathology of Influenza.—At a recent meet-

ing of the Pathological Section of the Liverpool Medical Society the discussion was resumed on Professor J. G. Adams's paper, which was published in the *Lancet* January 1, last. Dr. J. M. Buchanan opened the discussion and dealt with the subject from the clinical side. He stated that during the epidemic of 1918 about 450 cases of the disease from among the U. S. A. troops were admitted to three of the British auxiliary hospital, to which he was appointed consulting physician. The outbreak was serious. It soon became evident that the cases could be divided clinically into four groups: (1) The mild catarrhal type. (2) The pneumonic type. (3) Cases with physical signs of bronchiolitis. (4) Cases of profound toxemia with little or no respiratory phenomena in whom coma-vigil was the rule, and who with few exceptions died. Among the complications profuse epistaxis was not uncommon. Empyema was somewhat rare, but occurred in prolonged cases. A few developed otitis media and some mastoid abscess. Subcutaneous abscesses were not uncommon. When arthritis occurred it was generally in the knee. Symptoms of meningitis were present in a few cases, and be understood that in such the pneumococcus was present in the cerebrospinal fluid. His clinical observations of the recent epidemic led him to the conclusion that we had to deal with a triple or multiple infection process. Professor Ernest Glynn quoted some experiences of the influenza epidemic among the American soldiers in Liverpool; direct films from the sputa of 13 cases showed pneumococci and influenza groups in five, influenza groups in two; 22 post-influenza empyemas showed pneumococci in nine, streptococci in eight, pneumococci and streptococci in one, pneumococci and *staphylococcus aureus* in two, streptococci group in one, while one was sterile; blood cultures from 70 cases showed pneumococci in nine, pneumococci and streptococci in two, influenza group in two. A mixed influenzal pneumococcal and streptococcal vaccine which he had made was used extensively for treatment of the American troops, but he had no reliable data as to its value. As "influenzal pneumonia" was often accompanied by septicemia, vaccines seemed inadvisable on theoretical grounds.

The Treatment of Cancer.—It appears that cancer has increased in Great Britain during the past few years and in consequence a good deal of solicitude is being expressed with regard to treatment which in many respects is by no means satisfactory nor encouraging. The possibilities of radium in this direction are a frequent subject for discussion, and on March 8 last the Minister of Health was asked in Parliament whether his attention had been called to the recent increase of deaths from cancer; whether he had any committee or officers in his department who were making any inquiries into the cause of and cure for this disease; whether the department made any financial grants to any hospital or institution which was providing research work or special wards and treatment for this disease, and if not, whether, in the interest of the community and the need for combating this scourge he would favorably consider granting financial help to any

such hospital or institution. Dr. Addison, in reply, said that he very much regretted to state that the number of deaths attributed to cancer continued to rise. He pointed out that an extensive research into the causes of the disease had for some time past been undertaken by the Imperial Cancer Research Fund and the Medical Research Council were facilitating research into the possibilities of radiotherapy and had been the means of providing a substantial quantity of active radium salt for the purpose. Cancer research funds were relatively well supported from voluntary sources, and he did not think that the issues were sufficiently clear for him to recommend grants in aid of the cost of the treatment of this disease at the present time.

Large Radium Purchase.—At the annual meeting of the Manchester and District Radium Institute an appeal was made for funds to carry on the work. It was pointed out that the demand for radium was becoming greater. The subcommittee decided in view of the urgency of the matter to purchase some 200 milligrammes of radium element for £6,000. This will give the institute 1,300 milligrammes.

The Question of Vitamines.—The public here are beginning to take an interest in the matter of vitamins, despite the fact that some medical men think that their value in a diet has been somewhat exaggerated and too much importance has been paid to the subject of late. In the House of Commons the other day the Minister of Health was asked whether any and what steps were being taken to bring to the knowledge of the public the fact that vitamins, which constituted a necessary part of any sound diet, were essential to the diet of the young, and could be secured by utilizing whole cereals and whole pulses, fruits, salads, and vegetables, and whether he would publish and disseminate as soon as possible a short practical leaflet which, without advocating any special system of diet, would draw attention to the value of these wholesome and economical foods. Dr. Addison replied that he was considering whether it would be practicable to issue any statement on the subject. Any such statement would, of course, contain as full a reference to the part played by vitamins in nutrition as the present state of knowledge of the subject would permit. He drew attention to the remarks on vitamins contained in the Report of the Chief Medical Officer of the Board of Education published in 1919. In connection with vitamins Dr. Jane Lane-Claypon, an authority on children's diseases and who has investigated the vitamin question from the standpoint of milk, gave a lecture at King's College in the early part of March, in which she discussed milk vitamins. She emphasized the fact that these substances were of greater value to the growing child than to the adult. She pointed out that in winter when cows were fed on cake, etc., the amount of vitamins in milk was markedly less than in summer, when the cows were out at grass. Prolonged heating was more likely to cause vitamin destruction than a sharp but rapid process of heating, and especially to that vitamin which was most essential to the maintenance of good health in the

growing child. The essential vitamine was still present in dried milk, though somewhat diminished in amount as compared with raw milk. The other two vitamins were relatively stable to heat and there was no evidence to show that they were destroyed by ordinary domestic processes. The large number of questions put to the Minister of Health in Parliament show that intelligent interest is being taken in questions of health and that the Ministry of Health was not only needed but has to a great extent justified its existence. The Department of Health has been subjected to bitter criticism by a section of the lay press, but on the face of it a great deal of this criticism has been undeserved. Perhaps the worst that can be said of the Ministry is, to use American slang, that "it has bitten off more than it can chew," and that possibly its policy tends to bureaucratic methods, which are opposed to the instincts and traditions of the British race.

Progress of Medical Science.

Boston Medical and Surgical Journal.

March 31, 1921. clxxiv, 13.

1. The Rat in Health and Economics. Mrs. Albert T. Leatherbee.
2. Modifications of Technique in Gall-Bladder Surgery. G. Forrest Martin.
3. Energy Requirements of Girls from 12 to 17 Years of Age. Francis G. Benedict and Mary F. Hendry.
4. Bornhardt's Formula. H. Gray and F. B. Allen.

2. Modifications of Technique in Gall-Bladder Surgery.—G. Forrest Martin holds that cholecystectomy is the operation of choice in all but a very limited field, such as elderly patients who must have prompt relief with a minimum shock; gross septic conditions which can be more safely handled by preliminary drainage, with complete operation later, and the like. The field of operation is better exposed, the bowels are kept out of the way more easily, the patient is quieter because less disturbed by manipulations with the transverse than is the case with any other operative method. Vomiting, straining, and other post-operative efforts tend to pull the incision tighter instead of apart, and thus the final wound is stronger. Closure of the wound without drainage bids fair to be an accepted procedure in a great majority of cases. Experiments show that this is a safe procedure even in the face of positive germ cultures.

3. The Energy Requirements of Girls from 12 to 17 Years of Age.—Benedict and Hendry complete this series of reports of studies conducted through the Nutrition Laboratory of the Carnegie Institution, and summarize their findings as follows: 1. The average, minimum, resting pulse rate per minute of girls from 12 to 17 years of age, just before rising in the morning, was found to be 81 at 12 years, 77 at 13 years, 77 at 14 years, 83 at 15 years, 71 at 16 years, and 74 at 17 years. 2. The insensible perspiration for these girls per kilogram of body weight per hour was as follows: 0.72 gram at 13 years, 0.71 gram at 14 years, and 0.77 gram at 15 years. 3. The respiratory quotients of groups of 12 girls each, about 7 to 8 hours after a light meal, were 0.81, 0.81, 0.78, and 0.79. 4. The caloric requirements of young girls during 10 hours of "bed rest" was on the average 55.0 calories per individual per hour. 5. The average 24-hour basal heat production of groups of girls from 12 to 17 years of age was 1250 calories per individual, irrespective of age. 6. The heat production per kilogram of body weight per 24 hours decreases regularly with increasing age from 29.9 calories at 12 years, 2 months, to 21.7 calories at 17 years. The curve indicating the general metabolic trend is throughout its entire length materially below the few scattered observations of earlier writers. 7. The heat production per square meter of body surface per 24 hours likewise decreases, but not so regularly, with increasing age, ranging from 928 calories at 14

years to 745 calories at 16 years. 8. The metabolism of groups of young girls can be predicted from the general curve indicating the heat production per kilogram of body weight referred to age to within an average error of ± 3.1 per cent. The prediction for the heat production per unit of body weight is somewhat better than that per unit of surface area. 9. The curves representing the heat production per kilogram of body weight referred to weight and per square meter of body surface referred to weight for these groups of girls from 12 to 17 years of age blend with remarkable uniformity with similar curves based upon the measurement of a large number of normal girls from birth to 12 years of age. 10. No influence of puberty or the prepubescent stage is clearly proven in any of the results.

New York Medical Journal.

April 6, 1921, cxlii, 11.

1. Phases of Visceral Displacements in General Practice. Charles A. L. Reed.
2. Interpretation of Blood Pressure Variations. Homer Wheelock.
3. Factors in Reactions after Blood Transfusions. J. L. Butsch and Winifred Ashby.
4. Pneumothorax Treatment of Pulmonary Tuberculosis. Ernest F. Boas.
5. Pneumothorax Treatment of Pulmonary Tuberculosis. B. Stivelman.
6. Measures for the Control of Tuberculosis in Cattle. C. J. Marshall.
7. Surgical Complications of Pneumonia. Moses Behrend.
8. Generator of Constant Current for Production of X-Rays. Sinclair Tousey.
9. Advanced Pathological Conditions Observed in South China. J. Oscar Thomson.
10. Elephantiasis, with Reference to Syphilis. Joseph Lintz.
11. The Pathology of So-Called Sprains of the Wrist. Edgar F. Cyriax and Stanley Melville.
12. Lesion of the Occipital Lobe Simulating Cerebellar Involvement. Alfred Gordon.

2. The Interpretation of Blood Pressure Variations. With Observations on Normal Pressure Variations and the Relation of the Adrenals and the Autonomic Nervous System to the Production of Blood Pressure.—Homer Wheelock details certain experimental observations relative to the production and control of a normal pressure, and applies the physiological principles derived therefrom as interpretative measures in a consideration of the clinical variations of blood pressure. The range of blood pressure variations compatible with a normal economy is illustrated by readings made upon sixty-six normal medical students and twenty-two aged women. Marked variations in blood pressure were found between the two groups as a whole and in the individuals of the same group in various postures and following exercise. The writer discusses the influence of the heart, of the vasomotor apparatus, and of chemicals on blood pressure, and in conclusion calls attention to the value of blood pressure determinations. The sense of security suggested by accepted figures as indicative of normal states is not entirely warranted in the interpretation of blood pressure variations. A standard average normal blood pressure for a given age and sex is entirely desirable, but individuals equally normal, as far as is discernible, may show widely different readings. Hence, a known individual variation is easier of interpretation and becomes of more absolute importance than a comparison of a given reading with a given standard normal. From a purely physiological point of view a pressure which is found to be higher or lower than the accepted average normal should not, in itself, be considered pathological but rather as the pressure normal to the condition in which it is found. The fact that a given blood pressure reading is high or low cannot be construed to mean other than that one or more of the factors involved in its production, maintenance and control have become accentuated or depressed. A blood pressure determination, therefore, can only mean the figures obtained by the use of the instrument; the indications of such figures, however, depend directly upon the interpreter's experiences and his understanding of the factors involved in the production of such figures. The usual classification of blood pressure readings as indicative of hypertension, hypotension, or isotonic states, is a workable convenience, but if one accept the given standard as correct then all individuals fall into one of these three

groups irrespective of the usual or normal condition of the individual case. The extremes of variation in any compiled set of figures undoubtedly represent unusual conditions, also rapid changes from the individual's usual standard are indicative of disturbed functioning. It appears, however, that a thorough search for the cause of such variations, both direct and indirect, should be excited because of blood pressure findings rather than assume that the patient's ailment has unfolded itself through the cuff of a sphygmomanometer. Blood pressure variations are not disease conditions *per se*, but rather symptoms indicative of an altered bodily economy. In many cases blood pressure variations are indicative of compensatory phenomena and therefore should not be interfered with. Hence it appears that the safest interpretation of blood pressure variations will follow as the result of a careful evaluation of the processes involved in the production, maintenance, and control of a balanced circulation.

3. **Factors in Reactions After Blood Transfusions.**—Butsch and Ashby studied seven hundred and thirty-seven transfusions with the object of explaining the reaction to transfusions. They employed the sodium citrate method described in detail by Pemberton and Hunt. Certain factors connected with the technique of transfusion were studied, and were not found to be factors in the transfusion reactions observed. Patients with normal temperatures and patients with more nearly normal hemoglobin percentages are less likely to have reactions. An increased tendency to reaction was not found when transfusions were given in series. *In vitro* evidence of incompatibility between blood of properly grouped donors and patients was not found; neither did the patients show *in vitro* evidence of incompatibility of blood for their own groups with repeated transfusions. The incidence of transfusion reactions was not affected by fasting.

4. **The Value of the Pneumothorax Treatment of Pulmonary Tuberculosis.**—Ernst P. Boas holds that treatment by artificial pneumothorax is a valuable adjunct in the handling of selected cases of advanced pulmonary tuberculosis in which other measures have been of no avail. It frequently gives temporary symptomatic relief, and very rarely brings about a cure. In lung abscess its dangers outweigh its possible good effects. Six cases are cited.

Journal of the American Medical Association.

April 2, 1921, lxxvi, 11

1. Ophthalmia and Diet. Thomas B. Osborne and Lafayette B. Mendel.
2. Ophthalmia Associated with a Dietary Deficiency in Fat Soluble Vitamin (A); A Study of the Pathology. Isabel M. Wason.
3. Diagnosis of Pregnancy by the Roentgen Ray: Possibilities of the Procedure During the First Half of Gestation. R. A. Bartholomew, Barnes E. Sale, and J. T. Calloway.
5. Papillary Epithelioma of the Kidney Pelvis. Edwin M. Miller and Robert H. Herbst.
6. The Medical Profession and the Public. William J. Mayo.
7. Recurrent Dislocation of the Shoulder Joint: A Mechanical Consideration of Its Treatment. James Warren Sever.
8. Unusual Manifestations of Heroin Intoxication and Symptoms of Withdrawal. Alfred Gordon.
9. The Auricular Heart Sounds. William D. Reid.
10. Specific Precipitin for Bence-Jones Protein. Ludvig Hektoen.

3. **Diagnosis of Pregnancy by the Roentgen Ray: Possibilities of the Procedure During the First Half of Gestation.**—Bartholomew, Sale and Calloway undertook this study with the object of determining the earliest stage of gestation at which a diagnosis of pregnancy could be made by demonstrating portions of the fetal skeleton by the roentgen ray. The total number of roentgenograms taken was twenty-four. The earliest stage of pregnancy attempted was at two and one-half months; the latest stage about the end of the sixth month. From the end of the second to the end of the third month, one roentgenogram was taken and was negative. From the end of the third month to the end of the fourth month, five roentgenograms were taken and all were negative. From the end of the fourth month to the end of the fifth month, ten roentgenograms were taken and three were positive. From the end of the fifth month to the end of the sixth month,

eight roentgenograms were taken and four were positive. The earliest positive result, then, was obtained at four and one-half months.

8. **Unusual Manifestations of Heroin Intoxication and Symptoms of Withdrawal.**—Alfred Gordon reports a case in point. An analysis of the muscular manifestations during the phase of gradual withdrawal of heroin leads to the diagnosis of tetany. The contractions were bilateral and intermittent like those in tetany, but close observation reveals that there were at no time contractions of the fingers, with the attitude (obstetric or writing), very frequently found in tetany. Tests were not made for the varied signs characteristic of tetany. The muscles of the body were simultaneously involved and their contractions were frequently repeated; they were almost of a continuous character. The resemblance to tetany consisted in their tonic character, but they were of greater intensity. The phenomena during the period of withdrawal of heroin presented great similarity to those of epilepsy, but they were not completely identical.

9. **The Auricular Heart Sounds.**—William D. Reid makes the following assertions: 1. The sounds produced by auricular systole are faint and may often be below the level of audibility. 2. Systole of the auricles is marked by two sounds, which are related to its initial phase and termination just as the first and second heart sounds are to the contraction of the ventricles. 3. As the contraction of the auricles is not sustained after the maximum tension has been achieved, the auricular second sound follows almost immediately on its first sound. 4. The second sound produced by the contracting auricles, namely, that due to the closure of the auriculoventricular valves, occurs during the auriculoventricular intersystolic period. 5. The filling of this intersystolic period by the auricular sound is suggested as a more reasonable explanation of the well-known fact that the auricular sounds are never detected save in cases of heart block, when the auricular contractions may occur well separated from those of the ventricles.

The Lancet.

March 12, 1921, cc, 11.

1. An Address on the Neurological Aspects of Shock. Sir Frederick Mott.
2. Further Notes on the Intravenous Injection of Antimony Tartrate. Leucoderma and Skin Complications: Administration of Large Doses. J. B. Christopherson.
3. The Out-patient Treatment of Bilharziasis, with an Analysis of 1000 Cases. H. B. Day.
4. Mosquito Nets: Their Use in the Past. Sir Patrick H. Blair.
5. Tree-Breeding Anophelines. B. Blacklock.
6. A Controlled Study of Sanatorium Results. E. Ward.

2. **Further Notes on the Intravenous Injection of Antimony Tartrate. Leucoderma and Skin Complications: Administration of Large Doses.**—J. B. Christopherson states that a few grains of antimony tartrate (5-8 gr.) by intravenous injections may be sufficient to cure leishmaniasis of the skin, more (20-30 gr.) are necessary, as a rule, to bring about a cure in bilharziasis, and still more (60 gr., perhaps more) are necessary for leishmaniasis or kala-azar, and possibly still more (probably in repeated courses) for the cure of trypanosomiasis. Antimony tartrate (pot. or sod.) when given intravenously in appropriate dilution and administered with care may be given in larger total doses than is generally supposed. The blood, considered as tissue, is probably capable of withstanding more physical and chemical ill-use than any other organ; but owing to its structure and distribution it is obviously incapable of resisting microorganic invasion, and is the logical route for direct attack upon micro-organic and other diseases, particularly those of the blood stream itself. The cure of parasitic diseases, such as bilharziasis, kala-azar, trypanosomiasis, filariasis, dracunculosis medinensis, by a drug given intravenously (the drug itself if it acts directly, or a derivative if it acts indirectly) depends on: (1) the permeability of the enclosing membrane (or skin) of the parasite; (2) the penetrating power of the drug which in turn depends on its physical condition of chemical structure; (3) the toxicity of the drug to the parasite.

6. **A Controlled Study of Sanatorium Results.**—E. Ward bases this communication on the condition of

270 sanatorium cases two years after leaving the institution as compared with the condition of 597 controls two years after commencing treatment. This period is enough to allow the increase in weight and improved appearance manifest in most patients when they leave a sanatorium to have passed off, and gives a fair comparison. To gain further information, and to check the two-year results, a further series of 121 sanatorium cases, and 282 controls, is considered after a four years' period. The controls were not sent to a sanatorium. The number of sanatorium cases lost sight of after two years is about two per cent., not sufficient to affect the result in any way. Between the two and four years, another one per cent. may have been lost. Among the control cases rather more have been excluded for this reason. The patients were classified as: Class 1.—Patients at work—90 per cent. prospect of continuing present work for a considerable time (may be considered a cure). Class 2.—Patient at work, but health somewhat uncertain—60-90 per cent. prospect of remaining at present work for a considerable time. Class 3.—Working, but health precarious—40-60 per cent. prospect of continuing at present work for considerable time. Class 4.—Too ill to work. Class 5.—Very ill. Of the 270 cases in all stages of disease, two years after sanatorium treatment 119 (44 per cent.) come under classes 1 and 2; 44 (17 per cent.) under 3; 1 (26 per cent.) were classed as 4 and 5; and 36 (13 per cent.) were dead. Three stages of the disease are recognized: (1) Slight; (2) medium; (3) extensive. Of the class 1, stage 1 cases after two years out of 102, 30 were cures (30 per cent.); after four years, 16 out of 55 (31 per cent.). Among 233 stage 1 controls after two years, 107 are counted cured (46 per cent.), and after four years 144 cases, 62 (54 per cent.). Among stage 2 sanatorium cases, after two years, a total of 153 gives 9 cures (6 per cent.); and after four years, 60 cases, 4 cures (7 per cent.). Controls at stage 2, 248 cases, after two years, yield 17 cures (0 per cent.), and after four years, 102 cases, 10 cures (10 per cent.). The writer is constrained to believe that we are too much hemmed in by tradition and authority in considering tuberculosis, and that the time has come for free thinking in this respect if progress is to be made. He suggests that steps be taken to modify sanatorium treatment with a view to improved results; also that certain sanatoriums should be reserved for isolation purposes, to which mainly cases with tubercle bacilli in the sputum should be sent, at whatever stage of disease; while others, which might be called preventoriums, should be reserved for slight cases and suspects no patient being admitted there with tubercle bacilli in the sputum. At the preventorium a patient would stay only for a short time, say a month, under convalescent home conditions, while at the sanatorium he would stay indefinitely, the longer the better.

British Medical Journal.

March 12, 1921, i, 3413.

1. Remarks on the Indications for Cholecystectomy. K. W. Monsarrat.
2. Asthma and Anaphylaxis. Frank Coke.
3. Chronic Retention of Urine Arising from Prostatic Disorder: Its Cause, and Treatment by the Practitioner without Operation. Herbert T. Herring.
4. Renal Decapsulation for Chronic Parenchymatous Nephritis. Frank Kidd.
5. Reconstructive Aneurysmorrhaphy in the Third Part of the Axillary Artery. C. Jennings Marshall.
6. Fracture of Femur: a Simple Method of Extension. B. F. Fendley.
7. An Unusual Case of Myelocoele. A. J. Cocklinis.
8. The Action of the Intrinsic Muscles of the Foot and Their Treatment by Electricity. G. Murray Levick.

2. Asthma and Anaphylaxis.—Frank Coke holds that half the cases of asthma can be proved by the skin reactions to be due to sensitization by foreign proteins. The technique of the skin reaction is as follows: The inside of the arm and forearm are cleaned, and a scratch one-eighth inch in length made with a scalpel, not going deep enough to draw blood. On to this the protein and solvent are placed. The tests should be an inch and a half apart. On the two arms a number of tests can be made at a sitting, though sometimes it will take three or even four hours to complete a test. A positive reaction consists of an urticarial

wheel not less than one-quarter inch across. This appears in from ten minutes to half an hour. Sometimes they are as large as a halfpenny, with irregular branches coming out of them. These reactions vary enormously in different people, so that much experience is necessary to judge the degree of reaction present. The proteins the writer uses fall into four main groups: Some 70 foods, 20 bacterial proteins, 10 kinds of animal hair, and 10 pollens; also various face powders, etc. A full test may take four sessions of an hour each. If the causes can be removed the patients are relieved of the asthma at once. Much can be done to relieve or even cure other cases which do not give positive reactions, by the usage of various proteins, as antigens, to desensitize them with. Asthma, hay fever, urticaria, eczema, migraines, epilepsy, and paroxysmal hemoglobinuria, have many common traits and will probably all be proved eventually to be symptoms of anaphylaxis and not separate diseases at all. This list will most likely be considerably enlarged.

4. Renal Decapsulation for Chronic Parenchymatous Nephritis.—Frank Kidd, in the light of more recent experience, considers a reconsideration of this procedure justified. He reports four cases, two of whom had high blood pressure and two low blood pressure. He is not convinced that, as suggested by Horder, only cases without cardiovascular change will be benefited by the operation, since in one of his patients with high blood pressure the result was very good. Of course, in this case, the raised blood pressure may only have been a temporary phenomenon, and it may be that no permanent changes had taken place in the heart or in the blood vessels. He believes, however, that something more must be learned to enable one to distinguish the type of case suitable for the operation. One favorable case had polyuria, and one had oliguria. He does not believe that the beneficial action of decapsulation has anything to do with the relief of tension. His view is that by removing the capsule of the kidney one unblocks the lymphatics and sets up another route for the lymph to flow out of the kidney. The lymphatics of the kidney run up from the ureter under the capsule through the kidney, where they receive the lymph of the kidney substance, and then to the glands in the vascular pedicle of the kidney. The capsule seems to act as a membrane to shut off the lymph from the perinephric fat tissue. Possible in these cases of chronic nephritis the lymphatics become blocked either by excess of lymph or by fibrinous deposit, and the nephritic poison cannot be drained away from the kidney substance. Kidd has noticed that directly after stripping off the capsul of these kidneys, clear lymph seems to flow out from the kidney sponge almost at once—the kidney seems to ooze lymph. This lymph may then be picked up by the tissue spaces of the perinephric fat and be absorbed by another route.

Annals of Surgery.

February, 1921, Lxxiii, 2.

1. Squamous-cell Epithelioma of the Skin. Albert Compton Broders.
2. Painless Hypodermoclysis. Willard Bartlett.
3. Regional Anesthesia. Gaston L. Labat.
4. Some Surgical Aspects of Asphyxia. Everts A. Graham.
5. Some Underlying Principles of Intestinal and Gastric Surgery. J. Shelton Horsley.
6. Solid Tumors of the Mesentery. J. Louis Ransohoff and Alfred Friedlander.
7. Stave Fractures of the First Metatarsal Bone. M. B. Cooperman.
8. Tumors in South China. J. Oscar Thomson.
9. Pseudo-Polycythemia: Extraordinary Blood Changes in a Patient with Renal Calculus. Leon Herman and B. E. Vincent Lyon.
10. Peritrochanteric Fracture of the Femur. Penn G. Skillern.
11. Mesenteric Embolism in a Hemophilic. Frank Benton Block and Samuel Goldberg.

2. Painless Hypodermoclysis.—Willard Bartlett considers it remarkable that surgeons have been content with hypodermoclysis which in most instances must have seemed to the patient little short of brutal. The vicarious administration of water in his service has been revolutionized by the employment of local anesthesia from the beginning to the end of the procedure. A very extensive employment of infiltration anesthesia led to the suggestion of introducing very dilute novocaine instead of straight salt solution or distilled water.

In the evolution of the method gradually increasing amounts of fluids were used as hypodermoclysis, in which, from time to time, the percentage of novocaine was cut down first from $\frac{1}{2}$ to $\frac{1}{4}$, then to $\frac{1}{8}$, and finally to $\frac{1}{16}$ of 1 per cent., without the anesthetic value of the drug being appreciably diminished. The writer emphasizes that he is not advocating $\frac{1}{8}$ or $\frac{1}{16}$ per cent. novocaine solution in the performance of surgical operations, but he states conclusively that it suffices for the introduction of fluid under the skin. It was but a further step in the technique to add sterile morphine to the hypodermoclysis fluid. The dosage, of course, is to be determined by the rapidity of inflow, age and condition of the patient, and all the other elements which ordinarily enter into the employment of this drug. Adrenalin is added to the fluid where hypodermoclysis is used in any of the conditions, such as shock, hemorrhage, etc., which are attended by a fall of blood pressure. A constant inflow of this substance is highly desired, since its destruction is so rapid as to make the effect of each small dose of short duration. The apparatus used is the ordinary 700 c.c. glass drip bottle, a rubber tube one yard in length, controlled by a screw clamp, and a slender, long needle. This is substantially the apparatus commonly used by hospitals for the introduction of water into the rectum, with the exception that the drop sight feed attachment is cut out, since use is made of a local anesthesia agent, and the rate of inflow into desensitized tissues does not matter particularly. The inflow is regulated according to the rate of absorption, the water-logged area never being allowed to become unreasonably tight, and thus threaten tissue pressure necrosis. The site of election is found to be the flank midway between the lower ribs and the prominent upper curve of the ilium. Less subsequent damage has occurred there than elsewhere. Bartlett no longer injects fluid under the breast of a woman, because she is likely to experience a great deal of pain every time she takes a breath for some hours after the anesthesia effect of the fluid has worn off. The same thing is true of the upper arm if a fluid has been injected into the axilla or the pectoral muscles. The introduction of the needle is rendered painless by ethyl chloride spray on the skin. After the needle has been introduced the region is covered by a small square of gauze, held in place with adhesive, and the surgical aspect of the little procedure is complete. Then it remains only for a nurse, or the patient himself, if he be a very reasonable individual, to control the rate of flow.

4. **Some Surgical Aspects of Asphyxia.**—Evarts A. Graham divides this extended discussion into three parts. The first involves the following ways in which disturbances of tissue respiration in the human body may occur: (1) Interference with the intake of oxygen. (2) Interference with the normal power of the blood to carry oxygen, or to remove carbon dioxide. (3) Interference with the circulation of the blood. (4) Interference with the power of the tissues to utilize oxygen. The second part is devoted to the effects of asphyxia, and the third to the recognition of asphyxial effects. Interference with the intake of air is the result of not only obstructions of the upper air-passages, but also of pulmonary disturbances which give rise to a diminished alveolar surface. These latter disturbances are due both to changes within the lungs, such as inflammatory exudates, and to abnormal pressures outside the lungs which limit their normal expansion. The principal agents which restrict the expansion of the lungs by pressure, are air and fluid. The disturbances within the thorax which are caused by abnormal changes of intrapleural pressure are discussed from the standpoint of new experimental work, as a result of which it seems evident that the previous, commonly accepted, ideas are incorrect. From the standpoint of pressure relationships the normal thorax may be regarded practically as one cavity instead of two. Any change of pressure in one pleural cavity is accompanied by practically an equal change in the other, so that an equilibrium of pressure exists at all times throughout the whole thorax. The prevalent conceptions of pneumothorax are held to be erroneous, in that they are based on the assumption that when an opening is made into the chest one lung is collapsed and the other maintains respiration. This assumption implies that

the mediastinum constitutes a rigid partition between the two pleural cavities. On the contrary, the mediastinum in the normal thorax is so mobile that any increase of pressure in one pleural cavity pushes it over into the opposite one so that both lungs are compressed practically equally. If, on the other hand, the mediastinum has been made rigid by induration as a result of long-standing inflammation, or if it has become fixed by adhesions, then a pleural opening on one side will not produce the same pressure changes in both pleural cavities. The maximum opening into a pleural cavity which is compatible with life depends upon a definite relationship which exists between the amount of air entering the lungs and the amount entering the pleural opening. An average normal man should be able to withstand for a short time an opening of about 64.8 sq. cm. (10 square inches); one with a "vital capacity" greater than the average will be able to withstand a larger opening. There is harmony, therefore, between these results and the finding at the front that men were able to maintain respiration with gaping thoracic wounds which seemed surprisingly large. A double pneumothorax in a normal chest is more dangerous to life than a unilateral open pneumothorax merely because usually the combined areas of the two openings (and therefore the amount of air admitted into the pleural cavities) is greater than a single opening on one side is likely to be. Theoretically and experimentally effects of practically the same severity result in the case of one or more openings into one pleural cavity as follow the creation of a double pneumothorax, provided that in each case the combined areas of the various openings are equal. The bearing of these results and deductions upon both the treatment of acute empyema and upon thoracic surgery in general is obvious. Whenever the amount of air taken into the lungs is limited by the presence of an active pneumonia, with plugging of both air channels and alveoli, whenever there is an excessive demand for air, whenever there is a sufficient weakening of the respiratory muscles to impair compensation, or, in short, whenever there is a marked reduction in the "vital capacity," the size of the pleural opening compatible with life becomes smaller; and if any or all of the above factors are present in sufficient intensity, even a very small opening into the pleural cavity will produce death from asphyxia. Since all of these factors are likely to be present to a high degree during the early stage of an empyema of the streptococcus type, early operation with the establishment of an open pneumothorax carries with it an unwarrantable danger. Either a method of repeated aspiration or one of closed drainage is indicated until after the above dangerous factors have disappeared. Interference with the ability of the blood to carry oxygen or to remove carbon dioxide is of interest to surgeons chiefly in connection with anemia, both acute and chronic, and perhaps rarely in poisonings of the type of carbon monoxide poisoning. Interference with the circulation of the blood is of surgical importance not only locally in connection with the ligation or destruction of an artery, but also in heart disease, in shock, and in pneumothorax. An inability on the part of the tissues to utilize oxygen is seen especially in narcosis with common general anesthetic agents and also in intoxications with acids, cyanides, etc. The effects of the disturbances of tissue respiration are both anatomical and physiological. The former consist, in general, of the syndrome of edema, fat infiltration, hemorrhages, and necrosis. The physiological disturbances comprise the phenomena of so-called "acidosis," changes in the respiration, glycosuria, etc. The importance of an impaired kidney function as a factor in the production of an "acidosis" is emphasized. The application of these ideas to various surgical conditions, such as in surgical narcosis, in intestinal obstruction and acute dilatation of the stomach, in shock, etc., are discussed, as are likewise the principles underlying the recognition of these effects and the methods of minimizing them.

Record of 923 Prostatectomies.—G. Marion, the well-known urologist of Paris, who receives an appreciation in a recent issue of *El Siglo Médico*, has recently performed his 923d prostatectomy.

Book Reviews.

THE PRINCIPLES OF GYNECOLOGY: A Manual for Students and Practitioners. By W. BLAIR BELL, B.S., M.D., Lond., etc., Gynecological Surgeon, Royal Infirmary, Liverpool; Lecturer in Clinical Gynecology in the University of Liverpool; Sometime Examiner in Gynecology and Obstetrics to the Royal Colleges of Physicians and Surgeons, England, and to the Universities of Durham and Belfast; Arris and Gale Lecturer, and Hunterian Professor, Royal College of Surgeons, England. Third edition. New York: William Wood & Co., 1920.

IN our review of the second edition of Bell's work we commended it heartily, although war conditions had made extensive revision of the previous edition impossible. Here, however, we have an edition which has not only been thoroughly revised, but in which considerable portions have been entirely rewritten, and much fresh material has been added to the text.

The book is divided into nine parts and two appendices. Parts I and II, occupying 120 pages, deal with the morphology and the physiology of the female genital organs; and in them the foundation is laid for an intelligent study of gynecological conditions and their treatment. Part III gives a short discussion of history taking and the examination of the patient. The next five parts cover the subject proper under the following headings: Derangements of the Normal Anatomical Conditions; Disorders of the Normal Physiological Conditions in Relation to Puberty, Menstruation, Conception and the Menopause; Infective and Parasitic Diseases of the Genital Tract; Tumors; and Allied Morbid Conditions. In Part IX we find suggestions for pre- and postoperative treatment, with consideration of the principal postoperative complications, and about 90 pages devoted to the surgeon's preparations for operation, and the description, with copious illustrations, of the principal strictly gynecological operations. In this section and also throughout the book the author has not confused the reader with innumerable methods of diagnosis and treatment, but has given a straightforward description of what has served him best. In Appendix I we find a list of postoperative exercises; while Appendix II gives a very useful classification of the causes of certain gynecological symptoms and manifestations. The logical sequence of subjects, the generous use of bold faced type in the text and carefully selected page headings make reference to any particular subject easy, often without referring to the index, which, by the way, is unusually complete.

The volume itself, with its fine paper, beautifully clear, large type, and excellent illustrations, is a fine example of the bookmaker's art; but all these would be of little moment except that they form a fitting setting for an admirable text. The style is easy and graceful and the book is most interesting. In our opinion, it is one of the best treatises on gynecology extant for either student or practitioner.

SYPHILIS. By LOYD THOMPSON, Ph.B., M.D., Physician to the Syphilis Clinic, Government Free Bath House; Visiting Urologist to St. Joseph's Hospital; Consulting Pathologist to the Leo N. Levy Memorial Hot Springs, Ark.; Lieutenant-Colonel, Medical Reserve Corps, United States Army; Member of the American Urological Association and of the American Association of Immunologists. Illustrated with 81 Engravings and 7 Plates. Second Edition. Thoroughly Revised. Philadelphia and New York: Lea & Febiger, 1920.

BECAUSE of its general excellence, this work has survived its infancy and now presents a second edition. Judging from its present form, further editions are confidently anticipated. Throughout it shows most careful revision and modernization. The historical review of the disease is somewhat enlarged, as is the section on the prevalence of the malady. Attention is directed to its economic importance by quotations from the U. S. Army statistics of 1917, showing that time lost from service because of syphilis aggregated 584 years, equivalent to \$210,240 computed at the pay of a private soldier at \$30 per month. Suicides and loss of efficiency from mental anguish are factors which can-

not be calculated. Additional text appears on morphological description of the *Spirochæta pallida*, and the modes of its transmission. The author seems skeptical regarding second infections of syphilis in the same individual and sets forth criteria severely difficult to establish to prove the second infection. A new section is added on syphilis in the negro race wherein these people are shown to be infected in high percentage. A new table of classification of syphilodermata is given which is comprehensive and practical. New paragraphs are added in the discussion of the histopathology of syphilodermata, their clinical history, and diagnosis. An especially good chart is added on the differentiation of these lesions from measles, tinea versicolor, acne, eczema, dry rashes, etc. In those chapters dealing with laboratory diagnosis and findings of syphilis, the author describes his own modification of the Wassermann reaction and claims it to be simpler and more accurate than others. He damns with faint praise the luetin reaction and points out its fallacies. He amplifies the text of his first edition on syphilitic fever, life insurance considerations, involvement of the circulatory and respiratory systems. The section on syphilis of the liver and its differential diagnosis from carcinoma merits especial compliment. Adequate consideration is given in the newly written matter to syphilis of the breast, thyroid, adrenals, and other glands, as well as to the genitourinary organs. The portion given to syphilis of the kidneys and bladder is especially praiseworthy. Throughout the book "salvarsan" is changed to read "arsphenamin" and "*Treponema pallidum*" to read "*Spirochæta pallida*." Thompson pays tribute to Ehrlich as a scientist, but regrets the blot of commercialism on his name. The name of the infecting organism, *Spirochæta pallida*, is well chosen because its discoverer so called it and for the sake of unanimity of expression despite the evidence against putting it into the genus *Spirochæta*. As in his first book, the author is generous in according credit to other authorities and has chosen his illustrations with nicety of judgment.

PRACTICAL PHARMACOLOGY, FOR THE USE OF STUDENTS OF MEDICINE. By W. E. DIXON, M.A., M.D., F.R.S., Professor of Pharmacology and Therapeutics, King's College, London; Reader in Pharmacology, Cambridge; Assessor to the Regius Professor of Physic, Cambridge. Cambridge: University Press, 1920.

THIS little book is an account of experiments which a student can easily perform for himself in class in the course of pharmacology at Oxford and Cambridge. The experiments illustrate well-recognized actions of common drugs in everyday use. The book serves to bring home to the student the principles on which he can apply his knowledge in dealing with disease in actual practice and teaches him to confine his attentions to known actions and reactions in place of the extended ramifications of the vast armament of the pharmacopœias.

HEART AFFECTIONS, THEIR RECOGNITION AND TREATMENT. By S. CALVIN SMITH, M.S., M.D., Instructor in Medicine, University of Pennsylvania Graduate School, Visiting Physician to the Philadelphia General Hospital, Visiting Physician for the Study of Cardiovascular Affections, Philadelphia Hospital for Contagious Diseases. Philadelphia: F. A. Davis Co., 1920.

DR. CALVIN SMITH avowedly has not written an exhaustive work, but he has reduced to comparatively small compass the essential facts of anatomy, physiology, and pathology, with diagnosis and treatment so that the busy physician, or, still better, the senior student of medicine can get a working knowledge of recent advance. With this aim in view it is not the purpose to be critical of minutiae. The essential facts are all here and the more profound student must go to the larger and more exhaustive special works. Especial praise may be given to the sections on treatment, which display that most excellent but rare virtue of common sense. Such a volume should be mastered by every senior student before examination and there are few, if any, better, than this. It further reduces to a practical form all that is needed for the busy practitioner to bring himself up to date as regards recent advances.

Society Reports.

AMERICAN ASSOCIATION FOR THORACIC SURGERY.

Third Annual Meeting, Held in New Orleans, La., May 1, 1920.

DR. RUDOLPH MATAS OF NEW ORLEANS IN THE CHAIR.

(Concluded from page 632.)

V. Lung and Bronchi.—1. Preliminary Report on Changes of Volume Induced by Alterations of Intrapleural Pressure.—Dr. EVARTS A. GRAHAM of St. Louis, Mo., read this paper by invitation.

2. The Importance of Both Sympathetic Superior Cervical Ganglia to the Maintenance of Life, and Their Possible Relations to Respiratory Diseases.—Dr. SAMUEL J. MELTZER of New York presented this paper. The superior cervical ganglion was known to control the vasoconstrictors of the ears, the vasodilators of the mucous membrane of the mouth, nose, conjunctiva, etc., the width of the pupil, and the pilomotor. Langley, by using his nicotine method, established that, except for the iris, the nerve fibers which controlled the above-mentioned phenomena originated in nerve cells within the ganglion. Meltzer discovered about eighteen years ago that instillation of adrenalin in the conjunctival sacs, which exerted no effect upon the pupil in normal individuals, caused a wide and long-lasting dilatation of the pupil on the side in which the superior cervical ganglion was removed. Simple section of the cervical sympathetic did not carry with it such consequences. The instillation began to exert this effect only twenty-four hours after the removal of the ganglion in rabbits and forty-eight hours after the removal of the ganglion in cats and in dogs. While all these effects of the ganglia were interesting from a physiological point of view, they in no way affected the life of the animal. In a long series of experiments carried on in the course of the last six months, the writer found that the removal of both superior ganglia in rabbits led invariably to the death of the animal. The death occurred mostly within two or three days after the removal. In a few instances the animals survived the operation six or eight days. The removal of one ganglion or the removal of parts of both ganglia did not lead to fatal results. Two rabbits survived the apparent successful removal of both ganglia. But by using the adrenalin test—that is, by instillation of adrenalin into both conjunctival sacs—it was discovered that one ganglion was not completely removed. The autopsy of the animals dying after the removal of both ganglia revealed the presence of extensive pulmonary lesions, which consisted in lobular pneumonia of both upper lobes, containing sometimes smaller or larger caseous abscesses, and the presence of pulmonary edema, especially in the enlarged lower lobes. The pneumonic lesions were the more extensive the later the animal died after the operation. In all cases the esophagus was found to be empty. The site of the operation was found to be uninfected. Extensive experimentation proved conclusively that the pulmonary lesions were not due to injuries of both vagi. Stimulations of the central end of one vagus after the removal of both ganglia had shown the different nerve fibers in the vagus which affect respiration, deglutition, and blood pressure were unimpaired. Simple exposure of the ganglia and intense manipulations of the neighboring vagi and the surrounding tissues without the removal of the ganglia never had any deleterious effect upon the animal. Cutting of both vagi in the neck caused the death of the animal within twenty-four hours with a characteristic aspiration pneumonia, while the esophagus was filled with food from the stomach. There was no doubt that the death of the animals was due to the removal of the ganglia, and not to any incidental effects. In a few experiments both superior cervical ganglia were torn away from their cephalic connections, but left *in situ* in connection with the sympathetic nerve, and, in addition, two ganglia which were removed from another rabbit were placed deep in the wound. These rabbits had so far survived this procedure. This

fact suggested that the superior cervical ganglia might possess an internal secretion. The importance of these results was obvious; but no theoretical discussion would be offered at this time. More actual experimental work would have to be done. But the writer wished to call attention to two practical points. The location of the superior cervical ganglia in close proximity to the pharynx and tonsils suggested the possibility of their becoming affected in infections of the tonsils and the pharynx, which might at times lead to affections of the lungs. It might possibly explain the occurrence of pneumonia after a comparatively unimportant affection of the upper respiratory cavities. Furthermore, in autopsies on patients dying from pulmonary diseases, the superior cervical ganglia ought to be examined as a routine matter. Another point was the introduction of the adrenalin test in diagnosis. In various diseases of the neck (thyroid, submaxillary glands, etc.) and the lungs, two or three drops of adrenalin could be instilled in both conjunctival sacs. In the course of time this procedure might develop into a useful diagnostic method. In the experimental work the adrenalin test proved to be a most satisfactory method.

3. The Treatment of Bronchial Fistula.—Dr. CARL EGGERS of New York read this paper. Bronchial fistulae were classified etiologically, he said, into those due to (a) Intrapulmonary suppuration; (b) external violence. Anatomically, they were divided into (a) bronchopleural fistulae; (b) bronchocutaneous fistulae. A short description was given of the different types, their diagnosis and importance. The treatment of bronchopleural and bronchocutaneous fistulae was then described somewhat in detail, calling attention to the importance of not attempting to close a fistula as long as it served as a safety valve for intrapleural suppuration. The reasons for the persistence of a fistula were explained. Then followed detailed case reports of six bronchocutaneous fistulae successfully operated upon during the last year. At the end the experience gained from these cases was summarized in the following conclusions: (1) Bronchopleural fistulae usually closed spontaneously. (2) In the few cases in which a fistula was responsible for the persistence of a chronic empyema, treatment favoring the obliteration of that cavity would result in a closure of the bronchus. (3) Bronchocutaneous fistulae must be carefully studied and their etiology and the present condition of the lung taken into consideration. (4) As long as the fistula acted as a safety valve for intrapulmonary suppuration it must not be interfered with. (5) Mobilization of the lung and fistula, allowing it to recede from its fixed position, was the most important factor in bringing about closure. (6) Muscle flaps were very valuable to cover the bronchial sinus after the necessary preparation had taken place. They aided in the closure and obviated deformity. (7) Canterization of the fistula should always be done very lightly, simply to destroy the epithelium, never so deep as to produce a slough. (8) In case the wound was clean, suture of the bronchus should be done. (9) In cases due to lung abscess, in which it was feared that closure of the bronchus might result in damming back of secretions with the danger of pneumonia, the bronchus should not be sutured, but a muscle flap simply laid over it, placing a drainage tube at some distance to act as a safety valve. (10) Whenever possible, the operation should be done under local anesthesia.

Dr. GRAHAM, by invitation, said he had been very much interested in Dr. Eggers' article, and he thought he undoubtedly hit the nail on the head. He had some experience in bronchial fistula and had found a method of some value which he thought was originally proposed by Dr. Meyer, namely, treating the bronchial stump like an appendix stump, inverting it into the substance of the lung and closing it after suturing the lung over it. Dr. Graham had a young woman who had an Estlander-Schede operation two years before with a permanent fistula connecting with a bronchus. She had several operations for the purpose of closing this fistula, but all were unsuccessful. The speaker performed a radical operation by turning up the skin flaps and dissecting out the tract for six inches into the upper lobe; he then located the tract, carbolized it, inverted it into the lung, and pushed the lung over the inverted portion; prompt healing occurred which had remained permanent for six weeks.

Dr. JAMES F. MITCHELL of Washington, D. C., said he had a great deal of experience with the smaller fistulae in their early work on the Empyema Commission, and they found, as Dr. Eggers had said, most of these fistulae would close themselves if left alone, and they did not contraindicate the use of the Dakin treatment. They found in several camps that the Dakin treatment had not been carried out thoroughly, and in many instances the excuse was that the patient had a communication with a bronchus and the consequent coughing caused its discontinuance. Dr. Eggers had emphasized the fact that the treatment could be continued, in spite of this fact, by changing the position of the patient or estimating carefully the amount of solution to be given each day. On the whole, then, he thought it was important not to attempt to operate on these cases too early; not until the condition was well established. It was the general rule in all complications of empyema. In the treatment of chronic empyemas or persisting cavities he thought there was too much consideration given to obliterating the cavity, instead of finding the cause of the cavity, sterilizing it, and leaving it alone. In the actual treatment of a fistula demanding operation the various methods had all been tried and found satisfactory. In some cases all that was necessary was to get an exposure of the mouth of the fistula, cauterize it, and, with or without suture, leave a safety valve so that the fistula would close.

Dr. PARHAM said that he tried very thoroughly in the case presented to use the Carrel-Dakin treatment and also dichlorimine-T, but the fluid in each instance would go up even into the patient's mouth. Even bismuth paste had to be abandoned, so that finally he had to content himself with putting in a tube the size of his index finger. After a year this opening had decreased in size, but the discharge continued and the bronchial fistula still communicated with the cavity.

Dr. HEDBLOM stated that he had found a skin flap method advocated by Beck good in some cases, the end results having been satisfactory. He thought the muscle flap method would in some cases involve a less extensive operation, and he intended to try it when a suitable case presented itself.

VI. Diaphragm.—1. Thoracoabdominal Injuries: Some Technical Procedures Developed by the War.—Dr. CHARLES GORDON HEYD of New York read this paper. The lethal factor within the first twenty-four hours in the thoracoabdominal type of wound was invariably shock or hemorrhage. In the type of case in which the abdominal lesion predominated there was, in addition to the peritoneal penetration, the visceral penetration with hemorrhage from liver, spleen, kidney, and mesentery, and the effusion of intestinal contents from the intestinal canal.

Anatomical Classification of Thoracoabdominal Injuries.—Thoracoabdominal injuries might be classified anatomically into six types. (1) The perforating wound through the costophrenic sinus with minimum degree of damage to diaphragm and which was characterized usually by slight, if any, visceral lesion. (2) Penetrating wound with orifice of entry high on the thorax, perforating the lung and penetrating the diaphragm with moderate or severe visceral injury. (3) A wound low down in the axillary line, usually in the seventh, eighth or ninth intercostal space, with injury to the liver, spleen, and stomach, with gross hemorrhage into the abdomen, and rarely perforation of the colon or small intestine, and in which the entire picture was dominated by the abdominal injury. (4) A wound low down in the axillary space with considerable loss of lateral chest wall and diaphragm, resulting in herniation or prolapse of the omentum and abdominal viscera into the thoracic cavity or externally. (5) A wound in the lumbar region with injury to the kidney and associated with injury to diaphragm and abdominal viscera. (6) Tangential wounds of the chest and abdominal wall with a concussion hemithorax and suspected chest and abdominal injury, but which upon operation proved to be superficial and without injury to either thoracic or abdominal viscera.

Visceral Injuries.—Liver, spleen and stomach.—When the liver was injured three types of hepatic wounds were observed: (1) The tangential wound through liver substance, trench-like in character and

usually with the hemorrhage arrested at the time of operation. (2) A secon with a complete clear-cut tunnel through liver substance and rarely with radiating fissures. (3) Fragmentation or pulpaefaction of a lobe or portion of the liver. The initial hemorrhage from liver injuries was severe, but regardless of the type of injury it had invariably stopped at the time of operation, except when the injury was in the nature of fragmentation where the hemorrhage was continuous in type and uniformly fatal. The operative approach varied with the type of injury and its location. The mechanical factors involved were in brief: (a) Injuries to diaphragm only—usually in costophrenic sinus. (b) Injuries involving penetration of diaphragm with damage to subjacent viscera and with or without gross loss of diaphragm substance. The repair of injuries to the diaphragm was immediately carried out or the diaphragmatic injury was enlarged so as to deal with intra-abdominal complications. There were obviously well-defined limits to the amount of work that could be performed upon the viscera of the upper abdomen, for with reduction of herniated viscera and repair of injuries to the liver, spleen, portions of the cardiac end of the stomach, and occasionally the colon, very little further operative manipulation could be carried out. For injuries lower down in the abdomen it was necessary to supplement the thoracic technique with a laparotomy to deal specifically with the abdominal condition. The suturing of the diaphragm was a matter of comparative simplicity and after the first suture was tied it was utilized as a traction suture and the remaining portion of the diaphragm was readily sutured with a lock-stitch No. 2 chromic catgut. It would seem that these experiences in thoracoabdominal injuries pointed the way to a better technical consideration of diaphragmatic hernia, for with positive pulmonary anesthesia and distention of the lung it should not be dangerous to do a major thoracotomy in the seventh or eighth interspace and approach the reduction of a diaphragmatic hernia from within the chest and by suture of the diaphragmatic hiatus from the thoracic side accomplish a much better technical result. Lesions of the liver, superior cardiac portion of the stomach and some spleen lesions might offer a wider application for transthoracic laparotomy with better results than were now obtained by any classical methods of approach through the abdomen. The treatment of heart wounds through a transpleural exposure and by means of an intercostal incision under differential pressure anesthesia offered a quick, technical exposure with ample room and obviated the dangers of pneumothorax and seemed to indicate a better technique than any type of extrapleural operation.

Dr. LEWALD said he was interested to know in the case where the projectile was missed in the pancreas whether or not there was a satisfactory explanation for this. The mere fact of having located one projectile should not have led the roentgenologist to feel that he had no further duty, or did one shadow overlap the other, and was the case examined only in one direction? Of course such mistakes were known to happen.

Dr. PARHAM stated that Dr. Heyd spoke of a hemithorax by concussion, and he was interested because he had recently a very interesting case of a young boy who was struck by an automobile, struck on the left side of the chest and knocked down with great violence; when he was picked up by the gentlemen who had run over him, he was not unconscious; he was brought to the Infirmary a few blocks away and the speaker saw him within an hour. He was able to make out a pneumothorax with evident hemorrhage into the cavity. He examined the patient very carefully but could find no injury to the ribs. The patient was in a state of great shock and he could do nothing but carry out a waiting treatment. He lived 26 hours, conscious to the very last, but with his breathing very much impeded, and the question was whether or not they should explore his thorax. There was evident hemorrhage with possibly a hemithorax. He called in the best internists and asked them to answer the question whether to relieve the impaired breathing by withdrawing the blood and they decided against this procedure. He was told later by a medical man who was a friend of the child's family that on autopsy they withdrew from the thorax 28 ounces, and from the stomach 14 ounces of blood. Where did the blood come from which he vomited be-

fore death and that which was found in the stomach after death? Those in consultation were of the opinion that this blood came up from the lungs and was swallowed. The speaker sent in the death certificate as rupture of the lung with hemorrhage and pneumothorax.

Dr. MITCHELL stated he had a case somewhat similar to that mentioned by Dr. Farham which he would like to report. A young girl was run over by an automobile truck which passed directly over her chest. She was brought into the hospital in a state of shock. It was later discovered that seven of her ribs were fractured on the left side. She developed marked cyanosis, great difficulty in breathing, and he too called in a medical man who advised against aspiration saying there was in his opinion no blood and that it was best to leave the chest alone. The speaker disregarded his advice however, and aspirated two quarts of fluid blood and this girl made a splendid recovery and had no further trouble.

Dr. EGGERS said Dr. Heyd made a statement which he did not entirely understand. He said he had learned to disregard acute pneumothorax. Did he mean closed or open pneumothorax? There was a vast difference in the cases. In speaking of pneumothorax, one must bear in mind whether one referred to an open pneumothorax, existing for a short period or a continuous pneumothorax. They must all admit that it was possible to operate in a pleural cavity without positive pressure if one closed the thorax after; if one left it open it was a different matter. An acute open pneumothorax was a very dangerous condition.

Dr. MATAS remarked that the question of technique was always important in dealing with these cases. There was a question in his mind brought up by a case occurring some years ago of laceration with fracture of the ribs, tearing of the diaphragm with protrusion of the spleen, part of the colon, and the stomach. In enlarging this incision over the crushed area he did it transversely; it was very easy and simple to put back the whole mass and suture the diaphragm in the manner described. He believed the point in dealing with cases where there was no crush was whether it was best to do an intercostal incision with wide horizontal retraction or a vertical incision with wide lateral retraction and if necessary supplementary section of the ribs. In his opinion nothing could exceed the advantage of the intercostal incision: once exposed there was no doubt about the superiority of the upper route.

Dr. GEORGE P. MULLER of Philadelphia, Pa., said, by invitation, that he had operated on two cases of combined abdominothoracic injury and found no difficulty in getting good exposure from below: the chief difficulty he had was caused by the diaphragm rising out of reach on attempting to pass the needle for the introduction of the sutures. He learned in splenic operations to cut transversely, the subsequent repair of the muscle being just as good as with straight incisions, and in that way one could get well up under the costal arch. In one case of stab wound with a three-inch incision into the diaphragm it was possible, after getting one stitch in, to steady the diaphragm until he had sewed the rest. Gunshots in civil life varied from those in military practice. Lead bullets would deflect themselves from the ribs as they entered the thorax as a rule or ricochet under the scapula. One did not see the "stove-in" chest or the extensive comminution of ribs. The methods used in military practice, however, could be applied to civil injuries. In one case he was able to extract the bullet from the lung with perfect convalescence, following the technique of Duval; in another stab case a similar result was obtained after thoracotomy.

Dr. ANGELO L. SORESI of New York City, by invitation, said the points that he would like to bring forward were that organs that had passed from the abdominal to the thoracic cavity and were adherent either to the diaphragm or to the thoracic organs or to both, could be well exposed and freed through the abdomen provided the patient's head was raised in order to expose well the diaphragm and the hernial opening in the diaphragm was widened enough to allow a free vision of all the organs concerned. Then the work was very easy and the patient was saved from the additional shock and other complications caused by the extra incision in the thoracic wall. One must not be afraid to make a

long incision in the diaphragm because it could be easily and well repaired by using the special suture which he illustrated, and which he described in his paper on "Diaphragmatic hernia," published in the *Annals of Surgery*, March, 1919. The ends of the catgut were tied on the abdominal side of the diaphragm. In one of his patients he made an incision about four centimeters long, and freed the stomach very easily without any need of opening the pleura. The patients were discharged cured after a few days, except one whom he kept in the hospital about a month because he wanted to show him before a surgical society.

Dr. HEYD, in closing, said concussion hemothorax was not uncommon. He recalled two men who entered the hospital with acute hemothorax and without any evidence of injury to the chest other than bruising of the chest wall. These men were quite close to a shell burst. In the front line hospitals all surgery on skull and chest carried with it the operative rule "close the cavity." The technical objective in all such surgery during the first eight hours—the period of contamination—consisted in debridement, removal of bone fragments, regularization of bone ends, excision of all traumatized tissue and hermetical closure of the pleural cavity. So far as lacerations to the diaphragm were concerned it was their belief that the rational procedure was a major thoracotomy in the seventh or eighth intercostal space. If herniation or prolapse was found the abdominal viscera could be replaced through the thoracic wound easier than through a laparotomy wound, as in the former one did not contend with the negative pressure of the thoracic cavity. Shell fragments were the chief source of danger and not bullets. A bullet could, however, produce a terrific degree of damage if it hit a bone and carried bone fragments before it. So far as suturing of the diaphragm was concerned they were interested only with a good anatomical closure. This could be achieved by a lock-stitch of No. 2 chromic catgut. It was found that there was a point beyond which the injured man could not survive operative procedures and the surgery involved elimination of classical procedures which experience demonstrated as being superfluous. Decision had to be made quickly and technical procedures carried out expeditiously and with a minimum of manipulation.

VIII. Posterior Mediastinum.—1. Suppuration in the Posterior Mediastinum: Its Surgical Treatment, with Report of a Case.—Dr. WILLIAM LERCHE of St. Paul, Minn., read this paper. Including the case of the writer, there were only ten cases of suppuration of the posterior mediastinum reported that had been drained by the cervical route. The patient, a woman aged fifty years, had for six years been troubled with a peculiar brassy cough. At times she had severe paroxysms of this cough, accompanied by dysphagia. A deep seated abscess of the neck finally developed and extended into the posterior mediastinum, which was drained through an incision on the neck. The patient made a good recovery and had no return of the cough or dysphagia during the thirteen years elapsed since the operation, which was performed in 1907. In most of the cases reported, the mediastinal suppuration was due to accidental perforation of the esophagus by a foreign body, or to instrumentation. In the case of the writer's, the lymph nodes of the recurrent chain were in all probability the original seat of infection; being chronically inflamed, they caused the symptoms by irritation of the recurrent laryngeal nerve, and finally breaking down formed the abscess. In order to demonstrate the probable route by which the suppuration of the neck extended into the mediastinum, the writer injected a barium-buttermilk mixture into fresh cadavers and radiographed them. Observations were also made of the peristaltic wave of the esophagus through an endoscopic tube introduced through the neck wound into the mediastinum. Most cases in which the mediastinal suppuration originated in the neck could be drained by the cervical route. In cases where drainage by the latter route was not sufficient, a dorsal mediastinotomy might have to be added later.

Dr. MATAS said he would like to relate an experience which occurred in his practice more than 15 years ago, and which he remembered very vividly as it gave him great concern at the time. The patient, a boy of seven years, had swallowed lye and the usual impermeable

stricture of the esophagus had followed. He was in a starved, marasmic condition. He regurgitated even water and was dehydrated, presenting the appearance of a mummy with the skeleton outlined everywhere through the thin skin. All they could do was a gastrostomy followed by a retrograde dilatation on the Abbe plan. They fed him and he responded very quickly; he gained strength and flesh progressively and he could be nourished cautiously through the mouth. After that they used dilating bougies which he learned to pass with little assistance. One day, however, while passing the bougie, he felt an acute retrosternal pain. They watched him closely, and a violent chill, followed by high fever, and marked signs of shock and prostration told that the esophagus had been ruptured and that the esophageal contents had escaped into the mediastinum. His temperature continued high and he was in a desperately septic state for five days. Dr. Matas thought he would die from an acute septic mediastinitis, as, in such cases, the dilated esophageal pouch above the stricture was so foul that the escape of even a small part of its contents was sufficient to set fire to the peri-esophageal tissues and cause the most virulent putrid phlegmon in the mediastinum. While he was debating in his mind whether to do an anterior or posterior mediastinotomy for drainage, he noticed a progressive edema over the root of the neck and upper sternum. This spread rapidly with very little redness at first, but it soon became quite tender over the suprasternal notch, showing that the suppuration was extending upwards and forwards. With this indication pointing the way, he made a deep dissection of the neck, dividing the sternoclavicular attachments of the left sternomastoid muscle, and after displacing the vessels worked his way down to the trachea and esophagus, very slowly feeling his way behind the sternum until he could feel the pulsation of the aorta. The retrosternal tissues were very edematous and while he was probing and feeling his way with a long blunt pointed vaginal forceps, a sudden gush of putrid pus and gas escaped, which announced that the abscess had been tapped. After this the problem became one of drainage. They had then, no handy suction apparatus for continuous aspiration by electric motor, as at present. He could then only favor drainage by position and gravity. The boy was put on a cot in an exaggerated Trendelenburg position, with a drainage tube in the neck leading to the retrosternal abscess. In this position he was kept for over a week, when the pus diminished sufficiently to allow him to substitute a gauze drain for the rubber tube which was lying in dangerous proximity to the great vessels, suggesting the possibility of an erosion hemorrhage. The suppuration ceased altogether and the abscess healed, but they never ventured to resort to dilatation *per os* after that accident. The boy was fed regularly through the gastric opening. He is now a grown man and, until the last two years, he was seen often. He was employed in a factory, but he made his living chiefly by exhibiting himself as a "freak" and showing how comfortably he could live through a stomach tube. He frequented bar rooms and often astonished the crowds with the amount of beer that he could dispose of. He had disappeared in the last two years and the speaker feared his bibulous habits might be largely responsible for his disappearance. If this was true, it was a pity, as with the superior methods of exploration and with the help of radiology, it was more than probable that the permeability of the esophageal tract could have been restored. The speaker had seen two cases of perforation of the esophagus in connection with esophageal stricture of malignant character. These patients died in a short time; he did not think any operation was applicable because they are not, as a rule, fit for interference.

Dr. GREEN said he thought that this was a most timely paper. He had quite a number of esophagus cases, having done some somewhat the same kind of work in New York as Dr. Lerche was doing in St. Paul. He could not say he had not been unlucky for he had had perforation of the esophagus, and yet he had it in but one case, a carcinomatous esophagus where the growth had almost eaten through into the trachea. It occurred while he was sharing the responsibility with another man, the operation not being entirely under his con-

trol. In that case they had a perforation while using the other surgeon's bougie which "squashed" the carcinoma into the trachea from pressure. The patient died in twenty-four hours. Also when Dr. Janeway and he were first doing this work they were called to the Roosevelt Hospital to see a case with a cicatrix of the esophagus following a burn by lye, which had been manipulated by another physician some hours before they saw the patient. This case had a mediastinitis, was not drained and did not get well. The speaker had a patient, a woman, whom he had followed for a number of years: she took lye by accident when she was a young girl of five or six years, and Dr. E. Farquhar Curtis did a gastrostomy, dilating the esophagus by the string method of Dr. Abbe. She did pretty well for a while but finally her stricture closed and also her stomach wound. Then Dr. Green had to operate all over again. That was some 15 or 16 years after the first operation. She would sometimes go for periods of six months, and then return for bougie treatment, and sometimes had a cough after this treatment. He was frequently fearful of a perforation into the mediastinum. During the last year at one of these treatments he could not get the bougie into the stomach: he could not bring himself to force the bougie down: after quite a little manipulation, however, she could swallow better, so he was put to it to determine whether or not the bougie passed into the stomach. He therefore designed a fairly stiff bougie with an electric light in the end, and on the passage of this instrument he could tell when it had passed into the stomach. By darkening the room and having the patient lean well forward, the light showed up very satisfactorily in the epigastrium right through the abdominal wall.

Dr. HEDBLUM said he had one case of abscess of the mediastinum in a child of five years. The symptoms were dyspnea and cyanosis. The x-ray showed a mediastinal shadow which was taken to be due to an enlarged thymus. Because of the urgency of the case an exploration was deemed advisable. After a preliminary tracheotomy, the upper sternum was split and edges retracted. An abscess was opened into, and several drams of pus evacuated. The dyspnea was partly relieved, but he died rather suddenly after awakening from the anesthesia, apparently from asphyxia and acute dilatation of the heart. Necropsy was not allowed.

Dr. MULLER, by invitation, stated he had recently had a case of suppurative mediastinitis in a patient with an unusual history. A girl 25 years old; ten years previously had suppurating glands above the clavicle, presumably tuberculous: within two years she developed pulmonary tuberculosis, was treated in a sanatorium, seemed much improved and came home, although she still had tubercle bacilli in her sputum. She then developed a swelling just above and to the left of the sternum. This increased in size during the period of a month causing intense pain, which seemed to aggravate her pulmonary condition. Under local anesthesia an incision was made and he found what looked like a cyst 8 to 10 cm. in diameter, the walls of which were closely applied to the great vessels and trachea. He did not know what it was unless a cyst of the thyroid or a cystic hygroma of the neck, but packed it with dichloran-T gauze, and introduced rubber drainage. The discharge then became purulent, he was unable to state whether or not the fluid was tuberculous as it was lost before examination. She went with a small drainage tube for seven or eight months and whenever the tube was removed she developed pain and fever. Finally he decided to inject the sinus with bismuth paste. When the bismuth was injected she gave a slight cough and raised some bismuth so that they did not see as much in the x-ray as they had put in. There was a rise of temperature, and the x-ray showed that the bismuth had extended down to the mediastinum. She died five or six weeks later, after an increase in her pulmonary symptoms. In the mediastinum were found a large mass of dense glands, soft in the center and perforating into the trachea. The cavity communicated by the sinus with the neck.

2. Roentgen Findings in Three Cases of High Non-malignant Esophageal Obstruction.—Dr. LEON T. LEWALD of New York City read this paper illustrated with lantern slides. In contradistinction to the usual

malignant obstructions encountered in the esophagus, the following three cases were of unusual interest because of their non-malignant nature, although two of the cases were within the cancer age. The value of an early roentgen examination in every case of suspected esophageal lesion could not be too strongly urged.

CASE I.—Bulbar lesion producing esophageal paralysis ending in recovery. C. S., female, age 72. Three years previous to the present illness she had a cerebral hemorrhage. At that time there was a complete paralysis of the right arm and partial paralysis of the right leg together with aphasia. The blood pressure was 235. After a period of treatment the blood pressure was reduced and the symptoms of hemorrhage disappeared. Concerning her present illness the patient stated that on waking in the morning she noticed that her mouth was filled with saliva and there was a choking sensation. She found that she could not swallow anything. The larynx on examination appeared normal but when food was taken it remained in the upper part of the esophagus overflowing into the larynx. It was impossible to pass a small stomach tube. The patient was x-rayed at St. Luke's Hospital and the following report rendered, "There was a definite obstruction in the esophagus right at the origin, so that some of the opaque mixture which was given began to pass over into the trachea and down the respiratory tract into the bronchi, especially on the left side. The roentgen findings indicated a paralysis of the esophagus rather than an obstructive lesion due to new growth." The case might be explained on the basis of a spastic paralysis where the normal peristaltic wave of relaxation, which usually preceded the contraction wave, had been inhibited. The patient was fed through a Jutte duodenal tube for two weeks. It was then found that she could take small amounts of dry foods but that there was still great difficulty with liquids. She continued to improve, however, and after a time completely recovered. It would seem most reasonable that the condition was produced by the occlusion of a small vessel in some part of the pons. There was no evidence of paralysis of the laryngeal muscles, vocal cords or soft palate.

CASE II.—Partial esophageal obstruction due to spasm following an operation on the thyroid. E. B., female, age 42. Five months before coming under their observation a partial thyroidectomy had been performed. For the past four weeks there has been a feeling of oppression in the upper part of the chest and a sense of constriction in the neck. The patient thought that there was delay in swallowing. X-ray examination gave the following observations. Chest: there was no evidence of substernal goiter observed; the heart and aorta were of average size and the lungs showed no shadows indicative of infiltration; the thymus did not appear to be enlarged. Esophagus: There was delay at the entrance of the esophagus. It was difficult to tell whether this was due to spasmodic contraction or pressure, but in view of the tendency to disappear between examinations it was probably of spasmodic nature.

CASE III.—Retropharyngeal and periesophageal cellulitis complicating tonsillitis and causing esophageal obstruction. J. P., male, age 20. One week before admission to the hospital the present illness began with a sore throat, chilliness and general malaise. On admission the tonsils were noted to be markedly swollen and the crypts filled with cheesy material. The cervical glands were enlarged and tender and there was a bulging mass below the angle of the left jaw, apparently a very much enlarged gland. Some tenderness over both lobes of the thyroid was also noted. The patient was examined with the fluoroscope with the following observations. There was marked swelling of the tissue of the neck. The peribronchial shadows were slightly increased, the infiltration extending down to the second interspace anteriorly. There was partial obstruction of the esophagus opposite the entrance of the larynx, apparently due to pressure. Three days later the patient was re-examined under the fluoroscope with the following findings. There was practically complete obstruction of the esophagus at the uppermost portion. The possibility of the cause being a retropharyngeal abscess, compressing the esophagus, should be given most careful consideration. The obstruction

was so complete that it would necessitate feeding the patient through a tube or some other procedure. Radiographs of the sinuses at that time showed cloudiness of the right maxillary sinus. Five days later physical examination showed dullness at both apices of the lungs and coarse and fine rales at the right apex. A radiograph of the chest was made on the day following and it was noted that there was a distinct opacity on the right side of the chest extending down as far as the first rib anteriorly. The exact nature of the lesion was not evident. Four days later x-ray examination showed that the area of density on the right side of the chest above the first rib had largely disappeared.

Dr. GREEN remarked that Dr. LeWald had had large opportunity to watch the esophageal cases and had been of great aid to him in making the diagnosis in these cases. Of the case he mentioned which the speaker had an opportunity of seeing with him he would like to give the chronology on a little more accurate scale. This patient came into the hospital during his absence and it was considered he had an obstruction of the esophagus. A gastrostomy was done at once. When Dr. Green returned he esophagoscoped him and Dr. LeWald took a roentgenogram. (He always tried to have the patients examined by the roentgen ray first.) He found the esophagus was large and somewhat atrophic, little wrinkles running transversely all the way to the stomach, with no obstruction. The man kept getting a little worse, so far as his speech and swallowing were concerned and he began to suspect bulbar palsy. The diagnosis was later fully established and he was removed to the City Hospital. There the speaker had Dr. E. L. Hunt see him, and he confirmed the neurological diagnosis. The patient died. He saw another case with Dr. Mathews. This man could not swallow. He examined his throat with his finger and came immediately upon a retropharyngeal abscess. This was opened and drained. This man recovered.

Dr. GRAHAM, by invitation, said it had happened that during the last few months he had an unusually large number of carcinomas of the esophagus admitted on his service. Many of these were in a state of most extreme inanition. He could not help but feel from his personal experience that gastrostomy should not be an emergency operation. One would avoid many errors of diagnosis if one got out of this idea. These people were suffering from dehydration rather than from starvation. One could not only make them more comfortable and in better shape for operation if one got up their fluids temporarily, but that would also allow of a more correct diagnosis of the esophageal condition, and prevent in some cases the necessity of a gastrostomy later on. They had followed out this procedure, not merely giving them salt solution, but giving them subcutaneously glucose solution, 3 to 5 per cent. also by rectum. This glucose solution subcutaneously would not produce necrosis, it was sometimes a little painful, but it would have a marked effect in improving the general condition of the patient.

Dr. LEWALD, in closing, said he wished to add that they had seen three cases of cardiospasm in very young subjects. Also, at the Mayo Clinic two months ago, Dr. Moore told him they had a cardiospasm in a child about ten years of age. These early cases he thought were rather unique and tended to give the impression that it might occur much earlier than heretofore believed.

3. New Instruments for Esophageal Surgery. (a) Further Report on the Sausage-Skin Method for the Early Diagnosis of Cancer of the Esophagus. (b) Treatment of Cicatricial Stricture.—Dr. ARMISTEAD C. CRUMP of New York City presented these instruments and read a short paper illustrated by lantern slides.

Dr. LEWALD said he would like to know whether Dr. Crump had encountered any syphilitic lesions of the esophagus, inasmuch as they had seen a number of cases of syphilis of the stomach. One case he showed disclosed rapid passage of material from the stomach together with a very small stomach, which they had considered usually associated with syphilitic lesions. He asked whether he had had any evidence along that line.

Dr. CRUMP, in closing, said that during the series of esophageal cases which he has had during the last eight years of which there had been about fifty, sev-

eral had syphilitic histories. Some of these malignant cases had failed of diagnosis by other methods. One case he thought of as primary specific in character later proved to be epithelioma, as shown by a specimen. This man had a 4 plus Wassermann but derived no relief from specific treatment. Regarding the case mentioned by Dr. LeWald as bearing a strong resemblance to a specific process in that the patient had no specific history and the Wassermann was negative. At operation, the whole fundus was found involved, spleen adherent to stomach but no involvement of the mesenteric glands. A partial gastrectomy and a splenectomy were done after having previously separated the lower esophagus by means of a thoracotomy. The patient lived only a few hours after the operation. Microscopical examination proved the process to be a carcinomatous one. The autopsy found no extension outside of the original focus.

THE PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, Held February 23, 1921.

THE PRESIDENT, DR. GEORGE MORRIS PIERSON, IN THE CHAIR.

Nature and Treatment of Chronic Arthritis.—Dr. RALPH PEMBERTON said that chronic arthritis was one of the oldest diseases, long antedating civilization. During the war the number of cases had been very large—about 40,000 cases in an army the size of that of the United States in 1918. Dr. Pemberton said he was fortunate in having been stationed at General Hospital No. 9, where he was enabled to study the largest number of cases of arthritis ever examined under controlled conditions. Much that he had to say was based on the experience thus gained with the help of several collaborators. The more we learned of this disease the more we realized that most types were probably referable to the same pathology; perhaps the great majority were referable to the same underlying cause. He studied 400 cases among soldiers and found that exposure played a very large rôle in inducing their attacks. The rôle of infectious foci in teeth, tonsils, etc., to-day was widely accepted and true and he had been much interested to find to what degree exposure was a precipitating factor. The next factor was dysentery, which held a rôle comparable to that played by focal infection. The knee was the joint most frequently involved. That tallied with experience in civil life. In soldiers it had been interesting to see that drilling had not produced any greater incidence of the disease in that joint. The ankle and shoulder followed in comparable numbers. The surgical foci were chiefly in the teeth and the tonsils. The genitourinary tract played a very small rôle in these cases and lues was a negligible factor as a causative element. The basal metabolism in this series of some thirty arthritides fell below the normal range in 20 per cent. As to the nitrogen of the blood, despite much that had been thought and alleged in regard to arthritis there did not seem any clear reason for believing that there was any serious disturbance of the nitrogenous elements. Withholding red meats, for example, seemed to have no specific support. As to the calcium of the blood it was of interest to note that no disturbance could be detected in these individuals at the fasting level, although nothing was more clear than that calcium was disturbed in arthritis, because we knew the bones became rarefied. A good deal of evidence on the part of modern investigators had indicated a definite relation between blood creatine and carbohydrate metabolism. In 50 per cent. of these arthritides there were high values for the blood creatine and some of these higher values of creatine fell to normal as the case progressed. There was no disturbance of the carbon-dioxide containing power as indicative of any systemic acidosis in this condition. The output of water and salt in normals and arthritides was studied and it seemed from the so-called nephritic test that there was apparently a little lag in the output of water and salt as compared to the normal, indicating that the kidney function was to a small degree involved. Dr. Pemberton believed personally this had much

more to do with the secondary results of the disease than the causative factors. He did not believe that the renal involvement played any rôle in the production of the disease. There was a good deal of evidence that there was some disturbance of carbohydrate metabolism in arthritis. It was interesting to note that the incidence of arthritis was greatest at the time when the metabolism went down physiologically. The age curve of metabolism was one which rose sharply in childhood and went down in later life. There was no question that the outstanding causes of arthritis in civil life were foci of infection, which, depending on the age of the individual, occurred chiefly in the teeth, tonsils, and, lastly, in the genitourinary tract. However, other agents might do the same thing—pneumonia and dysentery may play a definite rôle. Other causes which could produce arthritis were disturbances of the ductless glands. An undue food intake undoubtedly produced arthritis in those in whom the groundwork was laid. Finally, the large bowel might be a factor, as Lane had emphasized. The agents which improved arthritis were those which tended, apart from removing focal infection, to combat the tendency toward a lowered metabolism. The more the speaker saw of this disease the more he was impressed with the difficulty of analyzing correctly for focal infection. It was difficult to determine when focal infection was present and where it was, but it was equally hard to remove and there were some situations in the body from which focal infection probably could not be removed. Treatment of cases of arthritis based upon removal of focal infection was not complete merely with the removal of the infecting focus. These cases had more or less disturbance of the body chemistry. After taking out a pair of tonsils in a subject with arthritis we assumed too frequently that he would get well and ignored the fact that there had taken place a serious disturbance—in physiology which we could not entirely read. He might remain sick for several years. The agents which were beneficial in arthritis were those which tended to combat this condition of somewhat lowered metabolism. They were arsenic, probably potassium iodide, certainly thyroid extract when it could be used; the x-ray; radium, which had great difficulty of application; electricity; exercise, which was a perfectly definite means of raising metabolism; massage; nonspecific protein; heat and hydrotherapy, the last mentioned playing a very important and useful rôle in this disease.

Dr. J. CLAXTON GITTINGS said that the result of reducing the demand upon the body metabolism in patients that had been thoroughly studied and in whom all foci had been removed and all other theoretical causes had been eliminated was undoubted to his mind. In his talk with Dr. Pemberton, in attempting to determine what was the particular food material at fault and what line of treatment a man who knew comparatively little of metabolic processes could carry out, he was impressed with the fact that even Dr. Pemberton, with all his experience, was unable, without a great deal of study, to determine what was the best measure of deprivation for any individual and, as he had emphasized, this question of diet, although in the main it may be accepted as one of the most important measures in the relief of these patients, was certainly one which could not be attempted without knowledge of the tools, so to speak. Dr. Gittings said he had also been impressed with the figures of the effect of the removal of foci. The fact that so many of the patients developed their arthritis in the entire absence of foci and others recovered in the presence of foci showed that, although the agency of the focus was certainly long established, at the same time it was by no means the sole cause *per se* in a very definitely large class of cases.

Dr. NATHAN P. STAUFFER said that at first he was under the impression that cases of arthritis were all due to focal infection. As a nose and throat man he was wont to ascribe brilliant recoveries to operation, but Dr. Pemberton afterward convinced him by his work and by his patients that he had seen that it was due to many other causes than just focal infection, and he was quite sure that Dr. Pemberton had found one of the theories in his carbohydrate or intake theory. These patients were markedly improved by regulat-

ing their diet, even though they had focal infections present at the time, because many of the cases had gone on and not been operated on, due to the patient's unwillingness to be operated upon, and even those who had a focal infection removed had not been entirely well until they had carbohydrate tolerance established for them. He also believed that hydrotherapy was a great help as a therapeutic measure, and all had seen it probably in the ordinary cases of backache, which they all got.

Rheumatic Fever and Its Variants in Childhood and Adolescence.—Dr. DAVID RIESMAN said that rheumatism was not, like typhoid fever or diphtheria, a unit disease, manifesting itself in a more or less uniform manner. The rheumatic chain had a number of apparently dissimilar links, the connection of which with rheumatic fever was not easily established, although there was abundant evidence that such connection existed. The links referred to were chorea, tonsillitis, rheumatic polyarthritides, rheumatic carditis. The etiological factor in rheumatism had not been demonstrated. Perhaps we should have to look for a filterable, or ultramicroscopic, organism yet to be discovered. The greatest mortality from acute articular rheumatism was in the age period of from five to fifteen years. While in adults the disease spent itself chiefly upon the joints, in the child it had a much greater tendency to attack the heart; the joint involvement in the latter was often so slight as to be overlooked, yet the cardiac involvement might be severe. Tonsillitis was in the child a frequent precursor of rheumatism, while chorea was at times a sequel. Cardiac involvement might come within twenty-four hours of the beginning of the rheumatic attack and its discovery depended upon a careful routine study of the heart. The mitral lesions thus caused were capable of complete recovery, though the aortic lesions practically never recovered. Because of compression of the left lung by the pericardial exudate, physical signs of pneumonia in this lung might present themselves. The most characteristic skin lesion was the so-called rheumatic nodule, which histologically resembled the miliary nodule in the heart muscle. These were usually few, occasionally enormous in number, and were found chiefly about the elbows, backs of the wrists, near the ankles, and over the buttocks. Diagnosis offered a large field and there were many chances of error. When only one joint was involved great care must be exercised, as the trouble was in such cases apt to be due to osteomyelitis or gonorrhea. As to treatment, the salicylates, whether specific or not, held first place. The dose must be 90 to 150 grains in divided doses at short intervals during the first twenty-four hours. The choice of preparation was not very important; personally he preferred the sodium salicylate combined with a nearly equal amount of sodium bicarbonate. After the first twenty-four hours the dose might be lessened. If the case responded at all the fever and pain would subside in forty-eight hours. In some cases morphine must be given. The joints might be wrapped in cotton or local applications of lead water and laudanum, magnesium sulphate or oil of gaultheria made. A splint might be applied. Abundance of water, lemonade and orangeade should be given. The food should be in the form of milk or milk products, cereals and broth. Until the causative agent had been isolated the use of vaccines and serums was purely empirical. In rare instances the use of a stock vaccine had proved beneficial. If the tonsils were diseased they should be removed, but not, of course, during the attack.

Dr. J. P. CROZER GRIFFITH said that the frequent mildness of acute articular rheumatism in children who had passed the age of five years was to be particularly emphasized. Many of us made a mistake in being too ready to call a case rheumatism in a child under the age of five years, at which period of life it was distinctly rare. All statistics proved the same thing, and yet it had been Dr. Griffith's experience to see cases of scurvy in infants where the diagnosis of rheumatism had been blithely made by the physician who had had the patient in charge. Anyone who would bear in mind that infants did not get rheumatism would avoid this mistake. After the age of five years it was likely to show itself in a mild way until the

period of puberty and was therefore likely to be overlooked, consisting of vague aches of various sorts of which the patients had taken practically no notice at all. One of the most important indications of rheumatism was cardiac rheumatism. He believed thoroughly that the cardiac manifestation might be the first manifestation of all of the rheumatic condition, that it might occur without any rheumatic disease of any sort. Certainly it occurred after chorea without any condition which we knew. It was his firm conviction that the great majority of chorea cases rested upon a rheumatic basis and that 50 to 75 per cent. were in reality rheumatic. The subcutaneous nodules of which Dr. Riesman spoke, common as they were in England, though first described by a French writer, had been, in Dr. Griffith's experience, rare in this country. He agreed that purpura was not always to be called rheumatic, and questioned whether it was ever to be called a symptom of rheumatism, although it was true that joints were often involved. We should treat rheumatism and its complications in early life. He believed in the statistics, which he had read that mitral disease (mitral regurgitation) was probably present in every case of endocarditis in childhood. All the autopsies seemed to prove that aortic disease was frequently present too, not stenosis, but the regurgitant condition. In the treatment of rheumatism he gave salicylates quite faithfully. He did not know whether it was right to be so much of a nihilist, but, to tell the truth, except to relieve pain, whether they had any influence upon the disease he questioned very much.

Dr. A. BRUCE GILL said that the subject of arthritis, whether of disease in childhood or acute arthritis in adult life, was a large subject. He thought there was a close relation probably among all forms of arthritis, whether in infancy, child life or adult life. When we found that many of these cases were due to focal infections, apparently as the experience of all of us, then we jumped to the conclusion that the form of arthritis was an infection in the joint. That was the easiest thing to say, but so many investigators had shown that these joints were sterile; then we were obliged to take a step further back and say it was the presence of a toxin which was manufactured in some distant part of the body. Do we understand what that means? That was taking a step further back in the dark into an undiscovered country. Some of these cases were anaphylactic. Then came a distinct relation between the general metabolism of the body and arthritis. He thought we were free to say that we did not yet understand the direct relation between metabolic changes and the changes in the joint. He was not quite clear in his mind whether the metabolic changes could be ascribed to a concomitant condition or whether they occurred with arthritic changes, or whether there were other causes such as lowered resistance from injury or faulty posture which gave a lowered resistance in the joint, thus giving these metabolic changes an opportunity to have effect upon the joint structures. His hearers would be surprised if they knew how many cases came to the orthopedic clinics with acute osteomyelitis and tuberculosis, which had been treated by physicians for a considerable time as rheumatism. Differential diagnosis was important. Damage was done by failure of early diagnosis and failure of early treatment. Also, in connection with this condition of acute rheumatism, Dr. Gill believed that, if the joint was splinted, the pain would be allayed without the salicylates.

Dr. ROBERT G. TORREY said that the whole point in treating rheumatic fever was to prevent cardiac disease. Dr. Tyson had gone into this subject from statistics gathered from all sources and found those patients treated by salicylates showed a higher incidence of cardiac involvement than cases not so treated. That he did not think meant that salicylates should not be used, but it meant just this: that if we could allay the acute arthritis by giving salicylates, unless the patient were well under control, he would get up too soon. If the joints were under control, the heart would have a better chance of escaping damage. English statistics seemed to indicate that salicylates used early and in full doses certainly had a good influence in controlling, or rather modifying, the incidence of cardiac involvement.

Miscellany.

A NOTE ON THE HISTORY OF ARSENIC IN THERAPEUTICS.*

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To what science more than to therapeutics can Ovid's melancholic remark be applied with more propriety:

*Tabida consumit ferrum, lapidemque vetustas,
Nullaque res majus tempore robur habet* (Ovid, letter viii)

and how few are the drugs employed by the fathers of medicine that have been able to resist the test of time.

Empiricism and tradition which composed the stock in trade of ancient therapeutics have gradually given place to both critical and experimental methods of a truly scientific character. We are no longer in the heroic age of medicine, an age when the apothecary's laboratory offered a singular likeness of the grotto of a Canidia or a witch of Macbeth, where it required hardly less courage to the poor wretch occupied in the preparation of innumerable remedies, than to the unfortunate client condemned to overcome his natural repugnance inspired by these fearful compounds.

The logical study of the physiological action of drugs has resulted in the elimination of many empirical remedies—often useless, occasionally dangerous—but has also been the means of retaining those among the ancient medicaments whose efficaciousness is unquestioned and arsenic is among them.

The Arabian alchemist Gerber (VIII or IX century) in the *Summa*, describes arsenic as one of the natural principles of the hermetical triad, while other alchemists designate by the name of arsenic the primal matter of the chrysopea; while in the spagyric therapeutics of the physicians of the medieval age arsenic plays an important part, as is proved by the medical theories of Paracelsus, the head of the spagyric school.

It would, perhaps, be absolutely useless to attempt to discover the origin of arsenical medication, and still when the history and genesis of great discoveries are studied, it seems as if science, in its progressive ascent, is nothing else than a perpetual correction of observations and hypotheses willed to us by the generations who have preceded us.

The first indication of arsenical medication is to be found among the most ancient peoples of the Orient. The Hindoo physicians were, perhaps, the first to utilize arsenous anhydrid, and the Chinese, who at the present time employ arsenic for strumous affections and paludism and combine orpiment with mercury in the treatment of syphilis, utilized of old the power possessed by the soluble arsenical compounds of exaggerating intestinal peristalsis and of stimulating the intestinal glands. As an ordinary purge they employ a water charged with vegetable

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acids which has been kept for a time in jars made of arsenical clay.

The arsenical compounds known to the ancients were few, namely, the natural sulphides, sandarac and orpiment or auripigmentum—arsenous sulphide, AS_2S_3 —and arsenous anhydrid or sublimated arsenic whose preparation is given by both Pliny (xxxiv, 18) and Dioscorides. They were used as epilatories and Dioscorides affirms that calcinated sandarac employed by inunction irritates the skin and causes the hair to fall out. Hippocrates used arsenic for its escharotic action, employing the sulphides for this end. Celsus (*lib. V, cap. 7*), Pliny (*loc. cit.*) and Galen (*De fac. simplic. med., lib. ix, 3*), as well as other physicians coming after them, likewise mention the caustic and epilatory action of arsenical preparations.

However, the ancients did not limit themselves to the external use of arsenic and exhibited it internally, especially in diseases of the respiratory tract. Pliny tells us that patients affected with asthma and cough are relieved by inhaling arsenical vapors resulting from the combustion of orpiment and cedar wood, while Desgranges states that Hippocrates used orpiment in purulent expectoration and in hysteria.

This internal arsenical medication was not devoid of danger, and instances of acute intoxication were observed. Dioscorides points out that sandarac and arsenic when taken in a potion produce violent intestinal pain, the intestines being often corroded, and as antidotes he recommends the juice of mallow and decoction of linseed and rice. Therefore it is only natural that orpiment or sandarac and arsenic—arsenous anhydrid—are referred to as poisons by the old writers.

In a Greek MS. at the National Library at Paris, referred to by Delobel, Democritus is made to say to the Prophets of Egypt that the bodies which kill man are the following: Mercury, magnesia, antimony, litharge, copper . . . sulphur, sandarac, arsenic, . . . etc.

During the early centuries of our era the Arabians still employed arsenic as an internal remedy, in the form of fumigations for lesions of the respiratory tract and Avicenna prescribed it in large doses for intestinal parasites (*Tract II, lib. 2, c. 49*).

But arsenic then entered into a period of disfavor, and its therapeutic use seems to have fallen into oblivion; it was regarded as a violent poison. Arnold de Villeneuve states in his *De Venenis* that orpiment causes excoriation of the intestine, while others not only regarded it as a toxic for the human organism but as a mineral poison as well. Arsenic and sulphur are mineral poisons which kill mercury, says Pierre Le Bon of Lombardie in his work entitled *Margarita pretiosa*.

Arsenic proscribed for a time from the uncouth therapeutic arsenal of the epoch, took refuge in the athanor of the alchemists. Albert the Great refers to it as one of the four metallic spirits which can be used for staining metals, in his *Compositum de compositis*, while the majority of alchemists refer to it and describe its properties, but always regarding it as an eminently dangerous substance.

At the commencement of the XV century, Basil Valentin declared that it was ignorance that made the therapeutic use of arsenic dangerous, and in his

Last Testament mentions the danger of poisoning from this metal to which workers in the preparation of arsenous acid are exposed. Then, a little later, Paracelsus declared that arsenic derived all its properties from its poisonous nature, that it was a poison that surpassed all others. And, nevertheless, it was Paracelsus and his followers to whom the honor is due for having brought back arsenical medication into general use, at least for external applications.

Paracelsus attributed a peculiar physiological action to each of the three fundamental elements of Spagyry: Arsenic acts on the blood, mercury on the head and salt on the bones. Each one is eliminated from the body, making its exit by a special route: the pores excrete mercury, the nose sulphur, while arsenic leaves the body through the ears. The followers of the Master advised the use of white arsenic—arsenic anhydride—in the local treatment of cancerous ulcerative processes, a method renewed by Cerny and Trunecek, of Vienna, in the year of our Lord, 1901.

Little by little arsenical medication regained the favor of the medical profession. Jean de Gorris (1503-1577) also used realgar or sandaracha in the treatment of ulcers and prescribed it as a sudorific as well. At the commencement of the XVII century, Angelus Salva proclaimed the arsenical magnet—*magnes arsenicalis, lapis de tribus* (sulphur, antimony, and arsenic)—as a specific against the plague.

Finally, R. Lentilius (1684) and after him, Friceius (1710) in his *Paradoxa de venenis*, advised the use of arsenic in the treatment of malaria. In 1700, a professor at Jena, Adrian Slevogt, and Melchior Frick, a physician of Ulm, praised this metal as a febrifuge, and from this time on the happy days of arsenical medication began.

The drug was prescribed widely in all its multiple forms. Arsenous acid was given internally as well as externally. As an external application it formed the basis of escharotic powders of Father Cosmos, Rousselot, of Justamond and Plukket, Hellmund's ointment and the anticancer remedies of Davidson and Guy, in England, and of Chenet in France. As an internal remedy for cancer, it entered into the composition of the preparation of Lefèvre de Saint-Ildefont (1744-1809), in the Asiatic pills so greatly used at that time for tuberculous leprosy and cutaneous affections and in the powder devised by Plenciz, of Vienna (1783) for malaria. Störk of Vienna (1731-1803) appears to be the only person of authority who opposed the abuse of arsenic in paludism, but the protagonists of arsenical medication were the strongest in the struggle, and in 1786 Fowler, in England, made the use of potassium arsenite popular in the treatment of intermittent fever and overthrew the costly use of cinchona in his book wherein he gives an account of fifty-two cures he had obtained, entitled "Medical Reports on the Effects of Arsenic in the Cure of Agues, Remittent Fevers and Periodic Headaches." London, 1786.

Then came the works of Robert Willan, Girdlestone, and Pearson in England, and those of Valentin, Fodéré, and Desgranges, in France, not omitting the remarkable little book of Harless, of Bavaria, entitled "De arsenici usa in medicina."

Although the great Broussais was hostile to ar-

senic its popularity continued to hold its own in France, England, America, and Germany. Fodéré alone in his "Reserches experimentales," Paris, 1809, gives an idea of the multiplicity of diseases which, at this epoch, were treated by arsenical medication. Among them he mentions hydrophobia, tetanus, angina pectoris, chorea, periodical migraine, rheumatism, chronic bronchitis, and emphysema.

But it was in dermatological affections that arsenic enjoyed the greatest vogue; it was the maid-servant of every skin specialist during the first sixty years of the last century. The English physicians were the first to employ it in dermatology, and as far back as 1806 Girdlestone recommended it in leprosy, prurigo, psoriasis, and tinea tonsurans. Then Rush of Philadelphia, Willan, Bateman, and Fodéré praised it for the cure of leprosy, lichen, eczema, prurigo, and all sorts of cutaneous morbid processes.

3, RUE BELLOT.

The Ideal Feminine Form of the Renaissance.—Richer, the well known art anatomist, has published a book on this subject which is briefly reviewed in *Le Progrès Médical* for December 11, 1920, xlviii 50. As the talented author is a sculptor of no mean ability his writings on these subjects have an unusual interest. As a medical man he was associated many years ago with Charcot in pointing out the relations between pathology and art. We see around us today many girls who have grown too rapidly and have in consequence become weakened. In addition it often appears that they reside in unhygienic surroundings. Conspicuous in their morphology are the rounded back and prominent abdomen. While usually outgrown, this shape may persist in the developed woman. Other features are a poorly developed thorax, sloping shoulders, small breasts of relatively high position, wide hips with pelvis so inclined that the sacrum is almost vertical, and the mons is more prominent than in the normal subject. If now we turn to the sculpture of the Italian renaissance we see in Botticelli's well known model, the beautiful Simonetta who died of phthisis at the age of 22, very similar outlines. There is the double curve of the spine which is responsible for the slightly rounded back, protuberant abdomen, and inclination of the pelvis already described. This form is recognizable throughout the Italian art of this period. In Germany we see it much coarsened in the figures of Albert Dürer, and eventually it degenerated into the impossible. There are other features in these women such as the shape of the hands and feet, the averted modest glance, etc., which have no connection with the skeletal peculiarities mentioned.

Ancient Dietary Rules for Asthma.—The following dietary rules for asthma were printed in the *Magazine of Magazines* for February, 1751.

"If ven'son pastry is set before ye,
Each bit you eat, *Memento mori*.
Your supper, nothing, if you please;
But, above all, no toasted cheese.
The use of vegetables try
And prize Pomona in a pye.
For breakfast, it is my advice,
Eat gruel, sago, barley, rice."

—*American Journal of Clinical Medicine*.

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THE GENESIS OF SOME SO-CALLED NEURASTHENIC STATES.*

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OBSERVATIONS of and reflections upon the neurasthenic patients sent me by other doctors for treatment will show how numerous are the ways in which a person becomes neurasthenic. The principle apparent is the necessity of finding out the process in the patient's body and mind responsible for his symptoms. The restatement of this principle made in 1909 ("Differential Diagnosis of Neurasthenia," *Southern Med. Jour.*) seems still necessary when I read to-day, concerning a much advertised nostrum, the declaration of its proprietor that it is a "tonic in neurasthenic conditions, nervous indigestion, fatigue, loss of energy," etc. An astute business man such as the advertiser does not continue to send such statements to doctors in the expectation that they will not be believed: hence it is evident that enough doctors believe such statements to well compensate this advertiser, who is far from an exception.

We must conclude therefore that there are many doctors who fail to grasp that their crying duty when dealing with a sick human being, and especially a chronically sick person, is more than the immediate relief of the symptoms. It is the dealing with processes bodily or mentally responsible for the patient's suffering or inefficiency. To do this the doctor must understand with what he is dealing. That is the meaning of diagnosis in the real sense. In this sense to label a patient neurasthenic is no diagnosis at all.

CASE I.—Thus a man of 45, too neurasthenic to go to his business (indeed sometimes he could not bring himself to leave the house), after some months of treatment was sent to me by his physician adjudged agoraphobic. In a sense, this is a true designation, but the process by which the agoraphobia has been reached is quite different from the more familiar ones of the type I reported so fully last year, where obsessions were the cause. ("Differential regarding phobias," *Internat. Clinics*, 1919, Vol. IV.) In the case of this man the physical state was really asthenic on account of excessive intellectual and emotional stress for a long period. The over-stimulated endocrines had begun to fail him now and then. His distrust of his power was thus legitimately based upon a physical state, an endocrine asthenia. He was readily dealt with and enabled to resume business while being treated. The chief signs

*The introduction to a symposium "The Neurasthenic Patient" at the first Scientific session in the new Medical Building of the District Society of Washington, D. C., Jan. 12, 1921.

were tachycardia, 100; blood pressure, 140-90; prolongation of time duration of red line; slight, fine tremor; sudoresis; insomnia; feeling of general discomfort and tiredness.

CASE II.—Prolonged stress was responsible for an asthenia of a physicist, which showed itself by inability to concentrate on the abstruse calculations he had to perform. He had been taking so-called nerve tonics for several months without benefit. A study of the case showed a very low adrenal output. Attention to this enabled him to continue his work and in a few weeks to recover his former intellectual resiliency. The blood pressure rose from under 100 to 120 in this time. Subjective discomfort and feeling of unreality ceased and he was no longer anxious about impending failure as he had been.

CASE III.—A woman of 40 was sent to me because of a progressive lassitude interfering with her work, even though requiring little mental effort. She too had been taking tonics because of her inadequacy. The genetic factor, however, had been ignored by her and neglected by her physicians, as it was regarded as almost part of her, so long had it continued. It was a frequently recurring migraine headache. It was the dealing with this which got rid of an asthenia which was only aggravated by the tonics and so-called strengthening nourishment which had been previously prescribed. For methods used see "Treatment of Migraine" in the *Therapeutic Gazette*, 1916.

CASE IV.—A man of 50 lost interest in and power of concentration at his business; he consulted a doctor who prescribed a tonic and advised rest. This only made him irritable, as insomnia is troublesome. Examination showed hyperproteinosis with a raised blood pressure. Dietetic and other measures rectified this and his asthenia rapidly ceased. (See "Nervousness and Presclerotic States and Their Management," in *Lancet Clinic*, 1914.)

CASE V.—A young woman became unable to concentrate at work, which furthermore did not satisfy her aspirations. The long continued intellectual asthenia was found to be based upon a lack of social and emotional outlet, with an accompanying endocrine inadequacy due perhaps to the long stress under which she had labored. Dealing with her adjustments to life transformed her personality, while asthenia no longer played a large rôle.

CASE VI.—A woman of 40 was sent by Dr. Lewellys Barker with a comprehensive diagnosis in which the word psychoneurosis plays a part. The domestic work which falls upon the wife of a doctor in a remote region cannot be done without a pain in the back and the right lower limb. Medical advice, regarding her as a neurasthenic, had caused her to persevere in spite of this. Careful study, however, showed the sequelæ of a definite radiculitis of the 5th lumbar root caused by a former arthritis of the lower spine, the traces of which are no longer revealed by an x-ray picture. The signs permitting the affirmation are the location of the painful sensation, the curtailment of the period during which the vibrations of a tuning fork played on the bones are felt and the inability to distinguish two points simultaneously touching the skin over the distribution of the right fifth lumbar root as compared with the left. To deal with the radicular condition is to improve the asthenia, which is not an excuse to evade unpleasant work or a sham defense against it, as a one-sided physician might persuade himself, if an uncritical reader of psychopathological literature and ill grounded in organic neurology.

CASE VII.—A stenographer became progressively weaker and less able to perform her work, which rendered her more and more irritable, and she began to sleep badly mainly because of a gnawing pain in the shoulders and lower neck. Her physician detected no physical signs and treated her by the tonics unfortunately too usual. Examination discovered that the whole syndrome was really secondary to the pain in the neck and that this was due to a faulty stooping posture at the keyboard. A few exercises with attention to posture at work removed the pain, and the asthenia ceased for a period of eight years.

CASE VIII.—A former aviator who had a severe crash, although declared to be well on discharge, found himself unable to concentrate at mental work, which made him more and more irritable and induced again convulsive attacks which had ceased in hospital. The tonics and diet given in consequence of the theory that the symptoms proceeded from a nerve weakness which would be compensated by a highly nutritious diet only made him worse. A deobstruent diet and active work in the open air enabled him to continue at work fairly satisfactorily. He is now in business in town and manages without further breakdown.

CASE IX.—A young woman in a pitiable state of emaciation and asthenia who had manifested convulsive attacks on account of which she was submitted without benefit to an abdominal operation along with a fantastical diet which had contributed largely to her extreme asthenia, was seen in a state almost of collapse, in spite of which she was being urged to exertion, in the belief that *neurasthenia played a large part in her state*. Examination revealed definite signs of a neoplasm apparently beginning in the cortex of the right insula.

CASE X.—Almost complete inability to concentrate and remember his lines was the chief complaint of an actor, leading man to a famous woman star. His behavior was that of the so-called typical neurasthenic. Examination, however, showed that the real condition was a phobia which had been induced by an unfavorable criticism followed by a rebuke from the star. After I saw him through a special rehearsal, the power to concentrate and recollect his lines returned and the rest of his engagement was successful.

CASE XI.—Another leading man found himself in the same predicament; but the cause in his case was intense anxiety due to an ill-founded jealousy of his wife. The situation was highly complex and had to be gone into in detail with both parties, after which the man was able to undertake successfully an important engagement without further trouble.

CASE XII.—A young woman was reduced to a pitiable state of exhaustion on account of long continued fear lest she find herself alone in a room. She had spent four months with a psychoanalyst without benefit. Two interviews at her home sufficed to trace the fear to its inception in childhood and to enable her to take a much needed holiday at the seashore, which greatly improved her asthenia, although she has been unable to visit Washington in order to complete the psychological reorientation.

CASE XIII.—What is considered as a neurasthenic vice, viz., a detailed writing of one's symptoms in order to retail them to the doctor is one of the attributes of a young man sent by Dr. Brill of New York because of an asthenia along with nocturnal incontinence, for which psychotherapy availed nothing, as a wetting occurred nearly every night. Examination revealed numerous signs of vagotonia. The treatment has enormously improved the asthenia, so that for two months he has continued at work and has only wet himself once.

The garrulousness of the neurasthenic has become a by-word. It is now being dubbed an "infantile reaction," a short sighted designation, for children do not expatiate upon bodily distress. They prefer, like the animals, to retire from disturbance, and groan and weep if they make any complaint at all.

The plaints of the neurasthenic are not from self love; it is not that which animates his conversation, but the desire to understand, with the very practi-

cal object of getting rid of discomforts. They are only searchings for interpretation of his discomfort. A wise doctor has little difficulty in curtailing them, but this he does by a leech-craft which guides him quickly to the essentials. After these are interpreted, the patient complains no further, being satisfied.

I need only mention such frequent and well-known causes as focal infection and latent tuberculosis or syphilis. Less realized are the metabolic disturbances, in which perhaps we shall have to include hypovitaminosis. (See Diet in Psychiatry in Fitch's "System of Dietetics"; also see Trans-Am. Medico-Psychol. Assoc., 1917.) There must also be mentioned the mild cardiopathies, and of course the endocrinopathies (see MEDICAL RECORD, April 14, 1917, p. 623) upon which I have scarcely touched, as well as mild psychoses.

For instance the milder cases of cyclothymia especially in the depressive phase are nearly always treated by injudicious medication and strychnine and other tonics, while in the exalted phase of the condition they are given bromides and other depressants. To say manic depressive, however, is no therapeutic help, but some neurologists are now experimenting clinically in these cases which wear many aspects of endocrinopathy of cyclical course.

CASE XIV.—Thus a lawyer of forty-four, sent by Dr. Payne of Virginia has been under observation for over four years and has been kept at work by opotherapy, chiefly adrenal, all that time in spite of several severe attacks of depression of a kind which had previously necessitated staying in sanatoria for months at a time. In one clinic much work was done by a skillful man in a vain effort to elicit a buried complex (non-existent) to account for his state.

Dyspituitarism too is often responsible for a diagnosis of neurasthenia.

In some so-called neurasthenics, the chief complaint is of uneasy sensations, usually in the chest, abdomen, or pelvis. Those physicians who, without adequate neurological training, are greatly enamoured of psychic mechanisms, are fond of attributing these sensations to the imagination by a process they call conversion by which they mean the referring of a mental distress or uneasiness to some region of the body, to which the patient then attributes the discomfort. Now this mechanism may occur whenever the bodily accompaniment of an emotion draws the patient's attention to the part, especially when it is fixed there by the suggestion of friend or doctor. But these conditions are not hard to unravel, and can be dealt with psychotherapeutically.

The inexperienced man fails to distinguish them from the cenesthesiopathies, that is where morbid sensations really originate in the viscera to which the patient attributes them. The difficulty is created by the vagueness and indefinite localization of these sensations, so they are often erroneously attributed to imagination and labelled hysteria. They are vague because it is the protopathic sensibility which is concerned, subserved by the autonomic nervous system, which has not a localizing function and the afferent impulses from which are rarely attended to. Their disturbance, however, creates an uneasiness which is sometimes intolerable. Unfortunately we have no definite therapeutics in these cases.

Between the emotional consequences of this un-

easiness and the physical consequences of emotion the greatest expertness is required to differentiate. Differentiation cannot be expected of a physician whose outlook is purely psychological nor of one devoted to a physiological theory of the neuroses, not even if he has much experience as an internist. Even some psychopathologists are placing too much emphasis upon the emotion itself, rather than going behind it to its origin, as I pointed out at last year's meeting of the American Medical Association ("The Causes of Emotivity and Their Management," *Jour. Amer. Med. Assn.*, Aug., 1920; see also *MEDICAL RECORD*, March 5, 1921.)

The emotional drama itself is unimportant to the physician; but the actor who performs it, whether the heart, the thyroid gland, a microorganism or a wrong way of thinking must be his paramount aim.

It must not be forgotten that the neurasthenic syndrome is not an inevitable upshot of any of these conditions. "For that which is but a fleabiting to one causeth insufferable torment to another; and that which one by his singular moderation, and well composed carriage can happily overcome, a second is no whit able to sustain, but upon every small occasion of misconceived abuse, injury, grief, disgrace, loss, cross, humor, etc. (if solitary or idle), yields so far to passion that his complexion is altered, his digestion hindered, his sleep gone, his spirits obscured, and his heart heavy, his hypochondries misaffected; wind, crudity on a sudden overtake him, and he himself is overcome with melancholy." This qualification is far from new, as it was said as long ago as 1621, by no less a person than Robert Burton in the famous *Anatomy of Melancholy*.

In the cases cited I have not laid emphasis upon the false neurasthenics of the type so abundantly described by Déjérine. I refer to those in which affectation or direct imagination is the causative agent. The psychogenetic cases I spoke of are of the kind where mental prepossession, anxiety, fears, anger, grief, suspicion, uncharitableness, envy, or hate produce disadaptations. These may weary the organism through effects upon digestion and other secretions, as well as upon respiration and circulatory functions. It has been well said, "Better a crust where contentment dwells than to feast in the seats of the mighty."

It is lamentable, in view of the facts just set forth, which have been repeatedly reiterated and ought to be completely known, that there are still medical men whose conceptions of neurasthenic states are so defective as to permit them to believe in the obsolete shibboleth of nerve exhaustion and who prescribe so-called fortifiants or tonics without troubling to ascertain the processes occurring in the patient's body or mind. For that is no better than the untrained amateur or the charlatan.

Let me conclude by making the appeal that when speaking to the laity at least we delete from our vocabulary the reprehensible word neurasthenia.

1746 K STREET.

Organotherapy in Cerebrospinal Meningitis.—Mery and two others report a case of cerebrospinal meningitis due to the meningococcus, which had culminated in a severe cachectic state. There was no response to serum, autovaccination, or fixation abscess, but a prompt recovery under extracts of hypophysis and suprarenal gland.—*Le Bulletin Médical*.

FADS AND FASHIONS IN MEDICAL PRACTICE.

BY FRANK E. WYNN, M.D.,
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THE terms fad and fashion are related in meaning but vary widely in application. The former has rather a restricted significance. A fad is an individual thing largely; fashion has for its votaries a large number—sometimes the multitude. Fads are transient in duration; fashions extend over a longer period of time and exercise a widespread influence. Fads initiate new things which may in time gain the momentum of popular approval, entitling them to be called fashions; and succeeding fashion the long continued use of a thing, a method, a habit, an idea, establishes it as a custom of the people.

The faddist is enamored of new things, but his affection for them soon wanes and his fancy goes chasing after some other flame which illumines his vivid imagination. In childhood this characteristic is dominant. It prevails in all of us to a greater or less extent. In some intensity of the trait persists throughout life.

The faddist is generally of the alert type, often artistic or strikingly intellectual. He has inordinate craving for mental stimulation. He is to be found in every avenue of human activity of the higher type. In the realm of literature he at one time develops unbounded enthusiasm for Kipling; presently it is the star of Tolstoy which is in the ascendant; for a time he pays extravagant devotion to Bernard Shaw; next bows before the shrine of Blasco Ibanez; and now makes deep obeisance to the poetry of Edgar Lee Masters. In the field of art his imagination finds greatest delight at one time in the works of the impressionist school; at another he is carried away with the grotesque productions of the cubists. The faddist prevails in politics, quick to condemn and abandon existing methods and just as quick to be caught up by some new and untried remedy for political ills. In the field of religion and education he welcomes with delight striking innovations, and views with ill-concealed disgust the conservatism of old methods. The slow-going world is the better for these aggressive individuals who call attention to new and suggestive things, even if in the long run many of them are found useless or harmful. Faddists sow the new seed, but it remains for the conservative and more critical judgment of the average mass of mankind to harvest the good grain and cast out the chaff.

What, then, of medical fads? Being human, is it to be presumed that we are exempt from our full quota of faddists? Literature, art and music, being temperamental accomplishments, naturally have a large proportion of faddists. Medicine, on the other hand, with its matter-of-fact ways of critical observation and analysis, has less dreaming, and perhaps less faddists, and yet a surprisingly large number.

In not a few medical men faddism takes the form of raiment. What a delight they find in the newest cut of coat, or a stylish hat; or again the same impulse finds outlet in an impressionist style of new automobile. Let us admit this is simply personal vanity, not without virtue, how-

ever. Certainly it is less to be condemned than slatternly dress, or uncouth acts—ill-mannered affectation sometimes assumed by physicians, which is as much a fad as the stylish clothes of the dandy.

In others this same spirit of craving for novelty and distinctiveness takes the form of speech. Such a person discovers a new word in medical literature, which he parades as another would his stylish clothes. In pronunciation, too, he finds a favorite avenue of expression. Scarcely had we come to pronounce with ease the word *bacillus* when he proceeds with great emphasis to jar our ears with "backeillus." From a sojourn in the East he brings home the broad sound of "a" to clash with the short, flat "a" of our Middle West, so that when he says *class* we scarcely recognize the word. He chants it with the same dignity that a choir would sing an anthem. These sallies of incidental instruction always rivet one's attention. But the medical man who is a votary of faddism in pronunciation of course runs great risk of diverting attention from the main theme of discussion. However, since it affords him such manifest pleasure and instructs his auditors, why should complaint be offered?

Akin to the pronunciation fad is the apparent delight an occasional physician takes in giving to a new sign or symptom the name of the author who has described it. How mystifying the name! Why rob the newly discovered sign of its charm by a commonplace designation which would give inkling of its nature and recognition? He always refers to Grocco's sign; never to the paravertebral triangle.

Faddism is inherent in most of us. It is chiefly a question of degree. Who, for example, has been able to resist the impulse to fly off at a tangent now and then in therapeutic procedure? A new remedy is promulgated from a great pharmaceutical establishment—heralded in suggestive phrases. The flare of promise illuminates our imagination. It is the temptation to gamble. We stake our hope on it. We prescribe it, talk about it, and coddle ourselves into believing it is of value. Presently we see things more clearly, enthusiasm wanes, and by and by our pet goes into the discard. Then our attention is attracted to another therapeutic rocket fired into the professional sky. So one after another of these therapeutic will-o'-the-wisps is chased—phantoms which seldom bring substantial realization. The keen business acumen of the manufacturing pharmaceutical houses is constantly tempting us with these things. What infinite variety they place before us! Infinitude alone indicates the limit of new things they will continue to present to lure the unwary. Here is where most of us have been faddists—often to our later shame and the discredit of the profession. Who of wide experience can escape the charge of guilt in this respect? Should we not more generally resist the faddish impulse to therapeutic experimentation at the bedside? Here of all places we should be governed by the work of painstaking investigators of pharmacologic products—able clinicians with ample facilities and laboratory men of sufficient ability to justify our faith in their conclusions.

Since the advent and multiplication of laboratory methods of diagnosis not a few physicians have become faddists in their use. I would not have the reader misjudge my estimate of the extreme value of these methods as aids, sometimes indispensable, to diagnosis. The point contended for is that we have too often been prone to magnify their importance; not infrequently allowing them to push into the background other procedures of even greater value. The physician gets into the habit for a time of pursuing a one-track route to diagnosis, when he might arrive at the diagnostic haven by other roads, more certain if not so spectacular or short-cut. The aeroplane is the quickest route across the Atlantic, but steamship offers a safer passage. Too often we have faddishly emphasized the microscopic diagnosis of new growths, cultures for the recognition of diphtheria, gonococci for the proof of specific urethritis, tubercle bacilli for pulmonary tuberculosis, Widal for typhoid, Wassermann for syphilis, x-ray for gallstones, and many other special, technical methods, when our business as physicians taking a broad view of medicine should be, not to overload these special things with responsibility, but to assemble with care clinical data for the foundation and superstructure of diagnostic truth. Then let this be illuminated by every possible light of special medicine.

The study of fashions shows that they are uniformly wavelike, beginning in a small way, rising gradually to a crest of popularity, and then receding into disfavor, or abandonment. The chief psychologic forces making for their growth are: first, the universal craving of the human mind for novel excitement and entertainment. Secondly, through the massed suggestion of numbers, reacting upon each other, the wave of popularity is given tremendous momentum. The life cycle of fashions is variable. Style of dress in the feminine world is rapidly changeable—less so among men, as note the century-long popularity of the dress suit. Less frequent but just as characteristic are the wave-like movements in the manners of social life—the forms of salutation, speech and written address; the changes in dancing and other recreational amusements. Needless is it to multiply illustrations. It matters not what particular field of human activity is considered, the same psychologic elements of fashion will be found present directing and controlling to a large extent those who make up that following. The medical profession, therefore, is governed by the same laws of fashion as other classes of society. True our scientific training should make us less susceptible to fashion waves, yet close analysis of the facts shows that we are much like other folks.

The influence of fashion in medical practice is well-nigh irresistible. The mass suggestion, the fact that professional opinion is running one way, leads most of us to drift with the current. It is not merely that other physicians are doing thus and so that we fall in with the majority; the laity push us into the current with the humiliating taunt that we are laggards or slackers if we do not get into the swim. The principle is the same as that which compels us to change the style of

our clothes or be considered queer and a back number.

Almost every new style in medicine has had some practical or scientific basis for its inauguration. Beginning in a small way, its volume increases to a flood, carrying the rubbish of misuse or abuse, followed by subsidence of the wave of professional approval, or perhaps the drought of abandonment. Only a few of these are offered in illustration. Nearly all of them relate to therapeutic procedure. They carry some good just as they are impregnated with some bad—representing the wobbling, struggling effort of fallible human beings toward better things. The problem of prime importance in regard to any fashionable movement in medicine is to conserve in the end the elements of good—and guard against the natural reaction of condemnation and abandonment. Some of these movements are limited in extent and transient in duration; others take deep hold upon the profession, become the universal practice, and so established in respectability, that not to follow them is to be a medical heretic.

A very dominant medical fashion during the early part of the past century was phlebotomy. Any practitioner who ventured to question its value was professionally ostracized or condemned as derelict in duty. For many years it held sway as the most useful therapeutic procedure. Such was the verdict of careful students and practitioners of the time. Yet note the gradual decline of its popularity and final abandonment. Are we to conclude that they were entirely mistaken in their judgments? On the other hand, are there not very good anatomic, physiologic, and pathologic grounds for performing phlebotomy in certain cases—as for example uremic coma, cerebral hemorrhage associated with high blood pressure? Yet who has the courage in these days to advise phlebotomy? Strange, is it not, that so intelligent a profession should be so dominated by reactionary prejudice.

The overweening pursuit of drug therapy has constituted more than a fashion. It has become a professional custom, bolstered up by prejudice which it is difficult to shake off. Born centuries ago in an age of mysticism, even time and unemotional science have made slow progress in getting the light of progress through the thick skin of our superstitions. The lay-world bows before the shrine of drug therapy—looking longingly for the Fountain of Perpetual Youth or a mysterious potion which will work a miracle within the body. These words are not to be construed as a condemnation of drug therapy *in toto*; but a plea for the use of drugs upon proved, rational grounds. The driving impulse to search after the mysterious potion, which will restore health, is not unlike the human longing for life hereafter. The *urge* points toward truths which may some time be revealed. In drug therapy a few precious revelations have been made. Experimental pharmacology in our own day has brought to light many therapeutic facts of extreme value. Let the search go on, to bless coming centuries with other discoveries, wrought out of patient experimental toil. But this does not justify the profession in making a fetic of drug therapy, as

do laymen who are biased through the inherited mysticism of past centuries. The quack recognizes this tendency of the race, and accordingly makes appeal to credulity through the mysteriousness of his nostrums. Pharmaceutical manufacturers cater to this same racial tendency in the medical profession, inundating us with proprietaries and new products bearing alluring titles and suggestive promises.

Polypharmacy has constituted the most conspicuous aspect of drug therapy and its worst sin. Even to the present day its influence is felt in the complex formulæ of proprietaries and official compounds, although a strong and wholesome tendency exists toward simplicity in drug administration, not characterized by the enthusiasm, however, which entitles it to be called a fashion.

A fashion of the last century growing out of and in a measure succeeding to, multiplicity of compounds, was magnitude of dosage. "Doctors of the Old School" still amongst us, tell interesting narratives of the large doses formerly employed, notably in the administration of mercury. In protest arose the sect of Hahnemann advocating minimal dosage and specific medication—erratic extremes in opposition to prevailing practice. This served a useful purpose in breaking the high wave of excessive dosage and nauseous mixtures. So has come to decline this therapeutic fashion.

As the wave of fashion for large dosage and bulky, nauseous mixtures subsided, another arose, supposed to correct the old abuse—namely, coated pills and tablets. Three important agencies have combined to promote the popularity of this type of medication. First, patients preferred tablets to the nauseating compounds; secondly, they proved a convenience to physicians, especially those who were compelled to do personal dispensing; and thirdly, the pharmaceutical manufacturers seized upon pill and tablet production as a lucrative avenue to business success. That this plan of drug administration has distinct advantages entitling it to a place of permanency cannot be doubted. Admitting its virtues it is just as important to give serious heed to dangers lurking in the method. Who can deny, for example, that the manufacture of innumerable formulæ in pill form has tended to destroy initiative and skill in the art of prescribing? In the next place the multiplication of manufacturers has put upon the market many pills and tablets which are inert; or even granting virtue in their composition, they may be so combined, desiccated, or compressed as to render them insoluble. Very recently a most intelligent patient made special request that I should not prescribe tablets made by a very well-known pharmaceutical establishment because on two different occasions he had found the tablets passing by the bowel almost unchanged.

A very real danger is that the physician will acquire the pill-vending habit. He becomes more a tradesman than a physician. It encourages office dispensing, which at first thought looks attractive, but in the end leads laymen to think of the doctor as a man peddling wares. They naturally reach the conclusion that they pay for medicine rather than advice. The ultimate effect

is a lowering of professional prestige. Pill and tablet prescribing is a prevalent fashion which calls loudly for reform. It is producing in the ranks of the profession a host of therapeutic nihilists. Out of the infinite variety of tablet formulae which clutter his office the physician comes finally to lose respect and confidence in drugs. He drifts into the attitude of saying to himself, "O well, one thing will do as well as another." The urgent call of the hour in regard to this fashion of our time is not for abandonment of tablet therapy, but for the production of trustworthy products and simplified composition. And, above all else, the pill and tablet craze should not be permitted to usurp the place of art in prescribing other things and methods which will better achieve the relief of the patient.

In Jenner's great discovery, with its scientific suggestiveness and vast practical benefits, the soil was fertilized for the growth of even greater rewards in the prevention of disease and the advancement of therapy, through the revelations of pathology inaugurated by Pasteur and his followers. The outcome has been the rapid development of the system of biochemical therapeutics. Antitoxin led the way. Its great practical value in the cure of diphtheria proved, hope was aroused for similar benefits in other infectious diseases. It attracted at once the most noted pathologists, pharmacologists, and clinicians, who have been endeavoring to work out scientifically the control and cure of different infections along similar lines. Great pharmaceutical houses have expended enormous sums in the erection, equipment and manning of laboratories for the purpose of manufacturing biologic products for the treatment of disease. Antitoxins, serums and vaccines of infinite variety have been produced. An expectant profession has been taught to have faith in these things notably by their experience with diphtheria and tetanus antitoxin; also from the occasional aid by the judicious administration of tuberculin in incipient pulmonary tuberculosis, as well as some other forms of Koch infection; again by the obvious benefit noted in some types of gonococcus infection; and quite markedly in certain kinds of local infection by autogenous or even stock-vaccines, when the general body resistance is good. These conspicuous achievements have caused the wave of biochemical therapy to rise very high in professional esteem. Encouraged by experience to have faith in the movement it is not strange, therefore, if the profession should be dazzled by the brilliancy of accomplished things, and go blindly about the further application of the plan in therapy. This form of treatment has become a predominant medical fashion of our day and generation. As in other fashions, may it not be true that we are now being borne upon a wave of enthusiasm in which unwarranted excesses are being committed? The injection of a foreign protein into the body is never to be taken lightly. The indiscriminate use of vaccines especially is not only unscientific, it is senseless and fraught with grave danger. Of course no account is here taken of those who use vaccines with venal intent—merely because popular, spectacular, and

a form of therapy in which considerable fees are possible. Such a person is no better than the most arrant quack. This appeal is made to the man who is carried away by the wave of popular approval of this form of therapeutic procedure. The injudicious and unscientific application of the treatment can only bring harm to many patients and embarrassing discredit upon the profession. The tocsin here sounded, then, is greater caution in the use of these measures. Make sure that all the indications are present calling for their application—then use them but with the care which will avoid harm and insure benefit to the patient.

The Council on Pharmacy and Chemistry of the American Medical Association has done a conspicuous service in trying to correct the harmful trends in vaccine therapy. The volume soon to be issued by the Association will prove a most valuable and reliable guide to the profession in this popular and useful phase of treatment.

For consideration last has been reserved a medical fashion destined to wield a greater influence than any which has preceded—operative surgery. From century-old practices of the art it has arisen triumphantly in spite of deepseated lay-prejudice. Bacteriology first laid the foundation for aseptic surgery, and experience soon emboldened the operator in surgical attack. So dashing have been the battles won that not the profession alone, but the world as well, stands in awe and admiration of the achievements. So won over to operative procedure is the public that now the layman's query in perplexing cases is apt to be: "Would an operation offer relief in such a case?" Thus has grown faith, based upon works. Among general practitioners the ultra-conservative have been driven by popular opinion to espouse more aggressive, life-saving tactics; and some practitioners have been charged by a critical public as slackers and laggards in the professional procession, because slow to accept the surgical route to relief.

The final yielding of the reactionary elements in medical practice to aggressive surgery has come about chiefly through the slogan of focal infection. With the rising wave of surgical fashion, one after another anatomic region has been invaded by the knife, with sanguine hope of relieving both the local and general symptoms. Amongst these may be mentioned in sequence the ovaries, tubes, appendix, gall-bladder, tonsils, mastoids, and teeth, each of which has been charged with blame for the systemic manifestations. Often the accusation proved true, for relief followed surgical attack upon the suspected focus. In such cases we justly congratulated ourselves upon the wisdom of the course pursued. But we must be just as honest in acknowledging failure in not a few cases—in truth some show an aggravation of general symptoms (in the heart, joints, kidneys, etc.), and in a few, grave conditions are provoked. Let us not, then, with thoughtless minds or unfeeling hearts make unseemly haste to advise surgery. One needs not to search far to discover in the evolution of this fashion excesses which shame us as we look back at them. Who will ever be able to compute the

ovaries which were uselessly sacrificed two or three decades ago? In the light of this experience does it not behoove us at this time to enquire, if perhaps in the matter of the tonsils and teeth we are not repeating the same unwarranted slaughter of parts which should be more frequently conserved? Let not these words be construed as a protest against justifiable surgery; rather let it be considered an earnest appeal for that thorough study of cases which warrants surgical procedure. In proof of the contention here made three examples may be cited from the records of patients admitted to the Robert W. Long Hospital, during the month of February, 1921. The histories of these cases show a long list of operations all performed in other institutions with one exception—tonsillectomy.

CASE I—S. M. Single woman.

At age 23, cystic ovary removed on the left side.

At age 24, left ovary, tube, and appendix removed because of pain in the side. A sinus resulted which required several operations to secure healing, extending over two or more years.

At age 25, one breast was amputated, because of tender and infected lumps.

At 27 the other breast was removed for similar conditions.

At age 30, admitted to the Robert W. Long Hospital. Complaint: pain low down upon either side; nervous and hypochondriacal.

Chronic amygdalitis diagnosed—tonsils removed.

Discharged unimproved.

At age 31, readmitted to hospital, pains of indefinite nature through bowels; occipital headache. Discharged unimproved.

At age 32, readmitted to hospital, complaining of pain in the stomach and bowels. Final diagnosis: psychasthenia with mental inferiority.

CASE II—J. S. Male.

June, 1919, operated for suspected gall-bladder trouble. Again operated in December, 1919, for adhesions, supposedly following the previous operation. June, 1920, another exploratory operation was done in an eastern hospital without finding anything definite.

February, 1921, patient was admitted to the Robert W. Long Hospital showing all the typical subjective and physical symptoms of a tabes dorsalis, with serological findings positive.

CASE III—E. G. Male. Appendectomy done in 1916.

Operated upon in July, 1917, for duodenal ulcer; gastroenterostomy done.

November, 1917, plastic operation done to relieve contracture.

June, 1918, duodenal ulcer excised.

May, 1920, old gastroenterostomy cut off, and gastrojejunum ulcer excised.

January, 1921, admitted to Long Hospital with severe epigastric crises. Laboratory and clinical findings were conclusive for tabes dorsalis. Query: May not all of the conditions for which operations were performed in this case have been luetic?

These errors, superficial study of cases and precipitate appeal to surgery, constitute the gravest danger growing out of the dominant fashion for operative relief. In the long run it can but react harmfully upon legitimate surgery.

Besides these sins of omission and commission, are there not perhaps other dangerous channels into which the prevailing fashion may be leading? For example, while the strict application of asepsis makes the able operator bold, it is apt to lead the incompetent to reckless extremes, resulting in human sacrifice. The simplicity of aseptic and surgical technique in the main has tended to produce an army of technicians, with-

out breadth of surgical grasp or the wisdom of surgical judgment. False standards are set up, cheapening both the art and science of the profession. The call of the hour is not for less technicians but for more real surgeons, who pin their faith to a working knowledge of anatomy, physiology, surgical pathology and the ability to deal with problems and emergencies in the light of this knowledge. Subsidiary to these, but very important of course, is thorough training in the mechanical phases of the art.

Begotten of surgical fashion, is observed not rarely, the sin of arrogance. Surgery has dramatic appeal to the lay-mind. The egotism of the operator is fed by popular acclaim. The less spectacular general practitioner sometimes becomes moody and envious, charging the public with ungratefulness. The surgeon is prone to conceit and self-sufficiency. Who would have the temerity to question his wide experience? He has seen hundreds of cases of appendicitis; why then should the general practitioner suggest the possibility of beginning pneumonia with pain referred to the abdomen? Would it not be interesting to know how many gall-bladders have been drained in tabetic cases with abdominal crises? The writer can enumerate a considerable list. Sometimes the general practitioner is justly blamed for dallying when aggressive surgery would save life; and I can say with equal truthfulness that I have seen perfectly healthy ovaries, appendices, tonsils and teeth removed. That these things happen is to the credit neither of the one nor of the other. The exhortation is for greater diagnostic care and closer co-operation.

An outgrowth of the prevailing surgical fashion in quite a few men has been the development of the vice of avarice. The trend toward big business the world over has too often taken hold upon the surgeon. The modern hospital with its equipment and system has enabled him to concentrate and facilitate his work. It offers likewise better opportunities for scientific endeavor as well as surgical relief. It is an evil day for him if once he becomes infected with the germ of avarice, for the malady is difficult to cure. His consuming thought then becomes "big business"—many cases and large income! Assistants make preparatory study of his cases and take entire charge of the post-operative management. He is prone to lose personal touch with patients and develops into a cold-blooded materialist. He becomes a brilliant technician and operator, known to the lay-world chiefly by his fabulous income. His career takes on a mercenary aspect. He loses in skill of scientific approach to the operative attack and fails to cover disease retreat against the dangers arising in convalescence—thus neglecting one of the main principles in first class generalship. Fine assistants he may have (perhaps better than the chief himself) but the point is that he is passing for something which he is not. The three indispensable links of operative surgery are, thorough diagnostic study, the mechanical phase or operation, and the post-operative management. "Big business" prompted by avarice will seek to get by with the operative link only. This is not fair to the patient; it is

worse for the surgeon, who is neglecting the intellectual, judicial, and human side of surgery for its mechanics, its narrow materialism, and "big business."

It will be quite generally admitted I think that the outstanding fashion of medicine for our own day and generation is operative surgery. That it has shed imperishable luster upon the profession, who can deny? But like any rising wave of fashion, some drift is carried along with the fine ships of achievement born upon its crest. This is to be expected in any case remembering the fallibility of human wisdom and human judgment. Is it not meet therefore that we should take counsel one with another about the dangers? Most of all, is it not incumbent upon those prominent in the surgical field to sound the note of warning? Is not the human body a sacred temple of which we are the earthly custodians? Shall we permit defilement of this sanctuary without due preparation and reverence for its wonderful mechanism? Does every new focal symptom constitute sufficient warrant for rushing to vaccines or surgery without adequate study of the case from every angle, with a summary of conclusions, justifying the one or the other procedure? In other words, the route which every conscientious practitioner should follow is that of painstaking, scientific inquiry and not always the highway of fashion. There may be other roads safer, better, and more direct to the haven of health for the sufferer. Our highest duty is to ascertain the best route and pursue this steadfastly.

421 HOME MANSUR BUILDING.

THE NATURE OF EDUCATIONAL HYGIENE.

BY IRA S. WILE, M.D.,
NEW YORK.

EDUCATION connotes the systematic development of latent powers so as to create a maximum of special or general living efficiency. As a process, it aims to cultivate the relations of the individual to the ideals of the community. In its methods it seeks to foster the intellect, the emotions, and the will so that they may harmonize in right living. Through exercising, creating, and stimulating activities, by stabilizing beneficent habits, and through motivation from interest and enthusiasm it seeks to extend all forms of human experience so as to establish a character by reason of which egocentric and altrocetric desires may function without friction. Thus education tends to draw out and build up latent human capacities—physical, mental, moral, esthetic, vocational, and racial.

Hygiene is a branch of medical science that is concerned with the preservation and improvement of health for individuals and for communities.

It is undeniable that education deals with the mass as well as with the individuals. The teacher, the physician, the nurse, and the school visitor, with varying degrees of prominence, function in the educational process. In its hygienic aspects education takes cognizance of the general supervision of the community, and is equally interested in the examination and conditioning of individual children. There are, naturally, variants in all communities due to the presence of abnormally, or

preferably, atypical children, who themselves create educational and hygienic problems involving the progress of normal children.

There is a common ground, then, of education and hygiene which may properly be termed Educational Hygiene. It does not represent a dilution of medicine applied to an educational system, but rather the cooperation of medicine with educational systems. Both are concerned with methods of prevention and remedial agencies for the promotion of the welfare of the child at school. Both are concerned with problems of brain power, fatigue, latent ability, and inherent vitality. Both serve childhood and recognize the interrelation of work, play, and rest with physical limitations, mental impairments, and moral tendencies. Education assumes the expansion of a certain average of physical wellbeing, and is now concerned with the methods of raising that average. Its relations to hygiene are no longer narrowed to the acquisitive function of the brain, but involve an understanding of all the physical factors that underlie educational processes.

O'Shea for many years has urged the necessity for the development of the "scientific temper among teachers, and the adoption of scientific methods by all who treat of educational questions." This position is further urged by Horne, who tritely expressed what is now a common view: "Every indispensable qualification of the teacher, viz: a knowledge of the subject taught, the ability to teach, and a worthy character." It is patent, that a knowledge of the pupils taught, and the ability to teach are, in a large degree, dependent upon an appreciation of the growth and development of childhood. Rapeer in his "School Health Administration" enumerates under the head of medical supervision, School Sanitation, Physical Education, Teaching Hygiene, and Hygienic Teaching, and a vast array of subjects in which education is shot through with hygiene. There is no hiatus or dissociation of the two general subjects, but they are more or less unified by a point of view which enables each to take advantage of the other, so that a harmony is secured that reacts beneficially upon the pupils, the teachers, and the community interested in the successful organization of child welfare.

It may be said, that the professional pedagogue should be the responsible judge of the weaknesses in our educational systems. This is a phase of professional spirit narrow in its conception, and unworthy a professional mind seeking light upon all its problems. As an illustration of the folly of this point of view, one may point out the disadvantage of having medical observation only remotely connected with the work of the teacher. Medical observation cast into the school as an extraneous function achieves inadequate results. Greater gains result when teachers are not merely capable of discerning variations in educability, but are interested in understanding their causes, and become active in aiding the discovery of the basic variation responsible for educational failure. This does not mean that a teacher must assume the functions of either a doctor or a nurse. Hygiene is not devoted merely to the recognition of disease or defect, but concerns itself with the remedying of handicaps, and what is more important, the prevention of their development.

If one considers educational morbidity and mortality as evidenced in truancy, retardation, and elimination, one faces the paucity of our present day application of the scientific temper. What is the efficiency of an educational system that holds only 60 per cent of entering children until the eighth grade is reached? Or the sixth? What is wrong if only about one-third of our school children graduate from an elementary school of seven grades or more, and less than one in ten graduates from a high school? Where is the difficulty? Does it suffice to say that the present courses fail to hold interest? Or that children appear to be incapable of accepting the intellectual provender now provided? How much information and explanation is derived from the report of an attendance officer who accounts for absence under these heads: Illness, illness in family; kept at home to work; out of district; unclassified; found on street? Is there sufficient information here for a consistent plan to lessen absenteeism, or to formulate a scheme for the reduction of truancy? Is there any advantage derived from these general expressions concerning delinquency, unless there be more specific information here concerning the underlying causes? What part is played by the homes of poverty, not merely financial, but poor in happiness, poor in culture, poor in peace? How much is due to lack of parental care, parental interest, parental understanding, indifference, neglect? What is the influence of contact with pleasure, candy, cards, smoking, indecent literature, and gang life? Wherein does the physical condition or personal temperament function? What are the particularized results of adolescent instability, school maladjustments, overindividualism, inherited tendencies? How far is the community responsible with its failures in housing, recreation, and lack of concern for the essential needs of childhood? What influences arise from room congestion, low wages, exploitation in labor, or lack of religious training? These are fundamental questions, all of which merit concern in determining the causal elements of truancy, retardation, and elimination. If one summarizes the causes of truancy as due to physical abnormalities, mental defects, inefficient or degraded parenthood, various annoyances, and communal neglect, both the educator and the hygienist are interested in these unfavorable conditions; to correct them when found, and to raise familial standards so that they may not affect other children either at or preparing to enter school.

The problems of retardation undoubtedly involve a readjustment of our curricula, but even with an ideal course of study a relative degree of retardation will exist, not merely because of late entrance or unfamiliarity with English, but because of a variety of effects bound up in the personality of childhood, home conditions, social contacts, and physical and mental ineptitudes. The pedagogically retarded child, to a great extent, is the precursor to early elimination.

There is more or less confusion in our use of the words "normal child" and "average pupil." The average pupil may have to repeat a grade because of physical defects or disease, but this fact should not place him in the category of those who are retarded. The "normal child" is largely an abstract

concept. In point of fact, the "normal child" evidences many variations from physical, mental, and moral perfection. The term does serve, however, as the symbol of an idea of child power, partially determined by our knowledge of the "average child," as manifest in its physical growth, its mental progress, and its standards of behavior.

A large portion of retardation is concealed by reason of the tendency to force promotion, irrespective of the reasons responsible for inferior educability or delayed educational progress. The desire to bolster up school efficiency in terms of percentages of promotion is an obstacle to the fullest understanding of the causes underlying non-promotion. If, however, non-promotion were to be considered in the first four grades only, the elements of retardation might be reached earlier, and result in a higher degree of attention.

A study of backward children which I had made in 1914 indicated that irregular school attendance was not a large factor in retardation, nor was late entrance of unusual prominence. Only about 8 per cent. of the children were found physically normal, and a very high proportion evidenced a degree of mental dullness, including under this term those found actually to be mentally defective. One may ask, properly, if it is sufficient to account for retardation, that is, children two or three years or more over grade, on the basis of late entrance and slow progress caused by mental deficiency, backwardness, physical defects, illness, irregular attendance, change of school systems, environment, lack of application, lazy, etc. Do not these terms require further information? Why is there backwardness? Why irregular school attendance? What is wrong with the environment? Why is there lack of application? What is laziness?

In a report of the School Committee from Boston, out of 8,496 children, failing of promotion, 538 were characterized as lazy, 495 as inattentive, and 486 were charged to absence caused by truancy, and neglect of homework, while 2,803 were accounted for on the basis of mental immaturity. Certainly these proportions of children deserve more explanation than is afforded by the terms indicated. Are educators and doctors willing to accept such a terminology of explanation that fails to explain?

Newmeyer, in accounting for the causes of retardation, groups them under three heads, first, physical defects; second, home surroundings and environment; third, faulty educational methods and inexperienced teachers. In listing the causes of nonpromotion as an aid in detecting mental dullness, he employs the following classification:

Causes Due to School or Teacher

1. Faulty curriculum.
2. Lack of success of teacher.
3. Pupil and teacher incompatible.
4. Frequent absence of teacher.
5. Crowded classrooms.
6. Standard for promotion too high.
7. Change of teachers.

Causes Due to Pupil

1. Frequent change of school.
2. Truancy.
3. Irregular attendance.
4. Lack of interest.
5. Ignorance of the English language.
6. Slowness, dullness, inattention or idleness.
7. Mental defect.
8. Physical defect.

Causes Due to Home Conditions

1. Poverty, causing malnutrition and necessity of work after school.
2. Bad environment at home or with associates.
3. Home cares and responsibilities.
4. Carelessness of parents.
5. Lack of control causing incorrigibility.

I submit that this listing of causes, from the medical standpoint, is inadequate, and forces one back to a substratum upon which most of these alleged causes are founded. These again re-emphasize certain basic values to which insufficient thought and attention have been given. These derelictions, however, are not more common on the part of pedagogues than on the part of physicians interested in school administration.

While the elimination of children from school is partially accounted for by those who drop out because of ill health, and those who make slow progress because of unremedied though remediable defects, there are numerous other elements entering into the school defections that are not beyond correction. If the current judgment of elementary schools be sound, that an eight year course of study is the minimum of training required for an intelligent citizenship, the problem of elimination assumes particular importance. It is equally urgent that thought be focused upon the high degree of elimination during the adolescent period, when the unfolding nature of boys and girls yields a constant stream of undefinable emotions leading to new ambitions and aspirations alienating individual interest from tasks that are monotonous, ideas that are static, and the gross formalism of adult projects.

In an explanation of withdrawals of pupils from school, I find listed such terms as: to go to work; needed at home; poor health; physical defects; sickness in family; failure in studies; indifference; suspended or expelled. In one city the causes are listed as preventable and non-preventable. The preventable include: work and over compulsory age. The non-preventable, 83.5 per cent. moved out of the city, at parochial school, under compulsory age, death, sickness. In an interesting report of the New York High School Teachers' Association the reasons for leaving high school were grouped under these general heads: going to private school, personal illness, home conditions, going to work, moved from city, unknown reasons.

I am selecting certain reasons given by boys leaving one high school, and girls leaving a girl's high school as indicative of some interesting fields of work wherein medicine and education overlap. *The boys:* Desirous of financial independences, mental incapacity, especially for algebra; parents unsympathetic with school ideals; took course not fitted to ability; too large for class mates; discouraged by teachers; did not like it, too tame; too much home work; too great interest in the opposite sex. Illness was not given in a single instance. *The girls:* Course did not appeal; personal illness; worked too hard in school; wanted to go to work; too old; trouble with teacher; too lazy. In all probability these responses were not wholly genuine, but they may be taken for what they represent—the explanation of an educational delinquent for his own action—in all probability, the rationalization of an act motivated from the unconscious.

It is thus apparent that elimination from school carries with it many questions that a sanitarian

would bear in mind in scrutinizing reasons for a peculiar morbidity or mortality in any district of his community. It is patent that physical defects are not predominant factors, though they may be responsible for approximately 5 per cent. of elimination, 6 per cent. of non-promotion, and 7 or more per cent. of retardation. It may be that further study of those termed dull, inattentive, or lazy, would show them to be suffering from some physical defect of a remediable character.

It is almost bromidic to refer to the relation of health to school progress. In general, it has been stated that the better the health of the school child, the more rapid its progress. There is truth in the statement only if health connotes the complete health of the children, including the physical, mental and moral components. Health is not to be interpreted merely in terms of anatomy and physiology, but also involves psychology, and the ability to make essential adjustments. Illness, in one form or another, exclusive of physical defects, is probably one of the largest factors operating, accounting for nearly 25 per cent. of absences from school, 10 to 15 per cent. of the eliminations, 10 to 12 per cent. of non-promotion, and for at least 10 per cent. of retardation.

It becomes evident, therefore, that school progress possesses a large content for the hygienist. The investigation of pressure, over-study, competition and examinations for mental determinations has not been adequately defined. The forcing of standards in mass education is not to be deemed hygienic. The maladjustments in the personalities of teachers, the low standards of admission to the teaching profession, the lack of adequate knowledge concerning child psychology and physical growth operate against the finest type of hygienic school methods.

One may well bear in mind Spencer's note, "If, therefore, it is the duty of the State to protect the health of its subjects, it is its duty to see that all the conditions of health are fulfilled by them." This applies to the teachers, the subjects, and the objects taught. More and more, one appreciates the inadequacy of our interpretation of educational performance. The hygienist must deal with personal problems and their important manifestations, as must the teacher. Both must ask such questions as: Why is this child unruly? That a poor speller? Another deficient in arithmetic? Why is this one so frequently absent? That one a truant? The other delinquent? Which child has a visual defect? Which an aural? Why does this one fall asleep at his desk? That one talk without permission? etc. The mere ascertainment of a fact is negative in results. To know that a child is a truant conveys no message. To know that a child is myopic gives some promise of accomplishment. Knowledge that this one is thin, pale and underweight is valueless, unless the etiology is revealed. The readjustments that educational hygiene demands must be based upon knowledge concerning the methods of cure, as developed from an investigation of the fundamental factors causing the specific conditions interfering with education.

I admit that this requires a comprehensive analysis, with an understanding that education is not an element of civilization that is confined within the walls of a school. It requires the study of all

the factors entering into the life of school children. The problems evolve from the teachers, the principals, the school, the inherited nature of the child, his acquired physical state, his home relationships, his associates, recreations and social environment, age, racial character, and every other item that can bear a relation to the development of his individuality, and the direction of his character and potentials as demanded for school progress.

Thus, without any discussion of machinery or agencies to be employed, one may arrive at these conclusions as to the aims of educational hygiene. (1) It seeks to understand the optimum conditions conducive to the promotion of health and constant school progress. (2) While recognizing the insistent problems of the so-called abnormal child, it lays special stress upon living in and through the school for the benefit of the so-called normal child. (3) It searches for data indicating the correlation of educational defects with the underlying physical, mental, economic and social causes as far as may be determined in the light of our present knowledge. (4) It desires to arouse educational authorities to the importance of paying specific attention to the problems of hygiene in teaching. (5) It purposes to stimulate the study of healthful conditions in schools that make for better progress. (6) It essays to co-operate with teachers in investigating the worth of educational methods devised to correct slow progress through school. (7) It solicits an explanation of educational curricula in normal schools and colleges, training teachers, so that, as students of education, teachers will acquire sufficient basic information to qualify them to function as hygienists in schools, without assuming any of the responsibilities or duties of physicians or nurses. (8) It regards the teacher's function as educational and not medical, but considers the teacher as a natural aid in protecting and conserving the communal health by reason of her daily conduct with school children. (9) Its medical vigilance relates to hygiene that will serve to decrease retardation, elimination and truancy, so that the standard of education may be raised, and thereby enhance the efficiency of potential citizenship.

264 WEST SEVENTY-THIRD STREET.

A REVIEW OF THE MATERNAL MORTALITY ASSOCIATED WITH PREGNANCY AND LABOR IN THE BRONX DURING THE PAST TEN YEARS.*

BY A. J. RONGY, M.D., F.A.C.S.,

NEW YORK.

THE art as well as the science of medicine is inexact. The longer one is engaged in the practice of medicine the more one will realize that it is highly individualistic. The competency of a physician, as a general rule, will be in proportion to the quality of his mental faculties. To become expert in any branch of medicine requires close application and profound study of the subject at hand. One must not only be conversant with the modern trend of thought, but must also keep in touch with some of the correlating departments. He must not

*Read before the Bronx County Medical Society, November 17, 1920.

only be familiar with all the present methods, but he also must have some knowledge of what has been done in days gone by, and above all the man who is capable of selecting and applying any given procedure at any time to any given case is the man who is likely to make the least number of mistakes and will guess correctly the greatest number of times.

To decide properly one must be capable of clear thinking. In order to do that one must have sufficient rest. No human being can be continuously subjected to a constant strain and at the same time be expected to give what is best in him—such a routine never makes for efficiency.

The public must be made to realize that obstetrics is a disturbing specialty, continued practice of which will undermine the health of the strongest man, and unless the present system under which obstetrics is being practised is changed, good judgment on the part of either the physician or specialist can not prevail. The brain must become lazy when night work is superimposed after a strenuous day's work. That is why the mind of the average busy obstetrician is half the time befuddled. That is why very few obstetricians display real brilliancy in their work. Anyone who is willing to spend the greater part of his life in the antepartum room and listen to the moans and groans incident to the pangs of labor, will sooner or later become less wise than he was when he decided to embark upon that specialty.

It is, however, fortunate for the practice of obstetrics that it does not require great genius to carry out some of its details. A man with very ordinary ability who would make but a very mediocre physician or surgeon may—after a fashion—become a very able obstetrician in a very short time, for the problems nowadays are very simple—it is either to pull out or cut and the great feat is accomplished.

Obstetrics is the only branch of medicine which should be truly an art, for it is practically the only specialty which assumes a mathematical aspect, but it seems to me that, like figures in general, it does not always tell the true tale.

I have often wondered whether it is the fault of the modern woman or of modern obstetrics that normal labor is becoming less and less a thing of the past and if the present pace is kept up the time will soon come when a child who has conquered the art of obstetrics and been delivered spontaneously will be greeted as a hero.

Nowadays women do not deliver themselves—the children are brought into the world by methods. Some do it by version and when one reads the results of the chief advocate of this method it almost sounds like a fairy tale, but I know that every word he says is true. I did not believe it myself until I went, saw, and was conquered. The master hand of Potter has overcome one of the heretofore most dreaded complications associated with childbirth. He taught us how to do version properly. He plainly demonstrated that we are all wrong in the way we perform it.

Picture for a moment a man attending to over eleven hundred labor cases a year and consider that over 80 per cent. of the deliveries are accomplished by version and extraction, and it does not make

any difference to him whether it is the first or the tenth child.

Now when I opposed Potter's teaching on the floor at a meeting of the American Association of Obstetricians and Gynecologists, I was attacked by some of his friends who argued, "If Potter can do it, there is no reason why every other first class obstetrician should not be able to do the same thing." Theoretically, it should be so, but practically, it does not hold good. Potter is a master of his art and what he can now accomplish with his method of version, the average obstetrician will never be able to do. Therefore, I insist that version as a method of delivery is in the majority of cases still dangerous, and that in the hands of a man whose judgment of the case may not be very accurate and whose skill is not so good, it will not only work havoc with the mother, but it will cause many children to be still born. Version should be performed in selected cases only, specially so in primiparae.

Many obstetricians are more brutal and they resort to "cutting"—some cut above and others below. I do not know who does the greater damage. The objection that I have to it is that a great deal of it is unnecessary "cutting" and that every tyro in surgery undertakes it, and may it be said to the credit of the woman that she even seems to withstand the onslaught of modern obstetrics.

Now no one in his full senses will condemn cesarean section as a method of delivery. In properly selected cases it is a life-saving operation for both mother and child, but who can condone it when it is done as a "time-saving procedure" in simple cases of dystocia by men who are not able to judge properly? Cesarean section is not dangerous in its immediate results, but anyone who has performed section a second or third time on the same patient knows how often the uterus is surrounded by a mass of adhesions which cause a great deal of discomfort to the woman, particularly so during pregnancy. We must realize that, once a woman has a cesarean section, all her future pregnancies assume a pathological aspect, her chances to give birth to a child are normally less than 25 per cent., and furthermore there is always danger of rupture of the scar during subsequent pregnancies and labors. That this is so I pointed out some time ago and now it is the consensus of opinion that rupture of the scar does take place in fully 3 per cent. of cases.

In borderline cases cesarean section should never be performed unless the patient has had a fair test of labor—not at home, but in a hospital. I never hesitate to operate on hospital patients because they have been in labor for some time or because the membranes are ruptured. My only criterion in such cases is the pulse. If there is a change in the pulse rate one should be cautious.

Some make perineal incisions to hasten delivery or as some of the authors put it, "to save the pelvic floor." Some cut "sideways," others cut "midways." To my mind it does not make very much difference where you cut, because by the time you are ready to incise the perineum the damage to the urogenital septum is already done. The time to save the pelvic floor is before the head passes the bony outlet and this is best done by the "ironing-

cut method" of Potter. A laceration very seldom occurs if the perineum is properly ironed out, but what is still more important is that by this method the anterior vaginal wall and the tissue supporting the bladder are also saved.

During the hot spell last summer, I delivered most of my patients by forceps as soon as dilatation and retraction of the cervix was complete, and very seldom did I have to make any repair of the perineum, internally or externally, if the patients were properly prepared.

When and how to use forceps is to my mind the most important question in obstetrics, but unfortunately in my experience it is still a procedure which is adopted without the least forethought or knowledge. To hook on a pair of blades to a fetal head in the absence of full dilatation of the cervix or without knowing the exact position of the head, and pull with all your might and main is something that must be condemned. The damage done to the pelvic floor is very often irreparable, to say nothing of the many still born children which it causes.

Perhaps I have been especially unfortunate in that respect. I really would not dare to relate some of my experiences. I shall never forget one of those episodes. A III-para having been in labor twenty-four hours, the family physician decided to use forceps. He asked a colleague to give the anesthetic, but somehow he was unable to introduce the blades. He then called another friend, who succeeded in applying the forceps, and then the "pulling match" began. Hands were changed many times until finally after a great effort the strongest of the trio succeeded in breaking the table and the patient was thrown to the floor. At this stage I was called. I found the three physicians surrounded by a crowd of men and women, quite excited. They tried to unlock the forceps and remove them, but they were unable to do so. On examination I found that the left blade was hooked onto an ovarian cyst and was not in contact with the fetal head at all. I could go on recounting many similar incidents, but this is not my purpose just now. The point I wish to make is this: Given a case of labor which does not progress normally, a great deal more is at stake than is in some of the simple surgical conditions and yet in the one instance the attending physician assumes all responsibility, while in the other he refuses to carry the burden without some division of responsibility.

The one thing that must impress itself upon our minds is that the greatest amount of damage done is not by the use of forceps but by their premature use, before the head is fully rotated or before the cervix is fully dilated and that if only all of us would learn to substitute morphine for forceps during the first stage of labor many a woman would fare better. In a tedious first stage we must use morphine, give it once, give it twice, give it until the cervix is fully dilated.

In order to get a more intelligent understanding of the obstetrical situation, we undertook a study of the fatalities associated with the pregnancy and labor in the Bronx County because we believe that the physicians in this county, as a general average, are better prepared for the practice of medicine, as they consist of a group of men most of whom have some hospital training.

Right here I would say that the statistics of the health department are very incomplete for the purposes of medical investigation. Very little useful data can be obtained from the certificates filed with the department except a few general items. I feel that the birth certificates, instead of having the law governing vital statistics printed on the back, should have a few medical items about the mother and child. Such as presentation, instrumentation, duration of labor, eclampsia, placenta previa. It could all be put on the back of the same certificate so that it would not disturb the present method of the filing of records of the Health Department. Such certificates would give us some clue as to the kind of obstetrics which is practised. A study of such records would bring forth some valuable deductions and conclusions. In addition, all cases of post-partum infection must be made reportable by law. This would enable us to have some idea of the morbidity due to infections. It is a pity that such an enormous amount of useful information is lost to the profession as well as to the public year in and year out.

Now let us see what we have actually learned. I was startled, to say the least, to find that in every 1,000 deaths from all causes 7.3 were due to childbirth, and if we include sepsis, due to abortion, it was 8.9, almost twice as high as the maternal mortality of the entire British Isles, which is 4.2 per thousand deaths, and the highest they have in any district (North and South Wales) is only 6.3. If the mortality was so high I wonder what the morbidity was! There must be something wrong somewhere. I have an idea where the remedy lies, but shall defer discussion of it for some future date. I shall content myself for the present by pointing out a few of the more striking items and call attention to the more common complications associated with pregnancy and labor which I think could have been prevented to some extent.

Every medical student is impressed with the fact that there is a definite pre-eclamptic stage and any intelligent physician, if he will only take the trouble to find out, has the means at his command to ascertain the extent of any toxemia occurring in the latter months of pregnancy, and when it assumes a dangerous aspect. Were the pregnant women carefully watched, when we find that one hundred and fifty patients died as a result of eclampsia? The mortality of eclampsia is variously estimated to be from 15 to 33 per cent. Tarnier places it at 30 per cent., Lohlein at 19 per cent. Figuring the mortality rate on a basis of 20 per cent., we accordingly had during the past ten years over eight hundred cases of eclampsia in this country. What a mockery is the teaching of our medical schools and hospitals!

Who is at fault? I admit that in many instances the patients are to be blamed, for some of them are too ignorant to realize the benefits which may accrue from proper medical supervision, but on the whole the responsibility for eclampsia rests with the physician. Occasionally one may encounter a case of eclampsia which occurs very suddenly with no premonitory symptoms. However, the greatest number of cases have a definite pre-eclamptic stage lasting anywhere from seven to twenty days, and if proper treatment is then instituted, severe toxic

symptoms will be prevented in almost all of the cases. A patient who develops signs or symptoms of toxemia as evidenced by change in the blood pressure, epigastric distress, or pain, general malaise, and persistent headache, should be placed in a hospital for observation, and if, under proper treatment, she does not show a tendency to improve, labor should be induced, because the explosion may be sudden and may result fatally. The method of inducing labor is very simple, a large rectal tube is introduced into the uterus and is followed by cervical and vaginal packing with plain gauze. Labor pains will set in anywhere from three to thirty-six hours. They are sure to happen. I always use the rectal tube, it has never failed me but once, when I had to introduce another tube at the end of forty-eight hours. It is simpler than any of the other methods. It is easier of execution and the patient does not have to be confined to bed during labor. The only precaution which must be taken is not to rupture the membranes, but if care be taken that the tube hugs the uterine wall, it will not happen. In primiparæ primary anesthesia is given, in multiparæ no anesthesia is necessary.

In recent years the treatment of eclampsia has undergone a radical change. As is well known there were always two schools advocating different methods of treatment for eclampsia. Until a few years ago the radical method as advocated in this country by Peterson and his followers prevailed. However, a close scrutiny of their statistics failed to show that the maternal mortality was materially reduced. So the pendulum swung in the conservative direction and I fear it swung too far. Personally, I never adhered to any dictum in medicine. Each case must be studied and treated individually—hence I may be conservative in my treatment of one patient and very radical in another. All depends upon the degree of toxemia that is present at a given time. Patients who have long intervals between convulsive seizures and who regain consciousness after the attack is over and in whom the kidneys are not entirely blocked, are favorable cases for the conservative plan of treatment. Such patients should be morphinized to the limit and labor should be induced at the same time. If, however, the convulsions are severe, the intervals between attacks short, and the patients are stuporous or unconscious and no urine is obtained from the bladder, such a clinical picture calls for immediate emptying, and the quickest way to accomplish it is by the abdominal cesarean section. No time must be lost in these cases, the toxic explosion is too great, the system is overwhelmed, and delay may prove fatal.

During the last two years 309 women died in this county from sepsis following pregnancy; 169 died of post-partum sepsis and 140 of post-abortion sepsis. It seems to me that the true story is told in the fatalities following abortion. During my twenty years of active hospital work, having had an unusual opportunity to observe a large number of cases, I never saw a case develop sepsis in whom an abortion had been performed. Now all patients upon whom an abortion is performed in a reputable hospital usually have a definite medical indication for the interruption of pregnancy. It is always a

STILL BIRTHS VIABLE, 1910-1920

	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	Total
Breech.....	18	15	20	24	27	22	26	26	26	31	235
Breech-Prolapsed Cord.....	3	2	1	1	3	3	6	12	4	3	47
Transverse.....	5	6	5	1	3	3	6	12	4	3	57
Transverse-Version.....	1	2	2	3	1	1	1	1	1	2	17
Transverse-Prolapsed Cord.....	1	1	1	3	0	1	1	1	1	2	13
Brow.....	1	1	1	1	1	1	1	1	1	1	10
Face.....	4	7	3	3	3	3	3	3	4	2	37
Persistent Occiput Post.....	1	1	1	2	1	5	4	9	10	7	62
Malpresentation.....	9	1	1	2	1	6	8	7	10	7	63
Dystocia.....	17	17	18	18	23	23	23	23	15	13	169
Contracted Pelvis.....	6	5	9	3	5	13	21	13	12	7	99
Cont. Pelvis-Version.....	1	3	3	4	1	2	2	2	2	1	27
Fetal Malformation.....	3	3	3	4	5	1	2	2	2	9	50
Monstrosity.....	3	2	1	2	4	8	1	3	8	11	50
Hydrocephalus.....	2	2	1	5	4	5	10	4	7	9	50
Large Baby.....	1	2	1	1	1	1	7	2	1	2	15
Craniotomy.....	2	5	5	8	3	1	7	2	2	6	41
Intracranial Hemorrhage.....	1	1	3	2	4	1	2	2	2	3	16
Accidental Hemorrhage.....	7	11	11	13	13	12	15	19	19	31	151
Placenta Previa.....	16	12	16	14	20	11	19	11	11	13	143
Placenta Previa-Version.....	1	1	2	4	1	1	3	1	1	1	12
Hemorrhage into Placenta.....	4	1	3	5	2	1	4	7	3	2	31
Placental Degeneration.....	12	14	18	19	16	12	11	14	14	16	146
Forceps.....	1	5	3	4	5	4	6	10	4	5	57
Version.....	1	3	3	4	18	1	19	2	8	2	59
Prolonged Labor.....	2	1	1	2	2	6	3	3	3	2	24
Hydranmios.....	2	5	3	4	33	1	4	7	7	5	56
Asphyxia.....	2	2	3	3	7	17	23	35	14	32	246
Dry Labor.....	27	23	27	24	24	17	23	35	14	32	246
Prolapsed Cord.....	13	14	17	19	24	20	41	40	24	28	240
Strangulation by Cord.....	7	13	13	10	14	5	12	9	9	12	104
Twins.....	1	1	2	5	1	2	11	7	4	4	46
Lues.....	7	13	13	10	14	5	12	9	9	12	104
Trauma.....	1	1	3	2	1	2	11	7	4	4	46
Fibroids.....	2	1	2	2	1	1	1	1	1	1	11
Malaria.....	2	1	3	1	1	1	1	1	1	1	11
Maternal Eclampsia.....	4	5	4	6	5	12	6	7	12	7	75
Maternal Nephritis.....	4	5	4	6	5	12	6	7	12	7	68
Maternal Uremia.....	2	1	2	4	2	2	7	13	10	6	44
Toxemia of Pregnancy.....	12	9	14	21	27	16	19	22	39	15	201
Maternal Pneumonia.....	238	252	190	219	153	182	152	113	118	116	1732
Unknown.....	438	441	441	479	453	405	475	452	443	467	4434

constitutional condition, of either an organic or a metabolic nature. The resistance in such cases is very much diminished and the women are therefore more prone to infection, still they pass through the ordeal well and but seldom develop complications. Why then do patients upon whom abortions are performed outside of hospitals develop so many complications? No great stretch of the imagination is required for the answer. Incompetency and uncleanness is the combination which has led many a woman to her grave. It is unfortunate that

probably the same is true to a large extent in cases of post-partum sepsis. Somehow asepsis or antisepsis is not stringently adhered to in many cases of labor. All of us have periods of lapses in our technique, particularly when we have had no mishap for some time, but I believe that that is not the main cause for the many infections which take place in the lying-in chamber. To my mind, and I feel that I speak from experience, for I have seen as many as six cases of post-partum infection in twenty-four hours, the cause, as a rule, is either

DEATHS INFANTS UNDER 1 MONTH OF AGE

	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	Total
Prematurity.....	129	200	220	181	168	202	199	165	179	201	1874
Breech.....	2	2	3	...	4	1	4	1	2	4	23
Malposition.....	1	1	1	...	...	...	1	3	1	...	6
Congenital Heart.....	31	26	28	21	33	24	25	20	21	27	256
Monstrosities.....	1	6	6	2	...	2	3	5	3	3	34
Hydrocephalus.....	1	2	1	3	...	4	1	1	2	2	17
Spina Bifida.....	4	2	2	...	3	6	2	5	4	2	34
Malformations.....	3	7	7	7	7	3	15	3	3	6	61
Imperf. Rectum.....	1	1	3	...	...	1	1	1	2	3	8
Other Congenital Defects.....	1	1	3	...	...	3	1	2	5	3	22
Forceps.....	14	12	10	5	11	12	7	8	6	20	105
Protracted Labor.....	7	5	6	3	1	1	1	3	3	3	31
Cerebral Hemorrhage.....	1	9	5	6	6	13	13	16	10	16	84
Asphyxia.....	3	5	15	7	12	16	8	11	4	8	79
Strangulation by Cord.....	1	1	1	2	2	1	2	5	1	1	14
Dystocia.....	1	1	1	1	2	3	1	3	1	1	14
Preterm Delivery.....	1	1	1	1	...	...	...	...	...	...	2
Maternal Toxemia.....	...	...	...	...	...	2	1	1	6	1	10
Atelectasis.....	15	25	35	44	37	33	25	58	55	36	366
Lues.....	4	5	5	8	4	3	4	3	3	5	54
Defective Vitality.....	10	10	6	5	6	3	3	3	3	3	65
Tetanus Neonatorum.....	1	3	...	5	3	4	3	4	4	5	32
Convulsions.....	9	7	4	8	...	3	2	2	2	2	47
Marasmus.....	6	15	32	13	14	11	14	13	14	19	151
Melena.....	1	1	3	3	5	1	3	4	1	3	34
Pneumia.....	5	3	1	1	2	2	5	5	1	3	27
Unilateral Hemorrhage.....	1	...	4	2	1	1	1	1	6	1	17
Haemophilus.....	6	3	3	6	1	9	8	16	22	16	111
Miscellaneous.....	...	6	7	...	...	...	...	...	...	...	...
Total.....	261	350	409	349	338	359	357	396	373	401	3593

MATERNAL DEATHS 1910-1920

	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	Total
Postabortive Sepsis.....	16	12	13	18	19	11	13	16	7	15	140
Postpartum Sepsis.....	18	24	22	18	14	19	16	12	16	10	169
Sapremia.....	1	1	1	1	1	1	1	1	1	1	2
Placenta Previa.....	4	6	8	3	4	1	4	1	2	5	38
Postpartum Hemorrhage.....	1	1	3	4	1	5	8	6	3	5	37
Premature Placental Separation.....	1	1	1	1	1	1	1	1	1	1	7
Postabortive Hemorrhage.....	2	1	2	2	1	1	1	5	1	1	15
Ruptured Uterus.....	1	1	1	2	4	1	1	2	2	3	17
Toxemia of Pregnancy.....	1	2	2	2	1	3	3	5	2	2	18
Eclampsia.....	11	15	8	12	10	15	17	9	13	10	120
Uremia and Nephritis.....	2	1	1	1	1	1	1	1	1	1	11
Embolism.....	2	4	5	2	3	3	3	4	3	3	32
Malpresentation.....	1	1	1	1	1	1	1	2	1	1	11
Cesarean Section.....	1	1	1	1	1	1	1	1	1	1	7
Extrauterine Pregnancy.....	2	5	2	2	3	3	2	1	2	6	28
Miscellaneous.....	3	8	2	2	2	3	3	4	3	2	32
Pregnancy and Pulmonary.....	3	1	2	2	1	4	1	1	45	43	101
Pregnancy and Cardiac Disease.....	1	3	1	1	1	1	1	1	2	12	21
Pregnancy and Miscell. Diseases.....	2	1	1	3	1	1	1	1	1	4	10
Totals.....	72	83	73	75	65	67	74	69	109	125	812

too early interference on the part of the attending physician, or the unusual conservatism on the part of many midwives who permit their patients to pass through a tedious and prolonged labor which leads to exhaustion and infection in not a few of their patients.

Too early interference during labor, when the cervix is not fully dilated and when the head is not well moulded, must lead to very extensive traumatism of the genital tract. The lacerations are usually irregular and as a result the tissues become devitalized. Traumatism is the most important of all the predisposing causes of infection, especially in patients who have had prolonged and tedious labors. It is almost unbelievable that 21.5 per cent. of the fatal cases associated with childbirth were due to sepsis, but unfortunately it is true. All of us cannot but feel that a goodly number of these patients should have been managed differently. I say so advisedly because I saw at least 30 per cent. of all the fatal post-partum cases which occurred in this county during the past ten years. Often have I felt that the women did not get a square deal.

The study of the fetal mortality is also not very encouraging; incomplete as the data are, still one cannot but think that there is a great lack of knowledge on the part of the medical profession concerning the physiology and pathology of pregnancy. It does seem a great waste on the part of nature that 8.6 per cent. of all pregnancies come to naught. It is certainly a great loss to the nation. An analysis of the statistics shows that the percentage of still births, viable and non-viable in relation to the total number of births was 6.6, and that the percentage of infants who died within thirty days was two, also that the total fetal mortality was about 11 per cent.

A careful study of the statistics, incomplete as they are, convinced me more than ever that the percentage system of the practice of medicine, particularly as it relates to obstetrics, is not only inadequate, but in all fairness to the physician and in justice to the woman, it must be improved if not changed. Obstetrics will never reach a high level of efficiency as long as the general practitioner is compelled to accept maternity cases to eke out a livelihood from his profession; and no sooner does he acquire a fair practice than the first thing he discards to the ash-heap is obstetrical work. No man can be ambitious to become an expert in a field of work which he hopes to give up as soon as conditions permit; such a mental attitude is not conducive to good work.

I do not know who is responsible for the ridiculously low fees which physicians are charging for obstetrical work. It seems to me that the time and effort spent by the attending physician on the simplest labor case is greater than that of the surgeon in the most serious surgical conditions. Still the public will pay to the one and refuse to give a fair compensation to the other. It is astonishing that neither the public nor the physicians realize that good services cannot be obtained under such circumstances. Child-bearing and child-rearing constitute a very important industry. Do we give it the attention it deserves? Judging from the experience in the past, I fear that man will never solve this question for the woman. This is obviously a woman's problem. They suffer the consequences of all its shortcomings. The women, instead of wasting their time in becoming petty politicians or social reformers, should primarily interest themselves in the most vital questions concerning their welfare. It is their duty to see to it that the practice of obstetrics is

MORTALITY ASSOCIATED WITH PREGNANCY AND LABOR

	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	Total
Total Births.....	10,905	12,465	13,677	14,679	15,704	16,003	16,114	16,902	16,843	14,788	148,110
Total Deaths (All Causes).....	6,969	6,938	6,944	7,471	7,899	7,816	7,966	8,459	11,320	8,616	80,118
Still Births—Total.....	549	579	628	663	693	697	673	654	613	674	6,423
Still Births—Period of Gestation (Unknown).....	438	441	441	479	453	405	58	36	21	43	461
Viable Still Births.....	111	138	147	184	168	101	140	166	149	164	1,468
Non Viable Still Births.....	261	339	409	349	338	359	357	396	373	401	3,393
Infant Deaths under 30 Days.....	72	83	74	75	65	67	74	69	109	125	812
Maternal Deaths.....	72	83	74	75	65	67	74	69	109	125	812

removed from the sphere of general practice. They should see to it that physicians who decide to choose obstetrics as their life work are adequately paid for their services, so that they should not be compelled to seek other practice. The women must realize that the average home is not conducive to good obstetrical work, especially should a complication arise. They should make every effort to build maternity homes—not of a charitable character—throughout the county and place them in charge of competent physicians whose duty it should be to see that every woman is carefully observed during pregnancy, and properly attended to during labor.

If the women will only learn primarily to look after their own interests and concentrate all their efforts toward the improvement of their own physical well-being and make childbirth safer for themselves, then and then only, will the practice of obstetrics reach the high level of efficiency it deserves. Then only will its practice be considered a pleasure instead of a drudge and annoyance to the obstetrician as well as to the general practitioner.

In conclusion, I wish to express my appreciation of the painstaking efforts of Dr. Samuel Rosenfeld and Dr. Milton Goodfriend, in collecting all the data forming the basis of this paper, from the Health Department of the City of New York.

345 WEST EIGHTY-EIGHTH STREET.

THE VALUE OF PEDOGRAPHS IN RECORDING AND DIAGNOSING ABNORMAL FOOT CONDITIONS IN CHILDREN.*

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THE diagnosis of weak feet in both children and adults is made in the majority of instances by inspection. Occasionally walking or hopping tests and palpation may be used in addition. These methods are sufficient to give us a mental picture, which for the time being may enable us to make the diagnosis. We have no means at the present time of comparing these findings with those presented six months later, should the parent return to us for an opinion of his child's condition. We cannot say with any degree of accuracy whether the patient's condition has improved, remained stationary, or become worse. By means of properly made pedographs, we have a photographic reproduction of the condition of the patient from the initial visit, with which subsequent pedographs, taken at any time, can be compared. Hence we have at our disposal a means whereby we can accurately tell the patient what has occurred as the result of our treatment.

By the pedograph method five prominent signs are taken into consideration: (1) The pedograph picture; (2) the contour line of the foot; (3) the height of the scaphoid bone; (4) the muscular development of the soles of the foot, especially those

under the arch of the foot; (5) the presence or absence of the juvenile fat pad.

In taking the imprint the individual is seated, the leg is extended and the bare foot is painted with an iron solution. The foot is then hastily placed on

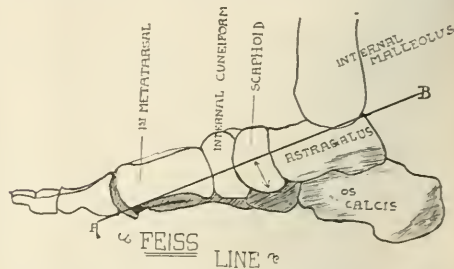


FIG. 1.—Skeleton of the foot, showing the Feiss line, A-B.

blotting paper and the individual is told to place all the weight on that foot. At this point the contour line is drawn by using a pencil or pen held at right angles to the plane surface. This contour line demonstrates the amount of inversion of the ankle, or eversion of the heels and heel cords. The muscular development of the soles of the feet should be taken into consideration, as often a heavy bulging muscular layer will produce the picture of inversion of the ankle. The foot is then removed from the blotter and the height of the scaphoid bone is estimated. This is done by drawing a line from the posterior inferior aspect of the internal malleolus to the first metatarsophalangeal joint on its plantar aspect. (Figure 1.) The scaphoid in the normal adult foot is usually found one-half inch below this line. In children it varies with age. In the subsequent summary the average distance of the scaphoid below the line will be noted. The sole of the foot is then palpated and the muscular development noted as poor, fair, or good. The presence of the juvenile fat pad is also sought for.

A solution of tannic acid is now applied to the



FIG. 2.—Imprint of normal foot

iron imprint of the foot which turns a jet black, giving us a record which can be preserved indefinitely.

The base lines and the auxiliary lines are now drawn on the pedograph for estimation of the de-

*Paper read at a meeting of the Alumni Society of Lebanon Hospital, January 11, 1921.

formity should one be present. The first base line is drawn from a point posterior to the internal malleolus to the first metatarsophalangeal joint. The contour line extending beyond this shows the degree of inversion of the ankle or eversion of the heels and heel cords. The line of axis weight bearing is next drawn, from the center of the heel to a point midway between the first and second toes. A line is next drawn at right angles to the line of axis weight bearing from a point posterior to the heel.

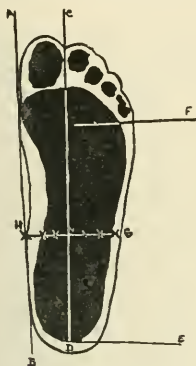


FIG. 3.—Second degree weak foot.

Another line is drawn also at right angles to the line of axis weight bearing, from the first metatarsophalangeal joint. Midway between the last two lines, also at right angles to the line of axis weight bearing, is drawn the line of estimation. The line of estimation is then checked. One check is placed at the outer border of the imprint, the other check being placed at the junction of the line of estimation and the first base line, or if valgus be present, at the junction of the line of estimation and the

contour line. Midway between the two check marks of the line of estimation is the normal point. To the inner side of this point the line is divided into three parts representing the degrees of weak feet, while to the outer side of the point the line is also divided into three parts representing the degrees of pes cavus.

The use of pedographs in diagnosing and recording weak feet is by no means new. It has been advocated by Rice of Washington, D. C., and used extensively in the marine corps by Mann and Folsom. However, it has not, as far as I have been able to learn, been used in children.

With the hope of standardizing the findings in children one hundred children who were assumed to have normal feet have been pedographed. These children were selected because they had no symptoms referable to foot disturbances. The age of the youngest child was two years and the oldest thirteen. Several were chosen in each year between these limits. From the study of these cases the following facts have been evolved:

1. Up to four years of age, with few exceptions, the pedograph picture is of no value, as the juvenile fat pad, which is invariably present, always gives a flat impression as found in the third degree weak foot. This flat impression does not represent any pathological change, as it is not due to a flattening of the bony arch. This has been proven by frozen sections of the foot, which have demonstrated that the bony arch is normal and the hollow of it is filled by a pad of fat. However the height of the scaphoid bone, the condition of the musculature, and the fat pad can be determined in these cases. The average distance below the Feiss line for children of these ages was one-eighth of an inch for children two years of age and one-quarter of an inch for those three and four years of age.

2. The average distance of the scaphoid below

SUMMARY OF ONE HUNDRED CHILDREN.

AGE	DISTANCE OF SCAPHOID BELOW FEISS LINE—PEDOGRAPHIC FINDING															
	R.	L.	R.	L.	R.	L.	R.	L.	R.	L.	R.	L.	R.	L.	R.	L.
Years 3	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.
4	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.
5	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.
6	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.
7	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.
8	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.
9	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.
10	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.
11	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.
12	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.
13	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.	3° W.F.

ABBREVIATIONS
N=Normal.
W.F.=Weak Foot.
P.C.=Pes Cavus.

++=Well Marked.
+=Moderate.
*=Absent.

R.=Right.
L.=Left.

the Feiss line in normal children five years of age was one-quarter of an inch. For children six, seven, eight, and nine years of age, it was found to be three-eighths of an inch. For children ten, eleven, twelve, and thirteen years of age, it was found to



FIG. 4.—Second degree pes cavus.

be half an inch. As a rule variations from these averages indicated abnormal feet.

3. The muscular development was fair in nineteen and good in eighty-one cases. In the former cases weak feet were invariably present.

4. The pedograph was normal bilaterally in forty-two cases and unilaterally in thirteen cases. It was abnormal bilaterally in forty-five cases, thirty-three showing weak feet and twelve showing pes cavus. Of the former eleven were apparent weak feet, the weak foot impression being due to the juvenile fat pad, and twenty-two were pathological weak feet. Of the thirteen unilateral cases, nine showed weak feet and four showed pes cavus. The weak feet and the pes cavus deformities varied from one-half to three degrees. In weak feet the scaphoid was further below the Feiss line and in pes cavus was further above than in the normal foot.

5. The fat pad was especially marked in children up to four years of age. In many of these children

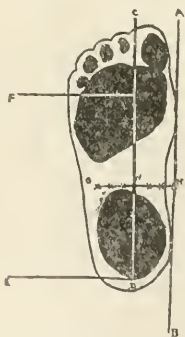


FIG. 5.—Third degree pes cavus.

it was responsible for the flat impression present.

Summary and Conclusions.—1. The analysis of one hundred children disclosed that more than one-half of what were assumed to be normal feet were abnormal.

2. Pedographs should be made on all school children, so that pathological foot conditions can be detected early and prophylactic measures instituted, where necessary.

3. Pedographs will prove useful in recording and diagnosing abnormal foot conditions. They also give us a photographic reproduction of the initial abnormal foot conditions with which subsequent pedographs can always be compared. They aid us in giving an accurate opinion about the patient's condition.

4. This method of recording and diagnosing abnormal foot conditions may not be infallible, yet in it we undoubtedly have the foundation upon which we can accurately study successive changes in the foot.

1182 JACKSON AVENUE.

A TOURNIQUET FOR ARSPHENAMINE INJECTIONS.

BY GEORGE EDWARD BARNES, B.A., M.D..

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So far as I am aware there is not on the market a satisfactory arm tourniquet for use in the administration of arspfenamine and nearsphenamine. The ordinary piece of rubber tubing so generally used cannot be adjusted with accuracy, and the tourniquets made especially for this purpose have serious objections.

I have devised a tourniquet that works almost ideally, being easily, quickly, and accurately adjusted and quickly and smoothly loosened. It consists of a strap which passes around the arm and through the ends of a block of wood, and of a wedge which is inserted between the block and the strap to produce any degree of constriction desired. It can be made by any carpenter, cabinet maker, or doctor who has the tools.

The block and wedge are made of hickory about five-eighths of an inch thick.

The block is two by one and one-fourth inches, and in each end of it is a notch just a little wider than the strap and sufficiently deep to allow the strap to play through it easily. Around the whole block, a little nearer to the surface which is to rest on the arm, is fitted a strong steel wire, the ends of which are twisted together on one side of the block, cut off and smoothed off with a file. This wire passes over the notches and forms pulleys through which the strap acts.

The wedge has a short side of one and three-fourths inches, a base of four and a half inches, and an hypotenuse of four and three-fourths inches, but the two latter sides meet, not at a point, but in such a way that there is formed between them a very short end of about one-half inch. This end is beveled on the flat, the edge being made quite thin. However, if preferred, the wedge need not have this blunt end, but may be prolonged to an acute point without a bevel on the side.

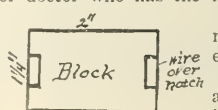


Fig. 1.

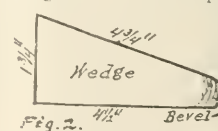
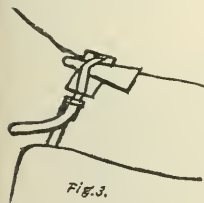


Fig. 2.

The block and wedge may be fastened together by a string passed under the wire on the former and tied around a small screw on the latter.

Any strap of suitable size having a buckle that catches at any point on the strap may be used. A very good strap of woven material can be gotten at most 5-and-10-cent stores. A good width is one-half inch. One should have several straps, so that in case of soiling a clean one will be at hand. (Rubber straps pull and pinch the skin.)



The tourniquet is applied as follows: The strap is threaded through both holes in the block, so that it passes over its upper surface, the two loose ends hanging below, the end with the buckle being just below the block. The block is placed on the upper surface of the arm at the in-

sertion of the deltoid, the longer end of the strap is passed around the arm and through the buckle and is drawn up only so that it rests loosely on the skin. The beveled end of the wedge is inserted between the top of the block and the strap, is turned so that its base rests on the block, and is pushed forward until the constriction is exactly as desired. The upper surface of the block and the two long sides of the wedge should not be much polished lest the wedge slip backward under the pressure of the strap.

The flat block is sufficiently long to project beyond the convex surface of the arm, so that, as the strap is tightened, the skin will not be drawn up against the ends of the block by the strap and pinched. The thickness of the block so raises the wedge that the point of the latter does not dig into the deltoid region.

As soon as the needle is inserted into the vein the tourniquet is loosened by gently pulling the wedge out from under the strap. This can be done without any disturbance whatever. Indeed, the withdrawal of the wedge is so simple that in case of some calm patients the doctor may insert the wedge from the upper or shoulder side and the patient can, when requested, quietly pull it out himself.

This tourniquet increases the facility with which a doctor, without the presence of an assistant, can administer arsphenamine in his office.

A CONCEPT OF X-RAY PATHOLOGY.

XII. GASTROPATHIES.

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THERE are four purposes in the technique of the x-ray examination of the stomach. These are to study (1) the residue, (2) the sediment, (3) morphology, and (4) motility. In the x-ray study of the stomach the first essential is to decide upon a "standard" technique. By standard is meant that uniformity be adopted in the question of selecting the proper contrast mixture, that the method of preliminary preparation on the part of the patient be similar in all cases, that the time interval be-

tween the successive examinations be fixed, and that every patient examined receives as nearly as possible a survey in every way identical to other patients. Obviously, every x-ray man is in the position to devise his own standard gastroenteric routine; but if the results of various operators are to be correlated it is manifest that there should be agreement in the basic methods employed in reaching the results. It is not the purpose to discuss the many methods in use for arriving at conclusions relative to the x-ray pathology of the stomach. Only one method will be propounded.

Preparation for the Examination.—The patient refrains from the evening meal and, before retiring, a soapuds enema is administered. It is best that all medication be stopped before initiating whatever preparation. The examination is begun for convenience with the motility test. Early on the morning of the examination the patient is given 400 grams of cooked cereal, preferably cream of wheat, to which has been added 80 grams of barium sulphate. The important constant of the motility test meal is that the proportion between contrast salt and carbohydrate be as one is to five, or 20 per cent. of contrast salt. In the study of the stomach and intestines the contrast salt had best be barium sulphate. (In the study of the esophagus bismuth subcarbonate is better than barium sulphate. The choice of barium sulphate for gastropathy study lies in the fact that barium sulphate is more quickly emptied from the stomach than is bismuth subcarbonate; so that six-hour retention when barium sulphate is used is more likely indicative of pathology than six-hour retention when bismuth subcarbonate is used.)

Six hours after ingestion of the meal a 14 x 17 plate or film is made in vertical posture and dorso-ventral exposure.

On the plate thus produced one studies first whether or not any residue remains in the stomach six hours after ingestion. It is perhaps best that the residue be reported in terms of percentage of the total meal. The estimate is roughly made and may be 0, 25, 50, 75, or 100 per cent. residue. It was Haudek who explained particularly why six hours was the time limit selected as a dividing line between normal and delayed emptying. Ordinarily a normal stomach will drive out the carbohydrate contrast meal (Rieder meal) in three hours; but a delay up to five or six hours might result from purely physiological causes. Rest and movement, psychic factors, eating or drinking after ingestion of the meal may all subscribe to a physiological delay in the emptying time. Oftentimes, even after six hours, a trace of residue remains in the stomach. When the residue is less than 5 per cent. factors conducive to delayed emptying other than pathologic should be sought. Residues amounting up to 25 per cent. may be due to pathologic changes and also to hypomotility, hyperacidity, or elongated hubhöhe. Residues up to 50 per cent. are most always due to pyloric obstruction owing to organic stenosis or spasm from ulcer.

The motility test, as pointed out by Haudek, rests not alone on the presence or absence of stomach residue, but also on the position of the "head" of the six-hour meal. Normally the head should reach the region of the cecum; but in hypermotility it

may be visualized far advanced into the large intestine, or in hypomotility it may be seen held back into the small intestine.

Disturbances of Motility.—Disturbed motility may, therefore, be revealed either as hypomotility or as hypermotility.

Hypomotility is evidenced by the presence in the stomach of an opaque residue which is to be studied for its size, location, and shape. An amount of residue approximating an area of one square inch is not important as a sign of pathology and may be explained by factors bordering on psychic control. A small residue varying from two square inches to 25 per cent. of the total meal is usually not expelled until twelve hours, and is rarely found without pathologic changes in the gastric mucosa. A medium residue may represent one-half of the original volume of the test meal and usually requires eighteen or more hours for its complete expulsion. It is generally the result of pathology incident to pyloric or lesser curvature, ulcer, or new growth.

The residue, if more than 50 per cent., is considered large and may at times consist of the entire meal, the final expulsion time varying from twenty-four hours to several days. A residue of this magnitude is invariably indicative of pathology.

Having estimated and expressed the size of the residue, its location should then be described. The location should be expressed with reference to two axes, one the vertical median line of the abdomen, the other the horizontal line joining the iliac crests. When the shadow lies to the left of the median line it indicates an approach to normal gastric tone, greater normality being indicated in an amount proportional to the leftward extension of the shadow; and when the residue lies to the right gastric atony and dilatation are suggested. In relation to the transiliac plane, hypertony is indicated in proportion as the position of the residue presents above, and hypotony in proportion as the position presents below.

The residue may lie on both sides of the vertical line when it indicates, most often, uncompensated pyloric stenosis usually resulting from pyloric obstruction of long standing. The shadow extends beyond the median line practically in proportion to the chronicity of the ulcer.

There may present a fragment of barium opacity to the left of the median line, its isolation and location suggesting retention of contrast mixture in an ulcer crevice. When the isolated fragment is found on the right of the median line it should suggest duodenal irritation.

When the opacity is associated with an ulcer situated on the lesser curvature, it lies, generally, to the left. Sometimes the residue may show a smooth outline lying with its vertical axis to the left of the median plane. The presence of a residue of this character should incite a careful survey along the lesser curvature with the view to determining the possibility of ulcer.

Having determined the size and the location of the opacity, one then summarizes the shape. It may be irregular, owing to the conformity of the unsmooth ulcer niche. An oval shape suggests a mold of a portion of the stomach contour usually near the pyloric end. In the deepest portion of an atonic stomach there may remain a residue of cre-

scient shape. In cancer of the pylorus the residue is usually rounded and markedly ridged at that part toward the pylorus. On the question of the significance of motility test residues Hirsch says:

Though a large residue has considerable significance without the consideration of any other factor, still it is important to think of it not by itself, but in relation to tone and peristalsis, pyloric morphology, etc. An increased vis a tergo applied to the passenger (meal) may push it through a narrowed passage (pylorus).

The small residue is found in compensated pyloric stenosis and duodenal disease. Adhesions do not produce a residue unless the adhesions be due to an ulceration.

Such a residue as is given in either of the last two groups is absolutely pathological of pyloric obstruction, due either to organic stenosis or spasm.

Atony and ptosis rarely produce a residue. If present, it is usually minimal and is with ease differentiated from a residue due to organic changes by the consideration of the other factors concerned in the motor functions of the stomach, the tone and peristalsis, both of which are diminished in atony and increased in early stages of ulcers. In the later stages of ulcer, however, the atony and dilatation of uncompensated pyloric stenosis is to be differentiated from the partly functional atony by noting that in the organic atony the residue lies in the median line and the pylorus is usually displaced considerably to the right, while in the latter the residue, if present, is smaller, lies to the left of the median line and the pylorus is usually in the median line below the level of the umbilicus. Then, too, the examination in the left lateral position or with the pelvis raised will cause expulsion of the residue through the pylorus. It cannot be denied, however, that with more attention to the proper preparation of the meal and the various details attending its administration the residue in pure atony will not often be found.

Even a minimal residue in a stomach exhibiting excessive tone and excessive peristalsis has a characteristic significance—an organic lesion—while the same residue in a subtonic or ptosed stomach, with feeble peristalsis and high acidity, may be explainable on the basis of functional causes or muscular insufficiency. Again, a scirrhus infiltration of the pylorus may exist and yet, because of pyloric incompetency, the stomach may be empty in three hours. To find a residue of one-eighth of the gastric content, with normal peristalsis, tone, a morphologically normal stomach need not indicate an ulceration or obstructive lesion; but such a residue with evidence of hypertony and excessive peristalsis, though in a morphologically normal stomach, means a pyloric spasm or obstruction. Thus hyperperistalsis and hypertony with high acidity and suggestive clinical evidence would, even if the emptying time is normal, demand a reexamination before the lapse of six hours. By itself, therefore, though giving the key to the examination, the residue, except as indicating gross pyloric stenosis, has no pathognomonic significance.

On the other hand, the stomach may be empty, but the position of the bismuth mass in the intestine, duodenum, jejunum, or ileum may indicate a hypermotility and lead to the inference that there is a gastric hypomotility. The actual emptying time must then be determined by repeated tests.

Hypermotility should be studied in relation to the tone, to peristalsis, and to pyloric patency. It is most usually the result of excessive tone reflexly produced from lesions of an irritating character in the ileocecal, duodenal, gall-bladder, and hepatopancreatic regions. Excessive peristalsis is increased in inverse proportion to pyloric stenosis; it being excessive when stenosis is absent.

A careful survey of the motility through the use of the Rieder meal is then followed by the sedimentation test, which is directed to a study of the stomach relative to its tone, niche, antral activity, and pyloric patency.

Sedimentation Test.—The contrast sediment salt consists of one ounce of barium sulphate stirred into four ounces of water. The examination is conducted during and immediately following ingestion. The posture is vertical, then right lateral and horizontal if necessary. After palpation under the screen a dorsoventral exposure may be made.

The method by which the stomach is filled may offer important clues to the x-rayist. Food entering the stomach must make room for itself in a potential space. As it enters the pouch it first lodges just below the cardiac orifice, generally assuming a V shape, the air-filled fundus showing above as a radiopaque bubble called the "magenblase." As more food enters, the potential stomach space is canalized and is shown as a vertical column from the cardiac orifice to the region of the umbilicus. As more food enters, the column curves to the left (patient's right) and becomes everywhere broader until finally the entire organ is distended in proportion to the amount of food taken.

If the stomach contains secretion the sediment contrast mixture may drop from the esophagus to the fluid level and then rapidly gravitate to the deepest portion of the viscus. Very shortly after administration the barium deposits in the most dependent parts of the stomach, according to the position of the patient. Irregularities in the continuity of the mucus membrane produced by an ulcer-bearing area, or diverticulum, or niche will be shown as various degrees of puckering and pouting in the form assumed by the barium deposit. The sediment mixture may be spread over any part of the wall of the stomach by proper palpation, and minute studies of the irregularity of surface of any area can be obtained with an intimate accuracy approached by no other method.

In speaking of the tone of the stomach the x-rayist means the property possessed by that organ of keeping its contents in tubular form. This tubular form is manifested as well with five ounces of fluid mixture as with fifteen ounces. On the basis of tone, peristalsis becomes manifest. Peristalsis and tone are intimately associated and bear a practically simultaneous relation.

Antral activity is early observed, inasmuch as the water of the sediment test is quickly expelled from the stomach. Pyloric patency and pyloric morphology are readily studied, as the barium is shaped by the parts that contain it at the pyloric orifice.

After a study of the residue and the sediment, the third part of the examination, or study of the morphology, is begun. The meal is barium sulphate, three ounces, in buttermilk, one pint. The examination is begun directly after ingestion. The patient is posed vertically and horizontally and either at the end of inspiration or expiration. For studies in duodenal mobility exposures made before and after inspiration are valuable in deciding the fixity of the duodenal cap. The exposure should be dorsoventral. In the study of the morphology one examines for the type, size, axis, position, outline, mobility, and peristalsis of the stomach and for the type, size, outline, mobility, and peristalsis of the duodenum. Before proceeding with the discussion of the variations incident to pathology it may be well to include a discussion of the "normal" stomach.

The Normal Stomach.—The stomach may be divided into a proximal middle and distal third. The proximal third is known among some roentgenologists as the *pars cardiaca*, the middle third as the *pars media*, and the distal third as the *pars pylorica*. At the junction of the esophagus and the stomach there is an incisure called *incisura cardiaca*. On the lesser curvature just distal to the junction of the middle and distal third there is usually an incisure commonly called *incisura angularis*. The pylorus is separated from the stomach by the *pyloric sphincter* or *incisura pylorica*. The stomach is never completely filled with liquid; and in its upper part air and gases collect, appearing on the plate as a radiolucent area bounded above by the curved limit of distended stomach wall and below by the horizontal fluid level. The space included between these boundaries is the gas bubble or "magenblase." Haudek applied the name "hubbone" to that portion of the *pars pylorica* represented by the height of the pyloric opening above the lowest point on the greater curvature.

According to the habitus of the individual a stomach may normally be hypersthenic, sthenic, hyposthenic, and asthenic. If the type of the stomach conforms to the habitus of the individual it is said to be orthotonic; but when it does not so conform it may present excessive tone—hypertonicity; diminished tone—hypotonicity; absent tone—atonicity. In a case of asthenic stomach the orthotonicity may, as a result of persistent pyloric stenosis, be changed to atonicity. In x-ray pathology the type of the stomach should be recorded and also the habitus of the individual. It should invite suspicion to meet with a stomach type which is contrary to that normally expected for a given individual habitus.

The size of the stomach is a matter that admits of no mathematical precision. It is sufficient simply to state that the organ appears of normal size, or small, or large. Someone has given the dimensions of a normal stomach as being 12 inches long; 5 inches wide, and the walls a fifth of an inch thick, with a capacity of 40 ounces; but it is well to remember that the stomach is, after all, a potential cavity that may be small under certain conditions and, under others, very large.

The axis of the stomach is virtually a description of the long diameter which may be vertical, oblique, or horizontal.

Factors that determine the position of the stomach are the habitus of the patient, the tone of the stomach, abdominal wall musculature, the position of the adjoining organs, and the condition of the filling of the underlying intestine. The position is described; for the *pars cardiaca*, with relation to the diaphragm; for the greater and lesser curvatures, with relation to the intraspinal line and median line; for the *pars pylorica*, the relation to the ordinate axes is also adequate.

The outline is everywhere smooth and is indented by certain normal incisures that appear at regularly occurring places.

Peristalsis is visualized under the screen as ring-like constrictions that encircle the stomach and progress from the fundus to the pylorus, becoming more accentuated and pronounced as the pyloric antrum is approached. It is impossible to prescribe

any cycle of events that is characteristic for any and all stomachs; nor is it advisable to complicate x-ray pathology of the stomach by introducing in connection with the study of peristalsis the conception of gastric cycles, each with their systoles and diastoles. It is only necessary to observe the peristalsis and, if it is even and regular, so to remark; but if it presents obvious irregularity and accentuation, merely to describe the abnormality discerned.

The Normal Duodenum.—There are two portions of the duodenum that invite x-ray interest: the bulbous portion and the villous portion. The bulbous portion is embryologically related to the stomach and should not, indeed, be studied as a separate anatomical unit, but rather as a physiological part of the stomach.

The bulbous duodenum (or stomach cap of Cole) may present a triangular, spherical, or irregular type. Its position is stated in terms of relation to the pylorus. Its size is recorded as normal, small, large, or indeterminate.

A study of the outline should include a description of incisures, defects, or niches. Their location and number are described, as well as the size and form (deep, shallow, smooth, irregular).

The evacuation of the opaque meal is studied in terms of completeness (complete or incomplete) and rate (rapid and slow).

The villous portion of the duodenum is pathologically related more nearly to conditions affecting the small intestine than to conditions affecting the large intestine; it will be discussed, therefore, under the title of "enteropathy."

(To be continued.)

SOME OBSERVATIONS ON DEMENTIA PRÆCOX.

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PSYCHIATRISTS at the present time are investigating, studying, and paying more attention to this disease, perhaps, than to any other in the whole domain of psychiatry, and I may say, are obtaining more curable results—thanks to the attention paid to the causative relationship of focal infection, led by Dr. Cotton of Trenton, and to investigation in other directions, particularly in endocrinology.

To arrive at the cause or causes of this malady is the prime desideratum, of course; then treatment along strictly scientific lines may be instituted, instead of the waiting, do-nothing policy followed by so many institutions at the present time. Experimentation, within certain limits, is justifiable in the attempt to find the real etiology and cure of a disease which particularly strikes down the young and promising, and which furnishes probably forty per cent. of the inmates of hospitals for the insane.

The pathological pictures shown in the works of Kraepelin, White, Peterson, and others, with the degenerative changes which have taken place in the nerve cells and fibrils of the cortex, are hardly thought to be due to germicidal action *per se*, but rather to disturbance of nutrition, and to the direct irritative action of certain toxins, by-products, or

chemicals, found unnaturally in the blood stream, and perhaps in the cerebral fluid surrounding the brain and within the ventricles.

Just what degenerative changes may take place in the cells of the cortex due to disease or hypertrophy of the pituitary or pineal gland, I am not prepared to say; but that mental and physical health and normal metabolism are dependent to a great extent upon the harmonious action and interaction of the endocrine glands and gonads, is recognized by all physiologists and pathologists. Then, too, in the processes of digestion and assimilation there are certain other juices and secretions of the stomach, liver, pancreas, intestinal glands, etc., which are poured out temporarily in the blood and lymph streams, and just what effect vitiation, from any cause, of these secretions may have, must be reckoned with also, as well as deficient action of the excretory organs.

The consensus of opinion just now, however, points with steady finger to disease or disharmony of the ductless glands, and to focal infection—whether of teeth, tonsils, nose, ears, or other portion of the body—as the main etiological factors in the production of dementia præcox.

All down through the ages mental disease has been shrouded and obscured by a cloud of mysticism and superstition, which not only hindered, but prohibited its scientific study and investigation, until the physical basis was lost sight of, until now when the pure white light of science is penetrating the mists of this neglected field.

At the present time in treatment, the removal of focal infections, dieting—especially in making use of the vitamins of certain foods, the use of glandular hormones, occupational therapy, amusements, exercise, suggestion, etc., are producing results in a great number of cases which were considered incurable and impossible heretofore. I have had a number of cases under my charge not only of the first, but of the second attack, which made marvelous improvement under the above treatment and regime. But the subject needs much elucidation and investigation, for as yet we are only on the threshold—seeing dimly! But enough has been said and done to point the way. Just what curative effects may result from lumbar and ventricular puncture and the withdrawal of cerebrospinal fluid and from "washing" the blood at intervals with physiological salt solution remain for the future to determine.

123 DIVISION AVENUE.

The "Kif" Smokers of Algeria.—An article on the "gandia" smokers of Mauritius recently appeared in a French medical journal and now we see another with the above title. Both "gandia" and "kif" are local names of Indian hemp. The habit prevails among the lower ranks of indigenous Algerians, and the use of the drug causes a pleasant form of intoxication without excessive motor phenomena. The substance kif is not pure hemp, but mixed with other active substances, including a tobacco known as *souffi*. Kif is cheaper than alcoholic drinks, and so far as known is less dangerous. But kif is not the only resource of the native. His *chira* seems to be pure hemp, and he also uses hashish by the mouth in the long well-known confection (said by many to contain both hemp and opium), while the *naïfoun* which he imports from the Orient is thought to be pure opium.—*Le Progrès Médical*.

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THE NARCOTIC BILLS BEFORE GOVERNOR MILLER.

WE would call special attention to a communication in this issue from Judge Cornelius F. Collins, Justice of the Court of Special Sessions and for years Chairman of the Committee on Narcotics of the Magistrates' Association of this State. As penned by a leading authority on narcotic law in this State, and one of the best informed men on the subject generally, his letter is especially valuable at this time and throws important light upon the real drug muddle, which seems to be even more a muddle of administration than one of law. Apparently what we have needed and still need is not so much more laws (save the mark!) or radically different laws as the wise and honest enforcement of the meaning and intent of the laws that we have.

We have apparently not been following the law at all, but have been governed by arbitrary administrative opinions, and have been forced to observe certain rules and regulations which were not contemplated in the law itself and which, as Judge Collins points out, even acted in some instances practically to repeal the law. In other words it seems that we have been governed, or allowed ourselves to be governed, by administrative opinion written into arbitrary rules and regulations, and not at all by real administration of the actual law which was designed to have an entirely different effect.

It is in tardy but growing appreciation of these facts that medical men are endorsing the Second Lord Bill, which retains the essential law as worked out from experience and legislative investigation and study, but which abolishes the Narcotic Commission through which most of these difficulties and uncertainties have arisen, and nullifies the regulations and interpretations exercised by it which have worked out so harmfully.

It is in the hope and expectation of restoring normal interpretation and the exercise of common sense that the Second Lord Bill is supported and urged upon the Governor for his signature. It is also in growing appreciation of the real causes of the present situation, with its recognized increase of criminal underworld smuggling and drug traffic and its driving of honest medical men away from

their duties in the study and care of the deserving and innocent addicted sick, that there is such general opposition to the indefensible Fearon-Smith Bill. Its fallacies and menaces were so clearly shown in open hearing last year, when it appeared as the Cotillo-Smith Bill, that it was actually withdrawn by its introducer, Senator Cotillo. The viciousness of the present bill was demonstrated by a mass of reliable evidence at the hearing on March 6, and one cannot doubt that the Governor, after a study of facts of the situation brought out at this hearing, will refuse to sign any such measure. There are too many authoritative, disinterested, and informed persons—lawyers, physicians, and social workers—unalterably opposed to it in the interests of public welfare, of medical science, and the prevention and suppression of criminal traffic in narcotics to permit of entertaining the thought that Governor Miller could, if at all informed of all the facts, possibly consider the Fearon-Smith Bill.

The only sane and reasonable solution of the problem is to enact the Second Lord Bill, if only as interim legislation, and then immediately to enter upon a thorough investigation and study of the scientific and other needs of the situation. The concluding paragraph of the report of the Public Health Committee of the Academy of Medicine is to the point. In this it was stated that the whole question of drug addiction needed a dispassionate thoroughgoing consideration in its various aspects on the part of the medical profession.

LOCALIZED PLEURAL IRRITATION AND SYNCOPAL ACCIDENTS.

ALTHOUGH some surgeons, seduced by the simplicity of technique and the generally remarkable tolerance of the pleura to operative maneuvers, have perhaps lost sight of the existence of pleural reflexes, others on the contrary have exaggerated the danger. Montaz and Pierry have each recently reported deaths from syncope following an injury to the pleural cavity. Montaz's patient had been hit with a bit of exploding shell and an operation of small importance for its removal, on account of rather alarming symptoms, resulted in the death of the patient a few hours later from syncopal accidents. In Pierry's case death suddenly occurred while the patient was being radiographed for a bullet in the thorax. Pierry says that the reflex caused by splinters of bone irritating the pleura during forced breathing for the radiograph was the cause of death, since autopsy revealed no other cause. The susceptibility of the pleura to certain local irritations, in appearance of minimum importance—exploratory puncture for example—has been recognized for a long time and the accidents to which they may give rise have been minutely described by Bouveret, Cestan, Roch, and others. The clinical modalities have been studied, although they have been subdivided perhaps a little artificially, but an attempt has been made to grasp the etiology and pathogenesis in order to fix upon a rational treatment.

Hypotheses are not wanting for explaining these

reactions, and although some are ingenious their very number sufficiently shows the complexity of the phenomena and the difficulties encountered when their internal mechanism is to be explained. There are the toxic theory, and the theories of sudden depression, embolus, and cerebral anemia, the uremic and the reflex theories, to mention the more important.

In certain remarkable experiments Cordier has shown the capital part played by reflexes in the production of these accidents, whose starting point is the irritation of the pleural terminal filaments of the pneumogastric nerves. It would seem to be a fact that this nerve is alone concerned and not the phrenic, intercostals, or sympathetic, as many have supposed. Syncopal or convulsive phenomena, hemiplegic or parietic accidents, vasomotor disturbances, minor and major nervous accidents, observed both clinically and experimentally in lesions of the pleura are all phenomena of the same order. They are reflexes arising in the rich nerve arborizations described by Rubashkin and Romanoff, in the deep stratum of the visceral pleura, the pneumogastric being the centripetal route. Cordier very rightly insists on the essential part played by localized irritations of this serosa. Every pleural irritation is not the origin of a violent reflex; on the contrary, experience during the war has confirmed what was already known, namely, that the healthy pleura easily supports massive excitation affecting large areas, quite in contrast to the peritoneum.

The study of the blood-pressure during thoracotomies is a demonstration of this. While the pressure curve during laparotomies offers variations from a few centimeters of Hg. to complete syncope, according to the manipulations made on the peritoneum—traction on the intestine, mesentery, etc.—the sphygmomanometer appears to remain quite indifferent to surgical manipulations on the lungs and pleura. It, however, must not be forgotten that this is generally the case and that massive irritation of the pleura is not without its risks, even when the interference does not require the infliction of traumatic insults to the parts. Pleural reflexes explain certain serious accidents, paradoxical in appearance, occurring during thoracotomy or shortly after the thorax has been closed. There therefore exist in the pleura certain particularly sensitive areas whose excitation is susceptible of causing phenomena of shock. Their topography is not as yet clearly defined and all that can be said at present is that they exist.

TESTICULAR GRAFTING.

FALCONE publishes some personal experiments in this province and attempts a chronology of previous efforts in the same direction. Voronoff was by no means the first to perform experiments and operations involving the male gonads but like his remote predecessor, Brown-Séquard, he was the first to obtain popular reclamation (*La Riforma Medica*, Dec. 18, 1920, xxxiv, 51). The Americans were the pioneers in this field and Lespinasse grafted a

testicle (homograft) successfully in 1913 and was followed a year later by Morris, and he in turn by Lydston, who took up the subject in serious fashion and has made a series of important contributions to the subject. Leichtenstern seems to have been the first European to operate, in 1916. Lissmann and Hirschfeld originated the belief that homosexuals might be made normal by testicular grafting and it is said that the experiments along these lines were quite successful, but details fail. A claimant to early honors was Mariotti, although his work, which was done in 1915, could not well have been reported until after the lapse of years. The case was one of testicular grafting in a case of infantilism, which gave the desired result. The author is silent on the recent work of Steinach and Leichtenstern, which is presumably known to the average reader. The details are covered in Steinach's recently issued work entitled "Rejuvenation" which contains an account of the new method of ligating the vas deferens in suitable cases, thus giving all the benefits of homografts. None of the preceding reports refers to heterografting.

Falcone now gives a résumé of four cases of heterografts as follows: (1) Man aged 74, impotent many years; chronic bronchitis and arteriosclerosis. A piece of ram's testicle was embedded subcutaneously under the skin of the abdomen. The wound healed about the tenth day, and already by the seventh day there had been an erection. The wound reopened later and the graft came away with its seminiferous tubules still recognizable; the potency was lost although the patient claimed that his general condition was improved. (2) Man 63, no erections for several years. General condition poor, cachectic, with large varicose ulcer. Heterograft of same type as in Case 1. Erection on seventh day. Graft failed to take and sloughed away, but the erections persisted, for a time at least, while the large ulcer had started to heal. (3) Man of 53, dystrophic and of eunuchoid type with hypoplastic genitals. Malaric and alcoholic. He was married and was originally able to copulate but had been impotent for a year. He presented the appearance of premature senility. Heterograft, ram's testicle. Erection by third day, testicles became swollen and sensitive. Graft came away on eighteenth day but the patient, writing some time afterward, claimed to be potent. (4) Man 69, very robust but complained that he was losing his potency. The same operation was performed, and by the third day there was a violent erection with erotic sensations. During the next sixteen days he copulated several times. The graft healed in, his general condition improved, and the potency was satisfactory.

POISONING BY SODIUM SILICATE.

PROFESSOR EICHHORST, writing in the *Schweizerische medizinische Wochenschrift* for November 25, 1920, i. 48, states that generally speaking silicates are presumably nontoxic and quotes from

standard works on toxicology to this effect. This statement seems to hold good for animals but Schulz once reported that an experimental squad of students developed a chronic poisoning, the symptoms comprising headache, vertigo, somnolence, lassitude, nervousness, tremor, unsteadiness of movements, furunculosis, eczema, hyperidrosis, increase in rate of nail growth, meteorism, borborygmi, diarrhea, colic, tenesmus, notably yellow stools, polyuria, and dysuria, heaviness in the limbs, pains in the bones and joints, stiffness of the joints and painful muscular hypertonus. The author has been unable to find any record of acute poisoning from this substance. But if the matter is scrutinized carefully it is readily seen that opportunities for poisoning have always been absent until quite recently. The silicate of soda has never been used in household economics until of late years as a substance for egg packing and preserving. The author had recently attended a case of acute poisoning from the silicate, probably the first to get into literature. The patient was a robust man of 52 who had poured himself a glass of what he had supposed to be white wine. This he swallowed at a gulp, about six or seven ounces. He felt at once pain in the throat and stomach of a burning character and on examining the bottle found that he had drank a solution of sodium silicate. He developed symptoms suggestive of mild gastroenteritis with much weakness and headache. The tongue, cheeks, and pharynx presented a white coating but there were no signs of caustic action about the lips.

After narrating the case to the period of complete recovery, which comprised four days, the author sums it up as follows: Commercial silicate of soda, known conventionally as soluble glass or waterglass, caused acute poisoning of the irritating type, the mucosae showing also some caustic effects. In addition to the usual gastroenteric symptoms there was evidence of irritation of the kidneys in the shape of albuminuria and casts and blood corpuscles. The blood count showed evidence of stimulation of the lymphnodes and bone marrow. There was a temperature rise while the urine contained small quantities of sugar and acetone. A slight rise of blood pressure may have been due to the renal lesion. The patient had vomited freely soon after swallowing the poison, else he might have been much more seriously affected.

The question at once arose, was it the silica, the alkali, or an impurity which was chiefly responsible for the symptoms? The alkalinity was found to be equal to 9.2 per cent. of soda lye and this might have been sufficient to cause albuminuria, but the urine of the patient had been acid throughout. No impurity is mentioned and in regard to the relative parts played by silica and soda the question is left open.

BLOOD PRESSURE AND MENTAL EFFORT.

THIS subject has recently been investigated by two medical women, Mmes. Toulouse and Tarcowia (*Le*

Progrès Médical, February 5, 1921, xlix, 6). The paper was read before the Clinical Society of Mental Medicine last January. Under mental effort in normal subjects systolic and diastolic pressures rise 3-5 cm. of mercury, and remain thus elevated until cessation of the effort, when the tension rapidly falls to normal. In defectives submitted to effort tests, there was no rise of pressure, results which indicate that no effort worth mentioning was made, and the same negative result was obtained in maniacs and melancholics. Between these extremes there were many transitions. Senile dementers, or those with mental processes presumably weakened, often showed an almost normal maximum, while at the end of the effort the minimal had become depressed although the maximum was still rising. The writers impute this behavior to premature fatigue. In these cases the product of the effort was poor. This reaction of the senile dement or of dementia *per se* is of value in differential diagnosis of mental confusion. In fact lowering of the diastolic tension is the most delicate sign and one of the earliest for mental enfeeblement. It was also learned in the experiments conducted by the writer that there is often a correspondence between mental and physical effort, when the latter is tested with the Henry dynamometer, in both normal and mentally enfeebled subjects. This appears at times as a dissociation of the two curves.

STATUS OF SEROTHERAPY.

RICHEL junior, writing in the *Journal de médecine et de chirurgie pratiques* for January 25, 1921, cviii, 2, gives a summary of the status of serotherapy which, so he says, began in 1888 when his father in conjunction with Héricourt demonstrated that the blood of a dog which had been treated with a special staphylococcus immunized rabbits which were very sensitive to this organism. Whole blood was injected in this demonstration. The results were not published until December, 1890, after the procedure had been tried out on man. The French authors had anticipated Behring and Kitasato by about two years although the two papers were published in the same month. The latter authors secured all of the glory because of the immediate practical nature of their discovery. During the entire period beginning with 1890 the field of serotherapy has been active. In regard to preventive serotherapy we have thus far made good in four affections—tetanus, diphtheria, bubonic plague, and snake-bite. In regard to curative therapy the authors mention seven diseases in which great results have been accomplished, as follows: diphtheria, tetanus (serotherapy is often of benefit in the individual case but cannot dominate the classical disease), bubonic plague (excepting the pneumonic form), Shiga dysentery, cerebrospinal meningitis (recent results have been brilliant), and miscellaneous. Among the unsettled affections in the authors' opinion are gonorrhea, anthrax, streptococcemia, and tuberculosis. Anthrax is doubtless not yet admitted because it has not been shown that serum can cure true anthrax sepsis. In regard to fatal serum sickness twenty cases are on record. Of these but one has occurred in France, a mortality of 1 to about 10,000,000 serum injections.

News of the Week.

Soldiers Not Neglected at Fox Hills Hospital.—

A special committee of Caduceus Post, American Legion, appointed to investigate Fox Hills Hospital, where mistreatment and neglect of soldier patients are alleged to have occurred, reports that the main trouble at the hospital is lack of discipline and co-operation on the part of the patients. The committee found that the hospital staff, except for the laboratories, was entirely adequate, and the dining rooms and kitchens were in first-rate condition of cleanliness. The report recommends that psychiatric cases and the tuberculous be removed to other institutions, and that the drug addicts be more isolated from the rest of the institution. The investigating committee consisted of Dr. Henry C. Coe, Dr. Graeme Hammond, Dr. Harlow Brooks, Dr. Nathan S. Jarvis, and Dr. Samuel Lloyd.

Physicians May Prescribe Wines Without Limitation.—

After having made a tentative set of regulations to control the prescription of wines and beer, which were as drastic as it was possible to make them under the Palmer ruling, enforcement officials in Washington have placed a new interpretation on the prohibition rulings and have decided that it may be safe to permit physicians to use their own judgment in prescribing for patients. Director O'Connor now states that the physician's prescription need not be limited to one pint of whiskey for a patient in ten days, but that vinous liquors may be added "in such quantities as the physician in his sound judgment deems necessary." Director O'Connor warns physicians to use extraordinary care not to abuse this right and advises druggists for their own protection to fill prescriptions for wine only after careful scrutiny to see that excessive amounts are not prescribed.

A Clinical Morning at the U. S. Naval Hospital, Brooklyn.—The commanding officer, Captain C. H. T. Lowndes, Medical Corps, U. S. Navy, has invited the physicians attending the meeting of the State Medical Society to visit this hospital during the morning of May 3 from 9 to 12 o'clock. The hospital and grounds will be open for the medical profession. During the morning clinics will be held in the following departments: Surgical, Physiotherapeutic, Roentgen-ray, Medical, Eye, Ear, Nose, and Throat, Genitourinary, and Neurological. Moving pictures, showing various activities of the Medical Corps of the French Army in the World War, will be on view in the recreation hall continuously between 9 and 12 o'clock.

Summer Courses in Medicine at Columbia University.—A course in cancer research will be given at the Crocker Laboratory, Columbia University, during the coming summer, under the direction of Professor W. H. Woglom of the laboratory staff. The instruction will deal with the morphology and biology of tumors, and will consist of series of lectures and laboratory exercises intended to give sufficient experience to enable the student to diagnose all the commoner varieties of tumors. The course is planned especially to meet the needs of those who are to take up hospital or public health laboratory positions which may require the microscopic diagnosis of tumors. A series of courses in medicine will also be given this summer by the College of Physicians and Surgeons. Professor O. S.

Strong will teach neuroanatomy at the Neurological Laboratory, and a course in clinical pathology will be directed by Professor K. M. Vogel, at the Laboratory of Clinical Pathology. Dr. P. C. Potter will give instruction in minor surgery and bandaging at the Vanderbilt Clinic. Other summer courses will be given in anatomy and bacteriology.

New Rules Regarding Schick Test Outfits and Toxin-Antitoxin.—The New York City Health Department announces that the demand by practicing physicians for material for the Schick test and the Schick-test-control, as well as for toxin-antitoxin has become great enough to warrant the Health Department undertaking their distribution through consignment stations. The number of stations has been limited for the present in order to prevent wastage. For the time being physicians can obtain these products without charge for use on residents of New York City. New Schick-test and Schick-test-control outfits are being prepared, for which a charge of 25 cents each will be made. At the same time toxin-antitoxin will also be supplied, at the price of 25 cents. These new outfits will be ready for distribution about May 1. Free distribution to clinics, hospitals, and custodial institutions will, however, be made as heretofore from the Central Laboratory. The Department of Health is ready to do the Schick test, and inject toxin-antitoxin free of charge. This work is being done at the Baby Health Stations and Department Clinics.

Fire in Camden Hospital.—A fire occurred in the Cooper Hospital, Camden, N. J., on April 9, which caused an estimated loss of about \$50,000. No lives were lost.

The World's Lepers.—The recent announcements in reference to the cure of leprosy with refined chaulmoogra oil have led to the compilation of interesting statistics. It is estimated that there are 3,000,000 lepers in the world to-day. Of these 2,000,000 are in China, 200,000 in India, and 20,000 in Japan. The United States has a big leper problem in her hands in Hawaii and the Philippines.

Bubonic Plague at San Juan.—A despatch received in Washington on April 11, states that a number of cases of bubonic plague have occurred at San Juan, Porto Rico.

Maternity Center Bill.—The Stitt bill passed by the New York State Legislature, would permit various communities to provide funds for maternity care. The Maternity Center Association of New York and others interested in prenatal work are urging support for this measure. They point out that in Manhattan alone last year one mother died for every 205 babies born, and one baby out of every 26 died under one month of age, a total of 2,145. One out of every 20 babies was born dead. In the registration area of the United States 100,000 babies under one month of age die every year and another 100,000 are born dead. Those in favor of the bill point out that the care of mothers and babies is a distinct city or State responsibility.

Druggists Protest Against Prohibition "Black List."—At the tenth annual convention of the American Drug Manufacturers' Association which met in New York April 11-13, a report was presented and resolutions passed urging amendments to the Volstead act. The druggists express a desire for the restoration of the nineteen legitimate pharmaceutical preparations which have been

placed on the prohibition "black list" by the Government. They state that these preparations have been regularly prescribed by physicians for a century and are strictly medicines and not drinks.

Toledo Hospital Loses Radium.—Six thousand dollars worth of radium was accidentally dropped into a catch basin in St. Vincent's Hospital, Toledo, Ohio, on April 14. The sewers of Toledo are being searched by an expert from Pittsburgh in the hope of recovering the radium.

Blackwell's Island Changes Name.—The New York City Board of Aldermen recently adopted a recommendation, submitted by its Thoroughfares Committee, changing the name of Blackwell's Island to Welfare Island. The recommendation will have to be signed by Mayor Hylan before it becomes effective.

Drive to Aid Blind.—A campaign to raise \$2,000,000 for the relief of the blind men, women and children of America, France, and Italy was inaugurated on April 14. President Harding will serve as patron of the Committee for Lighthouses for the Blind. The Post Office Department announces that beginning May 10, there will be a reduction of postage rate on printed matter for the blind to one cent for each ounce or fraction, when addressed for delivery to foreign countries.

Hospital Site Offered.—Mahlon N. Haines has offered a five-acre tract of land near York, Pa., as a site for a new hospital for the construction of which the will of the late Dr. James A. Dale has provided between \$150,000 and \$200,000. No definite action has been taken on the offer.

Fund for Medical College.—The trustees of the Albany Medical College announce that the college has been offered a maintenance fund of \$30,000 annually provided a similar amount is raised each year by the trustees. Of this sum the Rockefeller Foundation will give \$20,000; the General Electric Company \$5,000, and Dr. Charles Alexander Richmond, president of Union University, \$5,000. The money this year must be raised by June 1 to make the \$30,000 available.

Charitable Gifts and Bequests.—The Board of Trustees of the University of Cincinnati, at their meeting on April 5, announced a gift of \$25,000 by Mrs. Minnie F. Ransohoff to the Medical College of the University of Cincinnati toward an endowment fund for the establishment of a chair of surgery to be known as "The Joseph Ransohoff Professorship of Surgery and Anatomy."

The will of Mrs. Elizabeth Southmayd distributes more than \$1,000,000 to charity. Of this sum St. Luke's and the Roosevelt Hospitals, New York, each receive \$100,000; the New York Association for Improving the Condition of the Poor and the New York Association for the Blind, each \$50,000; the State Charities Aid Association, Woman's Hospital, New York Eye and Ear Infirmary, Society for the Relief of the Ruptured and Crippled, New York Orthopedic Dispensary and Hospital, each \$25,000.

Among the many philanthropies receiving bequests under the will of the late Mrs. Mary B. Dortic is the New York Institution for the Blind, which is the recipient of a bequest of \$25,000. Dr. John E. Stillwell has also received a legacy of \$50,000 under the will in appreciation of his services to the testator and her husband.

Gift to Disabled Soldiers.—Mrs. Horatio N. Slater of New York has given her estate at Reads-ville, Mass., to the United States Government for fifty years as a home for permanently disabled soldiers. The house will accommodate 100 men. The home will be called the Morris Hunt Memorial Park in memory of Mrs. Slater's father.

Dr. William S. Thayer has submitted his resignation as Professor of Medicine at Johns Hopkins University. Dr. Rufus Cole of New York and Dr. Palmer of Johns Hopkins are mentioned among the possible successors to Dr. Thayer.

Dr. Amos Baker, formerly psychiatrist of the East View Penitentiary, has been appointed superintendent and psychiatrist to the Bedford Reformatory for women, at Bedford, N. Y.

Dr. Donald Guthrie of Sayre, Pa., has been appointed surgeon in chief of the Lehigh Valley Railroad.

Dr. Thomas J. Cummins has resigned as head of the Arizona State Hospital for the Insane.

Dr. Maria Drew has been appointed school physician of Quincy, Mass.

Dr. E. A. Barber has resigned his position as superintendent of the Ohio State Hospital for the Insane at Dayton.

Prof. Lafayette B. Mendel has been appointed Sterling professor in physiological chemistry at Yale University. This professorship has recently been established by the trustees of the estate of John B. Sterling, who left the residue of his estate in the interest of Yale University.

The Illinois State Medical Society will hold its seventy-first annual meeting in Springfield, on May 17 and 18, 1921.

Medical Society Elections.—THE HORNELL (N. Y.) MEDICAL AND SURGICAL SOCIETY, at its meeting held April 6, 1921, elected the following officers: *President*, Dr. George Taylor; *Vice-President*, Dr. C. R. Bowen; *Secretary and Treasurer*, Dr. George Conderman.

THE NEW LONDON COUNTY (CONN.) MEDICAL ASSOCIATION, at its meeting held at the Norwich State Tuberculosis Sanatorium, April 7, 1921, elected the following officers for the ensuing year: *President*, Dr. C. F. Ferrin, New London; *Vice-President*, Dr. C. C. Gildersleeve, Norwich; *Secretary and Treasurer*, Dr. A. C. Freeman, Norwich.

THE OTOE COUNTY MEDICAL SOCIETY, at its annual meeting held at Nebraska City, March 31, 1921, elected the following officers: *President*, Dr. J. A. Koser; *Vice-President*, Dr. Thomas; *Secretary-Treasurer*, Dr. Wilson.

Red Cross Proposes Limitations in Warfare.—The International Red Cross Conference in Geneva has adopted the following resolutions proposing new limitations in warfare: 1. Absolute prohibition of the use in any way of gas in warfare. 2. Limitation of aerial war to military objects, in order to protect civilians from the effect of this new method of war and avoid useless destruction. 3. Strict application of Article XXVI. of the rules of land war, according to the Hague Conference. Strict application is also recommended of Articles I. and IV. of the convention relating to naval bombardments and prohibiting the bombardment of all undefended places. A proposal has also been made providing for the removal of children, the sick, and the aged

from an area in the case of an economic blockade. This proposal is considered difficult of accomplishment, but it is hoped the different governments will come to an understanding on the question from the humane viewpoint. It is easy to establish limitations but not so easy to insure that the Germans will not again ignore them when they start the next war.

Plans for Child Health Demonstration.—Some weeks ago the National Child Health Council announced that plans were being developed for a child health demonstration with the purpose of aiding in the general movement for the conservation of child life and health. More mature plans are now announced. An appropriation of \$200,000 has been set aside for the purpose of assisting some American community of between 20,000 and 30,000 population and the surrounding country in securing as nearly as possible ideal conditions for the development of its children, from babyhood to adolescence. The requirements of the town to be selected are that it should be located in a county of between 50,000 and 60,000 population. The population should be fairly stable; the age distribution fairly near the average, especially as to the percentage of children and babies; there should be no strikingly predominant racial stocks; the town should have a normal percentage of the population engaged in manufacturing; there should be a variety of industries; the surroundings should be agricultural, and the town should be in a birth registration state. The committee which will recommend the town to be chosen consists of Dr. Richard A. Bolt of Baltimore, Miss Ella Phillips Crandall of New York; Dr. Charles J. Hatfield, Miss Sally Lucas Jean, and Dr. Haven Emerson of New York, and Dr. Donald B. Armstrong of Framingham, Mass. The direction of the experiment will be under Clarence King.

One Board for Care of Disabled Veterans.—In view of existing conditions in regard to the care of disabled soldiers, sailors, and marines, as shown by an investigation carried out by a committee especially appointed for this purpose, of which Charles W. Dawes is chairman, recommendations have been made to President Harding that he ask Congress for the necessary legislation to create "The Veterans Service Administration," and in this governmental bureau to place the new Bureau of War Risk Insurance, the Rehabilitation Division of the Federal Board for Vocational Education, and such part of the Public Health Service as has to do with the care of disabled veterans. At the head of this new bureau the committee wants a director-general, who shall be directly responsible to the President, and not some cabinet officer already burdened with other duties. Seven specific recommendations are made by the committee for bettering the care of ex-service men. One of these is the immediate extension of all government hospital facilities, together with the mobilization of such civilian medical services as may prove practical.

Doctors Oppose Occupation Tax.—Representatives of the medical profession of Louisiana appeared before the Tax Committee, at its adjourned session on March 29, to protest against being placed in a class with trades and made to pay a license tax for the practice of a professional calling. Dr. Ho-

mer Dupuy, President of the Louisiana State Medical Society, gave as reasons why this tax should not be imposed on physicians that Louisiana was the only State that imposed such a levy; that doctors gave to the State annually \$2,000,000 worth of systematic charity, and that physicians should not be classed as tradesmen but as members of a dignified profession.

Damages for Appendicitis Death.—A jury in the Supreme Court of Brooklyn, N. Y., recently returned a verdict of \$6,500 against the New York Consolidated Railroad Company in favor of the estate of the late Herbert W. Goward, injured in the Malbone Street tunnel wreck in November, 1918. Goward died of appendicitis nine months later. The counsel for the Goward estate produced medical proof showing that appendicitis was a germ disease; that germs existed in the bodies of all ordinarily healthy persons; that the illness Goward had suffered as a result of his injuries had caused a clogging of the intestinal tract; that the circulation of the blood through the appendix was retarded, and that thus a breeding place for germs was created.

Medical History Collection in the Lane Library.—With the aid of a gift from Dr. Adolph Barkan, emeritus professor of the Stanford Medical School, the University is gathering in the Lane Library of the Medical School in San Francisco a collection on the history of medicine that will be equaled by no other western institution. Dr. Barkan will give \$1,000 a year for the next three years, to which the University will be able to add from the income from certain Lane Library Foundations \$1,500 a year, making a total fund of \$7,500, all of which will be expended on books concerning the history of medicine. Dr. Barkan was professor of structure and diseases of the eye, ear, and larynx in the Medical School and retired from active teaching in 1911. He has before this been a liberal benefactor of the Medical School Library, having given his own library dealing with the subjects in his special field, together with \$10,000 as a fund for the purchase of other books on these subjects.

City Votes for Hospital.—A vote as to the advisability of levying a special tax to provide funds for the purchase of the Cedar Valley Hospital for Charles City, Ia., resulted in a majority vote in favor of the purchase.

Buffalo to Have Government Hospital.—A new Government Hospital to cost \$100,000 to \$150,000 is to be built at Fort Porter to care for disabled veterans of the world war.

New State Hospital for West Virginia.—A farm of six hundred and fifty acres has been purchased in Mason County, W. Va., as a site for a proposed State Hospital for Insane Negroes.

Campaign for Bristol Hospital.—Final plans have been completed for launching a campaign to raise \$150,000 to be used in erecting a hospital in Bristol, Tenn.

The Pope County (Ark.) Medical Society. at its meeting in Russellville, March 26, elected the following officers for the ensuing year: *President*, Dr. R. L. Smith; *Secretary*, Dr. H. S. Drummond.

Alcoholic Patients Fewer.—The records of the Middletown State Hospital, Middletown, N. Y., show a marked decrease in the percentage of alcoholic patients. Several years ago about 8 per cent.

of the patients in this institution were alcoholic; at present not even one per cent. can be placed in that classification. According to the records of this institution the number of drug cases is not increasing.

Obituary Notes.—Dr. LEO JOSEPH COMMISKEY of Brooklyn, N. Y., died following an operation for appendicitis on April 15, at the age of forty-two years. He was graduated from the College of Physicians and Surgeons, New York, in 1904, was a Fellow of the American College of Surgeons, and a member of the American Medical Association. He was gynecologist and obstetrician to the Kings County and Bradford Street Hospitals, Brooklyn, and consulting obstetrician and gynecologist to the Mercy Hospital, Hempstead, L. I. During the war Dr. Commiskey was a Major in the Medical Corps of the Army.

Dr. SAMUEL ALEXANDER STERRETT METHANY of Philadelphia, Pa., died at his home in Philadelphia, on March 26, at the age of fifty-one years. He was graduated from Jefferson Medical College, in 1894, and served as captain in the M. C., U. S. A., having been discharged in June, 1919. He was a medical missionary in Syria for some years and a member of the Royal Microscopical Society of London.

Dr. RANSFORD EVERETT VAN GIESON, for over fifty years a practising physician of Brooklyn, N. Y., died of pneumonia, on April 1, at the age of eighty-four years. He was a graduate of the College of Physicians and Surgeons, New York, in 1859.

Dr. FREDERICK SAUER of Hammond, Ind., a graduate of the University of Michigan, in 1902, died in a local hospital of pneumonia, on March 23, at the age of forty-three years.

Dr. SAMUEL PRITCHARD FETTER, a graduate of the Miami Medical College, Cincinnati, in 1904, died suddenly of Bright's disease at his home in Ashland, Ky., on March 18, at the age of thirty-nine years.

Dr. ARTHUR J. GILLETTE of St. Paul, Minn., died suddenly of cerebral hemorrhage, on March 24, at the age of fifty-eight years. He was graduated from the St. Paul Medical College in 1886. He was for many years professor of orthopedic surgery at the University of Minnesota, and was founder of the Phalen Park Hospital for Crippled Children, St. Paul.

Dr. C. W. COBURN of Philadelphia died on a train at Carrizozo, N. M., while en route to California for his health, on March 29, at the age of fifty-four years. He was graduated from Jefferson Medical College, in 1893, and was for many years chief of the nose and throat clinic of Jefferson Hospital.

Dr. CORNELIUS L. DEMOREST of Washington, D. C., a graduate of Bellevue Hospital Medical College, in 1879, died on April 2.

Dr. ERNEST SCHALCK of Brooklyn, N. Y., a graduate of the University of Wurzburg, Germany, in 1882, died on April 15, at the age of sixty-two years. He was chief ophthalmologist to the Wyck-off Heights Hospital, consulting ophthalmologist to the Beth Deaconess Home, and assistant surgeon to the Knapp Memorial Hospital.

Dr. CHARLES HAINES of New York, a graduate of the Long Island College Hospital in 1908, died suddenly on April 12, at the age of forty-five years.

Dr. JOSEPH FEWSMITH, a graduate of the College of Physicians and Surgeons, New York, in 1874, died in Newark, on April 9 at the age of seventy years.

Dr. FRANK PEASE HOWSER of Otisville, a graduate of Bellevue Hospital Medical College in 1891, died after a brief illness on March 29 at the age of fifty-nine years. He was a member of National Society for the Prevention of Tuberculosis.

Dr. WILLIAM OWEN ROBERTS of Louisville, Ky., died of chronic nephritis on April 1 at the age of seventy-two years. He was graduated from the University of Louisville Medical Department in 1870, and from Bellevue Hospital Medical College in 1871. He was professor of surgery and clinical surgery in the University of Louisville since 1876, chief surgeon of the Louisville and Nashville Railroad Company for almost forty years, president of the Kentucky State Medical Association in 1914, and formerly a secretary of the American Medical Association.

Dr. O. P. MCNAIR, a graduate of Rush Medical College, Chicago, in 1892, died at his home in Oklahoma City, Okla., on April 2, at the age of fifty-five years.

Dr. DORA GREENE WILSON of Kansas City, Mo., died of heart disease on April 3, at the age of fifty-seven years. She was a graduate of the Northwestern University Women's Medical College in 1886.

Dr. WILLIAM P. BERRY, formerly of Memphis, died in South Pascagoula, Miss., on March 23 at the age of seventy-nine years.

Dr. FREDERICK W. SAUER of Indiana Harbor, Ind., a graduate of the Medical Department of the University of Michigan in 1902, died in a local hospital on March 23, at the age of forty-two years.

Dr. DAVID FRANKLIN of Louisville, Ky., a graduate of the Hospital College of Medicine of the Central University of Kentucky in 1880, died on April 7, at the age of seventy-nine years.

Dr. WILLIAM D. LITTLE of Maiden Rock, Wis., died of heart disease in a hospital in St. Paul, on about March 30, at the age of fifty-three years. He was a graduate of Tulane University Medical Department, New Orleans, in 1887.

Dr. ELMER H. MAURER of Ashland, Pa., a graduate of Hahnemann Medical College and Hospital, Phila., in 1902, died in Tampa, Fla., on March 29.

Dr. HEMAN HAMPTON BROWN, president of the Illinois Medical College, Chicago, Ill., died in Orlando, Fla., on April 10, at the age of fifty-eight years. He was graduated from the Medical Department of University of Michigan in 1886. He was president of the Chicago Ophthalmological Society, and professor of ophthalmology in the Chicago Policlinic and the Chicago Eye, Ear, Nose and Throat College.

Dr. DAVID ROSSMAN of Wilmington, Del., a graduate of the Medico-Chirurgical College, Philadelphia, in 1914, died of heart disease on April 11, at the age of thirty-three years. He was connected with the Delaware Hospital and the Physicians and Surgeons Hospital.

Dr. MILES MINOR GLASS, a graduate of Rush Medical College in 1886, died of heart disease in East St. Louis, Ill., on April 1.

Dr. JEROME M. DAVIS of North, S. C., was instantly killed on April 2, when his automobile was

struck by a passenger train at a short distance from his home. He was a graduate of the medical College of Georgia in 1889, and was fifty-nine years of age.

Dr. GEORGE R. HILL of Kendall, Wis., a graduate of Bennett Medical College, Chicago, in 1886, died on March 24, at the age of sixty-nine years.

Dr. FREDERICK C. SEIBERLING of Allentown, Pa., died on April 4 at the age of eighty-one years. He was a graduate of New York University Medical College in 1862.

Dr. LARNED V. ALLEN of Davenport, Ia., died of scarlet fever on March 31, at the age of thirty-three years. He was graduated from Rush Medical College in 1913, was commissioned Captain in the Medical Corps of the United States Army in 1918, and served as battalion surgeon to the 26th Infantry during the Meuse-Argonne campaign.

Dr. CHARLES B. G. DE NANCREDE of Ann Arbor, Mich., died at his home there on April 13, at the age of seventy-three years. He was professor of surgery and clinical surgery in the University of Michigan. He served as Major in the Spanish-American War, and was president of the American Surgical Association in 1908-09. He was graduated from the Medical Department of the University of Pennsylvania in 1869, and also from the Dartmouth Medical School.

Dr. CHARLES F. ELLIOTT of Bradford, Pa., a graduate of the Medical Department of the University of Buffalo, formerly attached to the staff of the Erie County Hospital and later to the State Hospital for the Insane at North Warren, Pa., died in a local hospital on April 5, at the age of forty-two years.

Correspondence.

THE DRUG LAW MUDDLE.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—My attention has been called to your editorial, "The Drug Law Muddle," in your issue of April 16. If the term Drug Law Muddle was apt at the time your editorial went to press it would be infinitely more apt now for the reason that we have three distinctly conflicting bills presented to the Governor by the Legislature for his deliberation. The muddle, therefore, is one not alone to tax the minds of those interested in the solution of the drug problem from the sociological and medical standpoints, but calls for action so that the entire situation may be placed before the Governor and the right thing done by him in the signing of any of the three bills.

I am prompted to write you so as to set myself straight, or rather you straight on the subject treated in your editorial. First, you suggest that the Magistrates' Association was in part responsible for the present "unsatisfactory law." There have been no indications that the existing law has been in itself unsatisfactory. The "muddle" that you speak of is not due to failure of the statute but to the enforcement of promulgated rules and regulations which were in some instances in their effect tantamount to repeal of the law and contrary to its intents and purposes.

The complaints and protests as I have heard them on the part of the medical profession have been to

the rules and regulations and administrative restrictions made by Federal and State officers in their enforcement of the laws, which had the effect of frightening and discouraging the legitimate practice of medicine in these cases and of reviving peddling and its associated criminal cases coming into court. This I pointed out in my report.

It is to be appreciated that the Harrison Law is a Federal tax law, although aiming to control traffic in drugs. The Supreme Court has decided that police power cannot be exercised under this statute for the reason that the Federal Government is without such power. This is the reason why mere possession without the showing of some definite other violation in the obtaining of the drug was held not to be a crime.

If there were no State law, peddlers and possessors in the underworld would be practically free from molestation in so far as possession is concerned. You can visualize the evils that would result and appreciate that such a condition would arise as would give rise to far more drastic legislation in the future if our whole State law were repealed. In fact the situation might immediately result in a sanitary code form of enactment and lead to a state of affairs that the word "muddle" would be no name for.

It would undoubtedly happen in some large centers that the sanitary code would provide just exactly what the Fearon-Smith Bill provides, which you in your editorial term "monstrous," and would utterly forbid a medical practitioner in private practice prescribing a drug for drug addicts, or make such prescribing practically impossible. This would undoubtedly lead to chaos. I call your attention to the arguments used by me in my report on this matter.

I am impelled, therefore, to push the thought that you expressed that it might be well to adopt the bill recommended in my report, namely, the second Smith-Lord Bill. It abolishes the Commission and leaves the law for the State of New York without the power to permit any further obnoxious administrative restrictions or regulations by administrative officers, but otherwise retains a substantial State law which is the least burdensome to the medical and pharmaceutical professions of any State law in the Union, while at the same time it answers all sociological purposes.

In passing let me suggest to you that the regulations promulgated and imposed were no part of the statute or substantive law. I believe that if practitioners of medicine or pharmacy or their organizations had availed themselves of their legal rights under the law, many of the most obnoxious regulations and rulings would have been upset.

The great importance of this whole situation at this time cannot be too strongly called to the attention of the medical profession, the drug trade, and the sociologists. This is my excuse for the lengthy communication to you, in the realization that you will appreciate its importance and will act in your earliest issue so as to properly line up the forces before the Governor.

CORNELIUS F. COLLINS,

Chairman, Committee on Narcotic Drug Control,
State Association of Magistrates.

NEW YORK, April 17, 1921

FALLACIOUS REASONING IN SUPPORT OF COMPULSORY HEALTH INSURANCE.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—I have rarely read an article conveying more misinformation on a subject than the recent contribution on "National Waste Through Ill Health," by Henry W. Lanier, in *The American Review of Reviews* for March, 1921. In the deliberate campaign of public confusion which is being carried on by laymen making propaganda on health questions this article may be considered typical of what is to-day a serious menace to public interests. Ostensibly a plea for better health, the article merely adds to the existing amount of misunderstanding and leaves no impression on the mind other than that this country has been grossly derelict in health matters and far behind European countries in sanitary reforms. The argument is introduced with the statement that "Our largest remediable waste is that of preventable ill health." In very truth our largest remediable waste is good white paper misused for purposes of public misinformation. An attempt is made to support the argument by a mass of irrelevant conjectures derived from reports long out of date, and there is displayed throughout a colossal ignorance of current facts and figures accessible to anyone who desires the truth. It is absurd as well as pernicious to argue that "We are permitting nearly a million Americans to die each year prematurely." No power on earth can prevent the overwhelming amount of premature sickness or death which has its origin in habits, inheritance, and conditions largely outside of human control. It is equally pernicious and absurd, therefore, to argue that "We have perhaps two million people needlessly sick all the time." No wealth or ingenuity could prevent most of the sickness which prevails and which will continue to prevail to the end of time. But this country is to-day the healthiest as it is physically the most advanced of any country in the world. It boasts to-day of the lowest death rate on record (12.9 per 1,000 of population for 1919), which a few years ago would have been considered absolutely unattainable.

The article continues, "It is a humiliating fact that twenty-three out of our forty-eight States do not furnish us with a registration of deaths." The number of States in the registration area in 1919 was thirty-three, and the total population within the area was 81.1 per cent. The States which are not within the registration area are of the least relative importance, but the area is continually being enlarged as the result of the indefatigable efforts of the Census Office. For the area under observation the returns are as trustworthy as for any corresponding section of the world, and it is therefore a grotesque perversion of the facts to quote antiquated statements in an article published in the year 1921, when a correct statement for 1919 was certainly available and a close estimate for 1920 could have been had on inquiry at the Washington office. For all practical purposes, therefore, we know that the true death rate of the United States for the area not under registration, if known, would not materially alter present conclusions.

The writer makes the statement that the regis-

tration includes about two-thirds of the total population, instead of four-fifths. He further implies that the returned death rate of 14.2 per 1,000 in 1917 was untrustworthy, for he remarks, "Experts believe 18 to the thousand is correct for the whole country." Experts believe nothing of the kind, but the writer no doubt refers to statements made many years ago, when 18 per 1,000 was considered a normal attainable death rate. All investigations which have been made in this country substantially confirm the conclusion that the registration is practically complete and that the resulting death rates are entirely trustworthy. For 1920 the death rate of England and Wales was returned as 12.4 per 1,000. No one questions the accuracy of this return, and there are no reasons for questioning the substantial accuracy of our own returns. There is to-day not a single State in the registration area of the United States with a death rate exceeding 16.0 per 1,000. The conclusions advanced, therefore, as regards the probable number of deaths are as grotesquely erroneous as the corresponding conjectures regarding the amount of preventable illness. There are no statistics of any kind which justify definite assertions as regards the probable prevailing amount of sickness otherwise than as tentative indications of the possible extent of the sickness problem made with a due regard to the point of view from which the question is considered. The writer handles his millions as carelessly as he does his billions. The so-called economic loss from sickness is a mere speculative guess of no intrinsic value whatever.

The writer brings forward the same silly argument that, "Of course, we are far indeed from handling the problem as earnestly and efficiently as we do in the case of valuable cattle or machines." This is always the form of argument used by those who would destroy confidence in the existing order by stating a proposition in a way most confusing to those who are not familiar with the facts. We spend as much upon health and sanitation as any country in the world, when all the facts are taken into account. As the result, we have on the whole as healthy and vigorous a class of people as any nation can point to with pride. We owe this to a public health service—federal, state and municipal—which, on the whole, compares favorably with what is available in other countries. The ignorance of the writer is perhaps displayed nowhere better than in his reference to the "Public Health and Marine Hospital Service," the title of which was changed by Congress to the United States Public Health Service as far back as 1902!

It was to be expected that the writer would bring forward the draft figures as an indictment of the physique of our young manhood. Anyone familiar with draft examinations and the underlying reasons for military selection knows full well that the conclusions are to be accepted with extreme reserve if used for any practical purpose whatever. They do not apply to the population at large, and they do not apply to the problems of preventive medicine, but they apply rather to the system of military recruiting, most urgently in need of radical reforms. Men were rejected for many causes which never hindered them in the pursuit of gaining a livelihood or resulted in any serious illness. Men were

rejected who were fully suitable for military service, because of deficiency in height or deficiency in chest expansion, or flat-foot, etc., although fit for all the ordinary occupations, including many branches of the military service.

Reference is made to an alleged census of 1910 showing some arresting facts regarding the comparative mortality among native-born Americans of native parentage, and the foreign-born or foreign or mixed parentage. The census did not make a proper inquiry into the subject corresponding to a similar investigation made in 1890, and there is not extant at the present time the result of a really trustworthy investigation which would admit of final conclusions as regards the relative mortality of the native-born of native stock, and those foreign-born of foreign stock. It is therefore grossly misleading to argue that "This means that we are weakening our national vitality by admitting physically inferior immigrants," for, broadly speaking, no one is in a position to pass upon this question with finality at the present time. When the Immigration Commission, some years ago, examined into the facts it was found impossible to provide a statistical basis that could be accepted as conclusive. Such data should be based upon the nativity of the mother, for if merely made to consider the country of birth large numbers of the native-born of foreign stock are included with the native-born of native stock.

There was published, however, in 1916, a life-table for the year 1910, according to which the complete expectation of life at age 40 was 28.33 years for native-born white males, while it was 26.03 years for foreign-born white males. For native-born white females the expectation at age 40 was 30.33 years, while for foreign-born white females it was 27.55 years. These results, however, represent mere figures of a vast heterogeneous mass of foreign-born population which may or may not be comparable, according to the point of view. In any event, the differences as indicated are not sufficient to justify the far-reaching conclusion advanced.

The writer argues that, "It ought to be considered a disgrace, to be wiped out speedily, that Pittsburgh has a death rate 75 per cent. higher than Detroit, the whole United States a third higher than Denmark." It is not indicated for what period of time the comparison is made, but for 1919 the death rate from all causes for Pittsburgh was 16.1 per 1,000, against 11.7 per 1,000 for Detroit; and for typhoid fever, which formerly was a local scourge in Pittsburgh, the rate for 1919 was 6.5 per 100,000 against 5.2 for Detroit. There are no statistics by causes for the whole of Denmark, which has registration in detail only for its larger cities. For the whole of Denmark, in 1910 the death rate from all causes was 12.9 per 1,000, against 15.0 for the registration area of the United States. The reference to the whole United States by the writer is so much more amusing, since he had previously indicated that the records were available for only about two-thirds of the population. Hence his conclusion that "There could hardly be a more basic test of community civilization than this very one: *how many citizens die needlessly each year?*" The figures quoted were no test at all; are inapplicable to pres-

ent conditions, and would not under any circumstances warrant a conclusion as to indifference to human life in this country.

The Y. M. C. A. is referred to as having probably "done more for health than any other agency." Granting that it has done much, it is certainly not entitled to the credit for the enormous amount of community service to which we primarily owe the control of numerous infectious and contagious diseases, all of which have been very materially reduced in relative frequency during the last twenty years and without any cooperation on the part of the Y. M. C. A.

The plea is made for a national department of health. The writer advances merely the shibboleths brought forward years ago by the Committee of One Hundred, which failed conspicuously in securing the required action on the part of Congress. There is not a word about recent developments in the Health Center movement, or in the coordination of health-conserving agencies, or of the more deliberate efforts for a reorganized Federal Health Administration based upon totally new conceptions such as have been advanced by Sir James Mackenzie in "The Future of Medicine." The advice that is required is not that of college professors, or of writers, or of propagandists, but of leaders of the medical profession and the public health service throughout the country, familiar with the facts and the needs of the situation. There is the usual lip service of research, but not the slightest indication of any knowledge of what research work is being done, nor is there mention of the International Health Board, the Carnegie Institution, the Rockefeller Foundation, and the long list of voluntary health-promoting agencies, including cancer research laboratories, etc.

It is untrue in this connection to say that "Washington now has the fourth *highest* death rate of our twenty-three largest cities," for, construing "now" to have reference to the year 1919, for which information was available, the death rate of Washington, D. C., for that year was 14.7 per 1,000, which compares with 13.3 per 1,000 for New York City, 12.5 per 1,000 for Chicago, 14.3 per 1,000 for Philadelphia, 13.3 per 1,000 for St. Louis and 15.7 per 1,000 for Boston.

There is the usual plea for complete vital statistics, made by one obviously grossly ignorant of what statistics exist and for what purpose they can be most usefully employed. The writer refers to the chief of the Division of Vital Statistics of the Bureau of the Census as Dr. Cressy L. Wilbur, who resigned to accept a similar position with the New York State Department of Health as far back as 1913. The present chief of the Division of Vital Statistics of the Census Bureau is Dr. William H. Davis, under whose efficient administration the registration area has been very largely extended, with a corresponding improvement in the accuracy of the returns. To quote remarks made by Dr. Wilbur possibly ten or fifteen years ago is but a further illustration of the deliberate purpose to confuse the public.

Every argument advanced by propagandists who are using public health needs for the nefarious purpose of advancing personal interest is utilized Typhoid fever does not, as stated, kill 20,000 persons

per annum in this country, but, conservatively estimated, the mortality from this disease for 1919, for the entire continental United States, was about 10,000. As to what is the "average incapacity resulting from typhoid fever," no one is in a position to state with precision, but in all probability it is materially less than the seventy-five days indicated.

The argument (if such it can be called) concludes with a plea for health insurance such as that recommended by a special committee of the New York Federation of Labor. The arguments advanced in that report were largely fallacious and they were disregarded by the Legislature, which failed to pass the Davenport bill. The assertion that health insurance will provide a powerful stimulant to "the needed campaign for the prevention of illness" is another shibboleth common to those who have persistently disregarded the obvious truth that neither in Germany nor in England has health insurance advanced the cause of community or private health.

The statement concludes with an assertion made by the physical director of a Y. M. C. A. that "the World War saved more hours of life than it destroyed." The war did nothing of the kind. The enormous losses due to the war will never be made good throughout all history. The medical and surgical lessons of the war are a small compensation for that lamentable conflict. But in this, as in other matters quoted, the writer makes use only of an appeal to unreason and to the growing confusion of the public mind, which looks hopelessly into the future when leading periodicals lend their pages to utterances which would disgrace a waste basket.

FREDERICK L. HOFFMAN.

NEWARK, N. J.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, March 29, 1921.

Influenza Outbreak.—A recent return of the Registrar-General for the United Kingdom shows that in the week ended March 5 last, there were 167 deaths from influenza in London and the other ninety-five great towns of the United Kingdom. The outbreak became noticeable as far back as the week ended December 11, 1920, when 61 deaths were registered. On December 18 and 25 the figures were 75 and 81 respectively. Since the new year the returns have been: January 1, 89 deaths; January 8, 101; January 15, 87; January 22, 66; January 29, 61; February 5, 61; February 12, 91; February 19, 103; February 26, 138; and March 5, 167. There is official warrant for the statement that influenza generally shows a tendency to rise in the month of March. In 1920 the highest point was reached in the week ended March 20, when 392 deaths occurred. In the corresponding week of 1919 no fewer than 3,889 deaths happened. In 1918 a positive epidemic devastated the country, and in the week ended November 9, the Registrar-General made the alarming announcement that 7,557 deaths had been registered. The Registrar-General has announced that the notification of cases of encephalitis lethargica is decidedly on the decline.

Financial Position of Hospitals.—In the House of Commons on March 17 last, in answer to a

question as to when the report of the Committee on Hospital Finances would be published, said that an interim report had just been issued on the question of contributions to hospitals out of the valuation surpluses of Approved Societies. He was informed that the hearing of the evidence would be completed by the beginning of May next and that the committee hoped to present their final report before the end of that month.

Alcoholic Liquors as Medicine.—The Prime Minister was asked in the House of Commons recently whether, in view of the fact that beer as well as whiskey had been recognized as a medicine in prohibitionist America, he would arrange to relax the restrictions imposed upon the people of the United Kingdom under the Defense of the Realm Act and Central Control Board. Mr. Lloyd George replied that the government proposed to deal with this subject at an early opportunity.

Washington Maternity Convention.—On March 22, in the House of Commons, Mr. Clynes, a prominent labor member, and other members raised the question of that article of the Washington Convention which dealt with maternity benefits and asked the reason why the Government had decided not to ratify the article and had not brought it before Parliament in the form of legislation.

Dr. Addison, the Minister of Health, said that the initiation of legislation in this country rested with Parliament, and had the Government ratified the Washington Convention with regard to maternity the position would have been that an outside body would be able to compel the Government to submit legislative proposals to that House against its desires. To that the House would never submit. They had already in this country a system which was double-barreled for providing maternity benefits, namely, the Insurance Act and the system administered by the local authorities. These recommendations cut right across the system in Great Britain which was acting with singular success. The Washington Convention related only to employed, which would mean that in Great Britain about 460,000 women would be eligible, while 3,540,000 women, the wives of insured persons, would be excluded. To carry out these recommendations with regard to all these women would cost an additional £15,000,000 (\$75,000,000). The system of maternity and child welfare cost one penny (two cents) in the pound (\$5) on the rates, rather less than £900,000 (\$4,500,000) being contributed out of the Exchequer. The results had been brilliant. The rate of infantile mortality had dropped from 106 per 1,000 in 1913 to 75 per 1,000 in 1920. There had, of course, been contributory causes. People had been better nourished and the national conscience had been more fully awakened since the war.

Eradication of Tuberculosis in Man and Animals.—On March 14 last a general meeting of the Fellows of the Royal Society of Medicine met to discuss the eradication of tuberculosis in man and animals, the discussion being opened by Sir John McFadyean, principal of the Royal Veterinary College. Perhaps the most generally interesting speech made was by that grand old man of

medicine, Sir Clifford Allbutt, Regius Professor of Physics at the University of Cambridge, who said in part that of the devastation caused by this virulent pest he need not speak, but as Robert Burns thought there might be something to be said even for "Auld Nickie-ben," so perchance to the evil spirit of tubercle some beneficent by-product might be credited. He remembered in the early days of his practice in the north of England how in the valleys of the Dales enteric fever was rampant and endemic; the farmsteads were foul with stench, vermin and disease, but the farmers said that a good manure heap did no one any harm. However, the discovery of the exact causes of typhoidal affections led to a conversion of people who before had turned a deaf ear to all arguments.

The case was the same with tubercle; you might as well have argued with one of his bullocks as with the farmer on the intimate causes of the disease, until the discovery of the tubercle bacillus aroused the public to a sense of the intimate and subtle virulence of germs of disease which could be neither seen nor handled. Tuberculosis, then, was our schoolmaster, to drive into us these truths; a schoolmaster which chastised us with scorpions indeed, but began its serious lessons with those innocents, the butcher and the milkman. No less had been the revelations on glands and the marvelous results in the war of mallein vaccines, results which were almost incredible when compared with the ravages of the disease in former campaigns. Here the education began with the stable boys. Thus the lesson of many such diseases had at last persuaded the man in the street to listen to the truths and prophecies of science.

Obituary.—To the melancholy long list of distinguished medical men who have been martyrs to science must now be added the name of Dr. William Ironside Bruce, radiologist to Charing Cross Hospital, who died on March 21 at the premature age of 44. Many of the early workers with x-rays suffered from dermatitis and some succumbed to cancer and other long and painful illnesses. Protective measures were devised, but the death of Dr. Bruce shows that they are inadequate when used with the newer tubes. The effect, too, is different; the gamma rays which these tubes send forth having a potentially harmful effect on the blood corpuscles and setting up an aplastic condition such as that which proved fatal to Dr. Bruce. He had been ailing for some time, but it was not until January, 1920, that he became seriously ill. It was only a few weeks ago that the true nature of his disease was recognized, but all efforts, including transfusion of blood, were of no avail. The deceased was of Scotch birth and served as a civil surgeon during the South African war. When he returned he set up in practice in London and began his x-ray work at Charing Cross Hospital. He was a remarkably skillful worker, rapid in diagnosis, and much beloved by patients and colleagues. He had already achieved some important results by means of his researches. His untoward and untimely death is a loss to medical science as well as to the cause of the amelioration of human suffering.

Progress of Medical Science.

The Lancet.

March 19, 1921, cc, 12.

1. A Clinical Lecture on Subphrenic Abscess. C. H. Fagge.
2. The Value of the Quasi-Continuous Temperature Record in the Early Diagnosis of Tuberculosis. Sir German Woodhead and P. C. Varrier-Jones.
3. Heliotherapy in the High Alps. A. Rollier.
4. The Chemical Estimation of Gastric Function by the Test Meals of Ewald and Boas. J. H. Reyfel.
5. The Ideal Element in Medicine. Illustrated by the Life of John Hunter. H. H. Bashford.

2. The Value of the Quasi-Continuous Temperature Record in the Early Diagnosis of Tuberculosis.—Sir German Woodhead and P. C. Varrier-Jones maintain that the quasi-continuous temperature record of a reaction is a valuable diagnostic indication as to (1) the tuberculous nature of the disease; (2) the activity of the process; (3) the prognosis. As to the type of the disease, however, "acute miliary," "caseous pneumonic," "chronic fibroid," etc., though the temperature may give some indication, the physician will find that physical signs afford considerably more specific information. The temperature indications as to the resistance or lack of resistance of the tissues of the patient are of extreme interest, especially in regard to prognosis. Instability of the temperature affords evidence of (a) a high toxic absorption; (b) ready reaction of the tissues to the toxic stimulation; and (c) marked interference with the rest function of the patient. A restless night is reflected in the temperature curve, and it appears that the inverse temperature is, to a large extent, the result of a continued auto-inoculation, during which a minimum stimulus produces a maximum reaction both as to amount and duration. In the night sweats one has evidence of some interference with the autonomic nerve centers, leading to dilatation of the surface blood vessels, great radiation of heat from the cutaneous surface, and a rapid lowering of the general temperature. At the outset of their observations the writers thought it well to compare the rectal temperatures with a series of temperatures taken in the mouth with the ordinary mercury clinical thermometer, but these temperatures bear little relation to the rectal temperatures. In the advanced stages of the disease some information could certainly be obtained from these readings, but they give little indication of the extent or progress of the disease or, in its earlier stages, of its presence.

4. The Chemical Estimation of Gastric Function by the Test Meals of Ewald and Boas.—J. H. Reyfel holds that the fractional test meal gives results that are of great interest, but it serves rather for arranging the cases in various groups than for individual diagnoses. The actual diagnosis must be completed from further considerations, and especially by a clinical study of the individual case.

British Medical Journal.

March 19, 1921, 1, 3142.

1. Some Recent Advances in the Physiology of Respiration, Renal Secretion, and Circulation. J. S. Haldane.
2. Physiological Principles in Midwifery Practice. John S. Fairbairn.
3. The Treatment of Syphilis. Henry MacCormac and E. L. Kennaway.
4. Suprapubic Drainage of the Bladder: The De Pezzer Tube. G. A. Mothersill and Clifford Morson.
5. Anthomyiasis in Leprosy. F. G. Cawston.
6. Acute Retention of Urine Complicated by Perforation of a Duodenal Ulcer. G. A. Ewart. With a Note by E. R. Turner.

1. Some Recent Advances in the Physiology of Respiration, Renal Secretion, and Circulation.—J. S. Haldane summarizes the results of a number of recent investigations, with most of which he has been closely associated, on respiration, renal excretion, and circulation, and points out their significance in helping one to understand the symptoms of disease and the real characters of that marvelous living body with which the medical profession has to deal. He discusses the regulation of carbon dioxide pressure in arterial blood; the regulation of the reaction of arterial blood; the regulation of oxygen pressure in arterial blood; renal excretion; the regulation of diffusion of water in the blood; the regulation of diffusion pressure of solids in the blood; and the circulatory regulation of blood composition.

In discussing the significance of physiological regulation he points out that physiological regulation is not only something very real, but it is also extremely delicate. It is only by exact quantitative observations that one can estimate the delicacy of regulation; but symptoms, if rightly interpreted, give an extremely sharp index of failure in normal regulation. Close observation and right interpretation of symptoms is of paramount importance. Regulation to a normal during health implies that the living body actively maintains a normal of structure and activity in spite of ever-changing conditions of environment. From side to side of this normal the living body is constantly oscillating as the result of disturbances in the environment, and constantly tending to return as near as may be to the normal in spite of the disturbance. One can distinguish ordinary physiological disturbances, which the body can easily overcome, from the more serious disturbances which require medical or surgical treatment to assist the return to normal or something approaching it; but apart from the fundamental assumption that it is, to use the old expression of Hippocrates, the "nature" of a living organism to maintain a normal, and to return toward it in spite of disturbance, physiology and medicine seem to be a mere chaos of unconnected empirical observations. It is the reality of organic regulation, and the necessity for the guiding conception of organic regulation, that stand out in the results of the investigations summarized. The aim of physiology, and of every branch of biology, is to render clear by experiment and observation what the normal activities and structure of a living organism are, what the deviations from them really consist in, and how the normal tends to be maintained or reestablished in face of disturbance.

American Journal of the Medical Sciences.

March, 1921, clxi, 3.

1. The Importance of Recognizing and Treating Neurosyphilis in the Early Period of the Infection. John A. Fordyce.
2. Effect on Blood-Pressure and the Non-Protein Nitrogen in the Urine of Excessive Fluid Intake. Joseph L. Miller and J. L. Williams.
3. Problems Concerning Urinary Calculi. Edward L. Keyes, Jr.
4. Experimental Studies in Diabetes: Series II. The Internal Pancreatic Function in Relation to Body Mass and Metabolism. IV. Pancreatic Cachexia. Frederick M. Allen.
5. Pulmonary Sequels of Influenza. Maurice Fishberg.
6. Study of a Case of Unexplained Low Carbon Dioxide Combining Power of the Blood. Leon Jonas and O. H. Perry Pepper.
7. Erythema Thoracis: An Analysis of Fifty-six Cases in the Indiana University Hospital. James Wynn.
8. A Record of Experience with Certain Physical Efficiency and Low Oxygen Tests. Edward C. Schneider.
9. Saccular Aneurysm of the Descending Thoracic Aorta. Ernest S. du Bray.
10. Silver Salvarsan in the Treatment of Syphilis. Charles M. Watson.

1. The Importance of Recognizing and Treating Neurosyphilis in the Early Period of the Infection.—John A. Fordyce, from clinical and serological work during the past ten years, formulates the following propositions: 1. Syphilis of the nervous system probably begins in the first year of the infection. The number of cases corresponds roughly with the total number of cases of so-called late neurosyphilis. The foregoing statements are based on the following observations and established facts: (a) The number of early cases showing positive findings in the spinal fluid; (b) familial types of neurosyphilis; (c) biologic evidence of a neurotropic strain of the treponema; (d) persistence of the infection *in loco*, as in aortitis, interstitial keratitis, etc.; (e) observation of patients who developed signs of early syphilis of the nervous system and who after many years died of paresis or other late degenerations; (f) no serologic evidence as yet exists showing normal spinal fluid in the early stage and its infection at a later period. 2. Early neurosyphilis may manifest itself by obtrusive symptoms by slight objective signs or be asymptomatic. Treatment by the usual channels may control the obtrusive symptoms. It seldom cures the underlying infection. Symptoms at times develop during or shortly after intensive courses of arsphenamin and mercury. If not cured these early infections may persist and cause late neurosyphilis. 3. Accept-

ance of the foregoing propositions leads to the logical deduction that no case of syphilis should be discharged without the knowledge gained by examination of the spinal fluid. In case no evidence of infection is found a prognosis of probable future immunity may be made. If infection exists it should be treated by methods shown by experience to be effective. 4. We are convinced by an experience of seven years in the use of intraspinal therapy that practically all cases of early neurosyphilis can be cured more rapidly, and in the majority of cases only cured, by the combined intravenous and intraspinal method.

5. Pulmonary Sequels of Influenza.—Maurice Fishberg finds that in many patients attacked by acute epidemic influenza certain sequels are left in the respiratory tract after the acute disease has run its course. A large number remain with subacute rhinopharyngitis, some with general bronchitis, and now and then one meets with patients in whom the residual lesion is a localized bronchitis. When the latter affects an upper lobe of a lung, it is very difficult to differentiate it from pulmonary tuberculosis. When these sequels are instrumental in keeping the patient weak and debilitated for weeks or months, which is often the case, this, in addition to the cough and expectoration, may lead to a diagnosis of pulmonary tuberculosis. More serious pulmonary lesions are bronchiectasis and lung abscess which have increased in frequency since the last pandemic of influenza. Bronchiectasis remains in cases in which influenza was complicated by pneumonia or pleurisy, or both. The diagnosis is at times very difficult mainly because of the ancient notion that influenza is a strong predisposing factor to tuberculosis. When the lesion is found strictly localized in one of the lower lobes of the lungs, and this is the case in the majority, tuberculosis should be excluded for this reason alone. In those in whom the lesion is in an upper lobe, only repeated sputum examination decides, though the fact that the disease began with influenza, that emaciation is not pronounced, that fever is lacking, the pulse-rate is normal, and that there is obtained clear resonance above the clavicle, etc., should be counted against tuberculosis. In the more severe lesions in which pulmonary abscess remains after influenza the diagnosis may be made along the same lines as in bronchiectasis, and in addition note should be made of the fact that the sputum is abundant, at times fetid, the fever continuous or undulating, the pain in the chest, and the physical signs, all of which combine to clear up the diagnosis. If several examinations of the sputum fail to disclose tubercle bacilli the diagnosis may be safely made. Leucocytosis, with an increased proportion of polynuclear cells, has the same significance.

8. A Record of Experience with Certain Physical Efficiency and Low Oxygen Tests.—Edward C. Schneider reports the results of a study of 128 aviators who were subjected to the Official Altitude Classification Examination used by the Air Service Section of the U. S. Army; to five of the standard respiratory tests used by the Royal Air Force in England, and to a careful overhaul by a neurologist, internist, ophthalmologist, and otologist. The clinical examinations showed thirty-one of these aviators to be stale or physically below par. From these studies the writer finds that certain criticisms may be offered against the simple respiratory tests. They require too much voluntary attention and hearty cooperation on the part of the patient. The results are not capable of physiological interpretation unless they represent the best effort the patient can put into each test. Indifferent subject and listless observer both vitiate the results. If the patient wishes a vacation, knowing that a poor showing in the tests indicates fatigue and need of a rest, he can easily imitate the "all-in" man. The tests are in some respects psychological, since if a man determines to hold his breath until discomfort is pronounced it can be done, or he may give up with the first feeling of effort. To sustain the mercury column in the "fatigue" test requires some skill, and a proper set of the lips may ease the performance so much that twenty or more seconds are added to the length of the hold. The expiratory force test, if well done, requires great effort and the height of the blow often depends upon the ability to coordinate the contraction of the chest and abdominal muscles. The coefficients of correlation for the power

of breath-holding, vital capacity, "fatigue" test, expiratory force and extrarespiratory reserve factor, with compensation to low oxygen, were found to be of such low value that the simple respiratory tests could not be accepted as aids in determining fitness for high altitude flying. The degree of physical fitness appearing as shown by an examination of thirty-one temporarily unfit men cannot be measured either by the simple respiratory tests or by the low oxygen of the re-breathing test. Seven men were able to improve their records in the respiratory tests by practice.

New Orleans Medical and Surgical Journal.

March, 1921, lxxiii, 9.

1. Reminiscences of Dr. Andrew W. Smyth of Subclavian Aneurysm Fame. Edmond Souchon.
2. A Gospel of Error. C. E. Kells.
3. An Address. Hon. A. J. McShane.
4. Address of Incoming President (Orleans Parish Medical Society). S. M. Blackshear.
5. Address of Retiring President. H. E. Bernadas.
6. The Classification of Rabies. J. B. Guthrie.
7. Solitary Abscess of the Kidney. H. W. Walther.
8. Remarks on Yellow Fever. F. de P. Miranda.
9. Scarlet Red Emulsion for the Treatment of Ozena. J. H. Powell.

2. A Gospel of Error.—C. Edmund Kells, D.D.S., emphasized the following points: 1. A tooth with a devitalized pulp is not dead; it continues to be a vital tooth just so long as it receives nourishment from its periodontal membrane. 2. Alveolar abscess can be cured just as pneumonia or measles can be cured. 3. Teeth are a valuable asset; are necessary for mastication and from a cosmetic point of view. 4. A radiolucent area may be infected—it may be sterile. 5. Infection cannot be determined by the x-ray. 6. No one but a dentist should advise the extraction of a tooth. 7. It is true that "wonderful cures" have resulted from the extraction of some diseased teeth, but what of the countless thousands of good teeth extracted with no beneficial results following? Such being the facts in this "gospel of error," the thoughtful physician who has the welfare of his patients at heart will yet come to see that in order to render them the best services possible he must refer them to a dentist, and none other, for an oral diagnosis.

The Practitioner.

February, 1921, cvi, 2.

1. Oriental Sore. A. W. Sheen.
2. Strain of the Heart. W. Edgcombe.
3. Angina Pectoris. R. O. Moon.
4. The Pericardial Factor and Its Bearing on Heart Disease. G. Arthur Stephens.
5. Recent Work on Diseases of the Heart. Charles W. Chapman.
6. Uses and Abuses of Psychoanalysis. R. McNair Wilson, Jr.
7. Psychological Analysis of a Case of Simple Hysteria. J. Kenelm Reid.
8. On the Importance of Muscular Relaxation in the Examination of Joints. Carl Westman.
9. Syphilitic Lesions Simulating or Associated with Tubercle. Z. P. Fernandez.

8. On the Importance of Muscular Relaxation in the Examination of Joints.—Carl Westman gives the following points as useful guides in testing muscular relaxation: 1. When the patient is lying on his back with his head rested, note the condition of the sternomastoids. If these stand out prominently—which they may very well do without the head being actually lifted, but which means that they are in active contraction—the muscles of the chest and abdomen also are more than likely to be in a state of tension. 2. If the muscles of the lower limbs are relaxed, these will be found to be more or less rotated outwards, this being their position of ease. Unless the patient is coaxed into this position, they will invariably be found held with the feet pointing vertically upwards, which means active contraction of the internal rotators of the femur. 3. The patella should be freely mobile; if it is not, it is a sign of active contraction of quadriceps femoris. 4. If the patient is being examined in prone position, with his head preferably resting on his hands, the relaxation of the glutei is a good indication of general muscular relaxation. These are particularly sensitive, any interference causing them to contract immediately, their flat appearance in relaxation changing into a bulky mass drawn up towards the middle

line. General muscular relaxation will be established in this manner in most cases. The local examination can then be proceeded with, unhampered by such contraction of surrounding muscles which is caused by "tension of mind" rather than any organic irritation. During the examination a careful watch should be kept on the muscles lest they should fall back into their tension state; as soon as this is evident, the movement of the joint should be stopped and the muscles again be coaxed into relaxation. Many stiff joints will thereby become freely mobile.

Schweizerische medizinische Wochenschrift.

January 6, 1921, li, 1.

Mass Poisoning with Bread.—Silberschmidt refers to an episode of May, 1918, in the Canton of Zürich, in which 190 individuals were attacked at the same time with symptoms of poisoning, after having eaten of bread traced to one bakery. The date of the baking was May 22 and the deliveries were not made until three days later. The baker's wife was the first victim, she having fallen ill on the 27th. A few who ate of the bread were not affected (10 per cent). The symptoms were those of an irritant poison, such as vomiting and purging, and headache and vertigo were other complaints. The course was mild and the duration was from 1 to 4 days. Dogs and cats were made ill by feeding the bread to them, but small laboratory animals were immune. An aqueous extract of the bread caused a dog to vomit. Research for metallic poisons, alkaloids and other known toxic principles all ended negatively. It can only be surmised that in the course of fermentation a heat-stable toxic substance was formed. The flour and other ingredients were never under suspicion because the last baking before the accident had caused no disturbances. The same flour was extensively used in other bakeries. Its composition was wheat, 70 per cent., maize 20, rice flour 10.

Can Epidemic Encephalitis Cause True Parkinson's Disease?—Bing discusses this subject exhaustively. We may speak in this connection of "parkinsonism" in the sense that the syndrome is indistinguishable from that of paralysis agitans. Of cases given one was a perfect simulation of the typical disease. Only time can tell if it will prove to be such. The case has progressed for the worse and the so-called "pill-rolling" movement, or, as others call it, "money counting," was in evidence.

Le Bulletin Médical.

February 9-12, 1921, xxxv, 7.

Disjunction of the Pelvis in Equestrians.—Berard relates the following case. The subject was an unusually strong and vigorous man of 63 who was breaking in a young saddle horse, riding at the time without stirrups. His mount was refractory and he was hugging its flanks with his knees when a jolt from the animal was followed by the sensation of being cleft in two. He at once slipped to the ground where a severe pain low in the abdomen became manifest; and being unable to rise he had himself transported in a farmer's wagon to a doctor's office. The medical man saw his patient three hours after the accident and found him in partial shock. The least movement caused an intolerable pain in the left lower extremity. An intense desire to urinate was followed eventually by the passage of a little blood succeeded in turn by some clear urine. The pubes was found surrounded by a resistant tumefaction which extended as high as the umbilicus. Ether and caffeine were injected and followed by morphine and the patient transported to a hospital. Here the clothing was removed and the swelling was found to be still increasing in size, involving the scrotum and perineum, thighs, flanks, and hypogastrium. Only the penis and scrotum showed ecchymoses. A sound showed that the urethra and bladder were intact. The patient was treated for internal hemorrhage and shock, ergot being the only hemostatic. The author when called in found a diastasis of the pubic bones, confirmed next day by the x-ray. The hiatus was 6 cm. The left lower extremity was so sensitive to movement that the patient was kept immobilized for a fortnight. He was able to leave his bed after six weeks and went about on crutches. The separation was still 3 cm.

Book Reviews.

MODERN SURGERY: GENERAL AND OPERATIVE. By JOHN CHALMERS DACOSTA, M.D., LL.D., F.A.C.S., Samuel D. Gross Professor of Surgery, Jefferson Medical College, Philadelphia; Surgeon to the Jefferson Medical College Hospital; Consulting Surgeon to the Philadelphia General Hospital, St. Joseph's Hospital, and Misericordia Hospital, Philadelphia; Consulting Surgeon to the Hospital for the Insane, Eastern District of Pennsylvania, at Norristown; Fellow of the American Surgical Association; Member of the Society of Clinical Surgery; Member of the American Philosophical Society; Membre de la Société Internationale de Chirurgie; Commander, Medical Corps, U. S. N. R. F., etc., etc. Eighth Edition, Revised, Enlarged and Reset, with 1177 Illustrations, Some of Them in Colors. Philadelphia and London: W. B. Saunders Company, 1919.

A TEXTBOOK which has been a popular favorite for over twenty-five years, as shown by the fact that twenty-four reprintings as well as seven complete revisions have been necessary to keep pace with the demand and with the progress of surgery since the book was first copyrighted in 1894, hardly seems to need critical review, but, rather, merely a few words of introduction to the neophytes of the medical profession.

We now have a new revision, but one which was made under very adverse circumstances, since both the author and many of his assistants were engaged in war work here or abroad, and many very important sources of information were not available, particularly files of certain important medical journals. Still, it is apparent that considerable portions of the text have been entirely rewritten; and this applies particularly to those subjects in which methods of treatment have been markedly changed or revolutionized by the experience gained in the recent war.

All through the book changes of major or minor importance are to be noted, and it is safe to say that in most respects the book is thoroughly up to date. There are occasionally lapses as, for example, in the description of the Edebohl technique for nephropexy, which is far from that published and practised by Edebohl in the later years of his life; but in such cases it is only fair to assume that failure to correct the text was due to the difficulties in referring to the literature. Many of the illustrations, especially reproductions of photographs and radiographs, are very poor; and it is to be hoped that at the next revision this department will receive a thorough overhauling.

ORTHOPEDIC AND RECONSTRUCTION SURGERY, INDUSTRIAL AND CIVILIAN. By FRED H. ALBEE, A.B., M.D., F.A.C.S., Lieutenant-Colonel M.C., U.S.A. Professor and Director of the Department of Orthopedic Surgery at the New York Post-Graduate Medical School and at the University of Vermont; Chairman Rehabilitation Commission of State of New Jersey; Member of Advisory Orthopedic Council to the Surgeon General; Chief Surgeon U. S. Army General Hospital No. 3, Colonia, N. J.; Visiting Orthopedic Surgeon to the New York Post-Graduate Hospital and to the Blythedale Hospital, etc. Philadelphia and London: W. B. Saunders Company, 1919.

This is a monumental work, covering from all angles the subjects usually considered to belong to orthopedics and also many conditions originating in industrial work, while there are also about 100 pages devoted to military and reconstruction surgery. Among the author's reasons for combining the consideration of these various subjects in one book were: appeals from both graduate and undergraduate students for a book which should consider not only conservative methods, but also the well tried operative methods of treatment of bone and joint conditions, diseases and deformities; the tremendous influence which is being exerted upon surgical practice by the recent war and, to a slightly lesser extent, the effect upon traumatic surgery of Workmen's Compensation Laws; and the importance of combining in one treatise both the conservative and operative systems of treatment, thus demonstrating the interrelationships of the two and the mutual dependence of one upon the other. Since the author is particularly interested in the operative side, this has naturally re-

ceived special emphasis whenever justifiable, but he has covered all phases of his subject very exhaustively and well; and just as much stress has been laid upon conservative methods when they are indicated as upon the operative when, in his opinion, that is indicated. For those who may wish to pursue any individual subject further he has supplied a remarkably extensive bibliography.

The book is, however, not without its faults. The chapter headings seem to follow no orderly sequence, anatomical or otherwise, and a great many pages in the aggregate could have been saved without impairing the value of the book if the author's style were less prolix and if other writers' views were stated in substance instead of so often being quoted verbatim and *in extenso*. Some of the borderline conditions (those perhaps belonging more to general than to orthopedic surgery) would better have been omitted than so inadequately treated, as, for example thromboangiitis obliterans, an extremely important disease, which the author attempts to cover in ten lines. Many will say that the Albee bonegraft operation in all its various guises (inlay, dowel peg, etc.) is unduly emphasized, yet it is only natural that the author should recommend his own operation if he thinks it offers the best chance of cure.

A HANDBOOK OF MIDWIFERY. For Midwives, Maternity Nurses, and Obstetric Dressers. By COMYNS BERKELEY, M.A., M.C., M.D. Cantab., F.R.C.P. Lond., M.R.G.S. Eng.; Obstetric and Gynaecological Surgeon to the Middlesex Hospital; Lecturer on Midwifery at the Middlesex Hospital Medical School; Senior Obstetric Surgeon to the City of London Maternity Hospital; Surgeon to In-Patients at the Chelsea Hospital for Women; Examiner in Midwifery and Diseases of Women to the Universities of Oxford, Cambridge, London, Manchester and Sheffield, and Examiner to the Central Midwives Board; Sometime Examiner in Midwifery and Diseases of Women to the University of Leeds, the Conjoint Board of England, and the Society of Apothecaries, London. Fifth Edition, Enlarged. With Color Frontispiece and 74 Illustrations in the Text. New York: Paul B. Hoeber, 1921.

The purpose of this book is indicated by the title. It was drawn up to serve as a textbook for the examinations conducted by the Central Midwives Board, and it contains all that is necessary for that purpose. If a nurse or midwife has carefully studied this volume, she should be able to carry on her occupation with credit to herself and with safety to her patients. The book is very clearly written, and contains the necessary information on elementary physiology and anatomy, as well as on pregnancy, labor, the puerperium, a sepsis, preparation for obstetrical operations, and the care of the newborn child. Two things strike the reader of this volume, one is the absence of all unnecessary details—thus, there is no attempt to make an expert bacteriologist of the nurse or midwife; and the other is the very readable and clear statement of all that is really required. Thus the work is an ideal textbook. Further, it is of a handy size, it is well printed, and there are sufficient and serviceable illustrations.

STUDENTS' SYNOPSIS SERIES. PHARMACOLOGY. By DOUGLAS COW, M.D., Examiner in Pharmacology, University of Cambridge. With 15 Illustrations. London: J. and A. Churchill, 1920.

THIS is the first volume of a new series of compends. It is dedicated "to that great army of medical students, some eighty per cent. of the whole, who in examinations are within measurable distance of the rubicon that divides the approved from the rejected." On looking through the volume one is struck with the care with which the book has been compiled and also with the numerous omissions. It is true that what is omitted ought not to be required of students, but so long as examiners are what they are, so long will students have to load their memories with unnecessary preparations and doses. In preparing for a sensible examination in pharmacology, this book should be of very great value, but for the ordinary examination it will hardly suffice. The preface contains much matter for thought; and we would draw attention to the fact that the author of this work is a university examiner.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON SURGERY.

Stated Meeting, Held November 5, 1920.

DR. SEWARD ERDMAN IN THE CHAIR.

Bony Ankylosis of the Temporomandibular Articulation.—Dr. HENRY S. DUNNING presented this patient, in whom the ankylosis had been of long standing. A cure with good function was obtained by the excision of the upper one-third of the ramus.

Plastic Repair of the Angle of the Mouth: Loss of Tissue Occasioned by Noma Some Years Previously.—Dr. DUNNING presented this patient, a boy who had had noma at the angle of the mouth for which he received no treatment. The lesion healed after about six weeks but left a defect extending back $1\frac{1}{2}$ inches from the angle of the mouth on the left side. When he came under Dr. Dunning's care his cheek was absolutely adherent to the buccal mucous membrane. At the first operation the adherent tissues were freed and a model was taken of the defect to be filled. A skin graft was introduced from the leg, which later sloughed out and the condition reverted to its former state. He then tried a pedunculated flap of skin with subcutaneous tissue cut from the patient's neck. This flap was applied so as to provide a mucous lining and to fill in the defect. This flap also partially sloughed out. Finally the thinned out remaining portion of the flap was placed so that it gave both a lining for the mouth and a skin surface, and a fairly good cosmetic result was obtained.

Dr. ROBERT T. MORRIS said that in a case of bony ankylosis of the jaw of the ordinary sort the patient might escape with a mild attack of surgery if he used a narrow sharp chisel and divided the bone just below the point of ankylosis. He did this as a preliminary step and sometimes it gave a mobile fibrous union. One could round off the bone ends through a small incision and with little danger to the parotid gland and facial nerve. This could sometimes be done in the ordinary case reserving excision for a later step. Dr. Dunning's case, however, was unusual in that the ankylosis was much more extensive than in most cases.

Dr. EDWARD WALLACE LEE congratulated Dr. Dunning on his very satisfactory result. He said he had seen this case through the process of repair and he thought the result obtained was very wonderful. He did not think Dr. Dunning was going to get such an excellent result. The ordinary operation—Murphy's operation for ankylosis of the jaw—was a very simple procedure compared to an operation of this sort. In the Murphy operation muscle was simply transplanted to prevent a bony adhesion and then passive motion was begun to prevent further ankylosis.

Dr. CHARLES E. FARR asked whether in the second case there was much suppuration in the flap and whether there was sloughing. He said he had had a case some ten years ago in which there was suppuration which produced scar tissue and that this had helped in the end result.

Dr. L. T. LEWALD said he was much interested in this case as he had seen it from the start and could vouch for the completeness of the ankylosis. It was difficult at first to tell on which side the ankylosis occurred. At first glance it was not easy to tell even from the radiograph which side was ankylosed, but by study of the plates taken in the mastoid position one was convinced that there was complete bony ankylosis on one side while on the opposite side there was a fine line showing fibro-cartilage. The immediate and prompt opening of the mouth after the operation was most striking and showed the wisdom of taking out a large section of bone as was shown in the radiograph. The condyle of the ramus was rounded off so that it offered no chance for reunion of the bony surfaces, and thus a permanent cure was assured.

Dr. SEWARD ERDMAN thought the case was interesting because it showed that immobilization of a normal joint even over a long period of time did not result in ankylosis. The fact that the normal side of the jaw

which was immobilized for so many years had not ankylosed afforded evidence that ankylosis was more a matter of changes in the muscles and soft parts than in the bone itself. It was certainly of interest that after twelve years of immobilization and complete locking of the jaw there should be no ankylosis.

Dr. LEE asked how Dr. Dunning determined that there was unilateral ankylosis. How was one going to tell when a patient came with a bony ankylosis of the jaw on which side the lesion was situated?

Dr. LEWALD replied that the radiograph did show on which side the ankylosis was situated. Without the x-ray it would have been extremely difficult to decide. The x-ray evidence, however, was absolute. Prolonged and extensive ankylosis on the one side had not resulted in any ankylosis on the opposite side.

Retrocecal Traumatic Appendicitis.—Dr. A. L. SORESI presented this case. A boy 11 years of age was brought into his service at the Greenpoint Hospital, complaining of pain on the lower right abdominal side following an accident. Patient had been struck by a plank. The exact point where he had been struck could not be determined, as there was no abrasion or any other mark on the skin, but it was judged to have been about an inch above the superior anterior iliac spine. Immediately following the accident he suffered very severe pain, was taken home and placed in bed; pain subsided in a couple of hours, and the two days following he was able to walk about the house, feeling only slight pain in the abdomen, with no rise of temperature or nausea. Two days after the accident pain became much sharper, physic was administered, and a physician called. The boy was sent to Greenpoint Hospital with the diagnosis of appendicitis. On admission the blood count showed 12,000 leucocytes, 75 per cent. polymorphonuclears; there was no temperature and only slight nausea. Pain was present on pressure on a point about two inches above the anterior superior iliac spine externally to the rectus muscle. The patient was put at rest in bed on fluid diet. On the second day after admission to the hospital a slight rise of temperature occurred, but the bowels had not moved, and following an enema the temperature again became normal. Blood count showed 6,200 leucocytes, 60 per cent. polymorphonuclears. Seven days after admission he began to run a slight temperature indicative of sepsis and operation was decided on. The blood count showed leucocytes 28,000, polymorphonuclears 87 per cent. On opening the abdomen by a right pararectal incision the abdominal organs appeared absolutely normal, but on passing the finger around the external border of the cecum some fluctuation could be felt. The abdominal cavity was packed and the cecum freed externally, and about an ounce of thick foul-smelling pus was found to be present, in which two scabiae were found. There was no trace of the appendix except a great amount of tissue debris, and a large hole in the cecum. The pus extended almost to the hepatic flexure. After cleaning well the cavity with sponges and ether, the tip of the appendix was found and partly removed. The hole in the gut was sutured, not very tightly on account of the friability of the wall of the cecum, the cavity drained with a paraffin drain brought out through the posterior abdominal wall, and the cecum allowed to drop into its place. The abdominal wall was closed with two rows of catgut sutures, the skin with elastic bands; the abdominal incision was drained by a separate stab wound and paraffin drainage. On the third day a small amount of feces escaped from the posterior drain and continued for three days. As was shown, the patient was still draining slightly after fourteen days, but only through the posterior stab wound. The abdominal incision was healed beautifully by first intention. The case presented was a real traumatic retrocecal appendicitis, and its etiology could be explained in the following manner: The plank, striking the abdominal wall, tore the appendix from its meso; some reaction followed; then things subsided until the appendix, deprived of its blood supply, began to slough off and give rise to the symptoms which led to the operation.

A Safe and Simple Method for the Extirpation of the Adherent Retrocecal Appendix.—Dr. WILLY MEYER made this presentation. He stated that the proportion of polymorphonuclear leucocytes afforded a good basis

for prognosis in both acute and chronic appendicitis. In both of these types of appendicitis the sooner the appendix was removed the better for the patient, for the appendix once diseased seldom returned to normal. The first attack of appendicitis did not mark the beginning of disease, but was merely the explosion of long stored up and easily inflammable material. It was impossible to say who would be so fortunate as to escape a second attack, and when there was a severe attack immediate operation was required. Twenty-five years ago he had given the dictum that the appendix should be extirpated after the first attack and this still held good. The mortality of acute appendicitis operated upon during the first twenty to twenty-four hours was practically nil. Operation was less dangerous than delay. As to the operation itself, opening the abdomen by blunt division of the rectus muscle gave every assurance that the abdominal wall would be as strong after as before operation. Some questions with reference to appendicitis were still unanswered. First among these was that of etiology, the relation of appendicitis to duodenal and gastric ulcer, and the relation of a high retrocecal appendix to appendicitis. Dr. Meyer made a comparison of the various incisions used in appendectomy and expressed his preference for the pararectal incision. If the appendix was situated retroceally he then added an incision higher up and posteriorly, along the crest of the ilium, and one-half inch from the crest of the ilium. One could spread the fibers of the external oblique and cut the fibers of the internal oblique near the crest of the ilium without injury to the ilioinguinal and iliohypogastric nerves, and by retracting the muscles inward one could enter the abdominal cavity. Through this incision the regions high up in the abdomen, and even beneath the liver, could be made accessible to the surgeon's eye. Dr. Meyer presented a patient in whom he had used this incision after finding the appendix inaccessible through the pararectal incision, and also gave a lantern slide demonstration.

Dr. A. L. SORESI said the point brought out by Dr. Meyer was that it is difficult to remove an appendix which is retrocecal through the ordinary incision. Dr. Soresi showed with lantern slides that it was easy to remove an appendix, even when it was retrocecal—as in the case presented before the Society—if the technique seemed to be more efficient than the one recommended was followed; this technique seemed to be more efficient than the one recommended by Dr. Meyer, as it did not require a new incision, which might at least be the cause of hernia. The main point of the technique recommended by Dr. Soresi was that the incision should be pararectal, and retraction should be made only externally, so as to expose the ascending colon and the cecum and never to do any work in the abdominal cavity, but always to the right of the cecum; by this method the whole procedure was practically extraperitoneal. The second point was that the surgeon should never look for the tip of the appendix, as its position was variable, but look always for its base, which was a well fixed point. The base of the appendix could always be found in all cases, if retraction was made on the external border of the abdominal incision; then the cecum was raised, and if necessary, as when the appendix was completely retrocecal and might reach the hepatic flexure—as in the case presented—the ascending colon was dissected from the parietal peritoneum, as was done in removal of the colon, so that the blood supply of the cecum and its normal physiological position were not disturbed. Then the appendix was caught at its base, a purse-string suture applied, and the stump of the base inverted without tying it, because by tying and inverting it a closed pocket was formed. However, the suture must penetrate all the coats of the intestine in order to prevent post-operative hemorrhage. The main point to remember was that in all cases of appendicitis the most important part of the operation was the securing of the base of the appendix, so that the intestinal contents could not leak into the abdominal cavity. When the appendix could not be removed *in toto*, there was no danger in leaving the tip, because the tip of the appendix, deprived of its blood supply, would slough off, and to prevent any danger it was only necessary to supply adequate drainage; on the contrary, if the base of the appendix was not prop-

erly secured, serious troubles might ensue, the least being the formation of a fecal fistula. In all cases where drainage was required, it should be made posteriorly through a separate stab wound, and paraffin drainage should be used, because it really drained and could not cause irritation or trauma, and allowed a firm union of the laparotomy incision, so preventing hernia. The abdominal wall along the surgical incision always had to be drained in order to prevent post-operative hernia. The drainage must be made with paraffin drains brought through a small separate incision, so that if suppuration occurred the incised tissues would not split open. If proper paraffin drainage was provided, and the skin was closed as demonstrated by elastic bands, healing by first intention was practically certain, even when suppuration took place, as in the case presented to the Society.

Dr. NATHAN W. GREEN said that when he heard that Dr. Meyer was going to read this paper on the modification of the incisions used in appendicitis he was delighted, and had come to hear Dr. Meyer and to discuss the procedure. Dr. Meyer had spoken to him of this modification some four or five years ago, and he had taken the opportunity to work it out in the dissecting room to see just how he continued his incision upward and outward along the crest of the ilium. One could extend this incision upward and outward between the fibers of the external oblique clear to the border of the ribs if necessary. One could then spread the fibers of the external oblique and cut the fibers of the internal oblique near the crest of the ilium without injuring the ilioinguinal and iliohypogastric nerves, provided one made the incision through the transversalis about one-half inch from the crest of the ilium. (The deep circumflex iliac artery lay next to the crest.) If the muscles were then retracted inward one could enter the abdominal cavity without affecting the nerves. This patient whom Dr. Meyer had presented had perfectly hard muscles, showing that the innervation had not been injured. It was a nice thing to know in doing an emergency operation for appendicitis that one could make this incision parallel to the crest of the ilium and carry it back as far as the middle of the crest and could then rotate the cecum inward and get at a retrocecal appendix satisfactorily. And it was also reassuring to know that one could suture the deep muscles and have their function preserved, and know that one would not get a hernia afterward. Dr. Green said he had used this incision, found it highly satisfactory, and thought it should bear Dr. Meyer's name, just as Dr. Wier's extension to the McBurney incision had his name attached to it.

Dr. EDWARD WALLACE LEE said he simply wanted to emphasize one of the points that Dr. Meyer had already emphasized, namely, that we should all be more particular in the diagnosis of appendicitis. We should try to make a more definite localization as to where the diseased appendix was. Dr. Meyer's illustrations emphasized that point. Dr. Lee said that very often one found, or at least he found, that one easily fell into the habit of thinking that it was easy to diagnose acute appendicitis and then to go in and operate in a stereotyped way without giving due consideration to the point that had just been brought out. The incision should be regulated according to the pathology that existed inside, and we should be more careful to determine what that pathology was and where it was. He was glad to hear Dr. Meyer bring out this point. Dr. Lee said he was Dr. Meyer's senior in operating on appendicitis cases. He had operated in May, 1884, four years before Dr. Meyer began to perform the operation. His first case of appendicitis was that of a patient with a lump in the right side which he diagnosed as perityphlitic abscess, and when he opened it the sloughed off appendix came out. This was in the day when appendectomy was little heard of.

Dr. ROBERT T. MORRIS expressed the opinion that Dr. Meyer had made a definite contribution to surgery which was of special value in cases in which there was defective rotation of the colon and the appendix was located retroceally, if he could suture these muscles so that they gave firm union subsequently. The physics involved included the idea that the three muscles had three lines of traction, hence it was important to suture each muscle separately. If he was able to do that he

had made an important contribution to the subject. If one had his gloves off it did not make a great deal of difference where the appendix was if the cecum was in the normal position. Dr. Sorens had brought out the point that in 50 cases of appendicitis with abscess he had had primary union where he had used the paraffin drain. That was a good thing, but the paraffin drain was not the cause of the primary union in those 50 cases. The reason he had primary union in these cases was because the pus was often sterile or nearly so. This was due to the fact that bacteria worked in the tissues rather than in pus. In pus they were often disabled by enzymes or their own by-products, and rendered latent. One frequently obtained primary union even though the wound was bathed in pus. This was a statement which would have caused an explosion a few years ago, but the subject was now so well understood that the experience of Dr. Sorens did not even lead to much comment.

Dr. W. H. STEWART said that he would like to call attention to the importance of being able to recognize a retrocecal appendix by means of the x-ray examination. One could locate the appendix by a careful and repeated fluoroscopic examination covering a period of 72 hours. The retrocecal appendix was especially recognized as the cecum emptied. The importance of such a localization would seem to the speaker as a very vital point, particularly if one was to adopt the incision of Dr. Meyer. If the appendix was known to be in a retrocecal position, only one incision would be necessary. The matter had been brought closely home to the speaker in the case of a member of his family who had repeated attacks of appendicitis. He had examined him roentgenographically and had located the appendix retroceally. Irrespective of his findings, a surgeon made the McBurney incision. He found the appendix deeply imbedded behind the cecum; instead of making a second incision as Dr. Meyer had advocated, the McBurney incision was enlarged to such an extent that the boy to-day was suffering from a hernia. The speaker thought that the fact that it was possible to locate the retrocecal appendix by the x-ray, should be brought to the attention of the medical profession that they might avail themselves of its use in chronic appendicitis.

Dr. L. T. LEWALD asked Dr. Meyer if he believed that non-rotation of the colon or incomplete fixation predisposed to appendicitis. Dr. Dudley Roberts read a paper before the section last spring, in which he made the statement that non-rotation of the colon predisposed to appendicitis. Dr. LeWald said he had known of a number of cases of non-rotation of the colon that were not associated with appendicitis. A few days ago Dr. Downes had told him of a case in which non-rotation of the colon was associated with appendicitis, and five such cases were reported from the Mayo Clinic. He would like to know whether this was simply a coincidence or whether a non-rotated colon afforded some inducement to appendicitis.

Dr. MEYER, in closing the discussion, said if he understood Dr. Sorens correctly he thought the diagnosis of retrocecal appendix was difficult. It was not difficult, particularly in acute appendicitis, with the exception of one condition, and that was if the appendix was covered with omentum; then, of course, the parietal peritoneum could not become so quickly inflamed and consequently the tenderness at first would be reduced or missing. In the acute appendix one would find the McBurney point tender in almost every instance; if exceptionally it was not tender one might find tenderness along the crest of the ilium. With this finding, particularly if there was a high polynuclear count, the diagnosis of the acutely inflamed retrocecal appendix was quite certain. The diagnosis of chronic appendicitis in a retrocecal appendix was more difficult, but frequently following an attack there was also a point of tenderness posteriorly. Dr. Sorens had further spoken of cutting along the outer side of the ascending colon if the appendix was not found in the normal situation. Opening the retrocecal space one might find the appendix in that way, but it was not best for the patient to do so. In acute appendicitis, particularly with a gangrenous appendix, this procedure was not to be compared with that of remaining within the focus of infection instead of opening new lymph

spaces for absorption. If the appendix was short it might of course be taken out through any kind of incision, but if it was long or rotation of the cecum had not taken place a longer incision upward would be necessary, or the second posterior incision as he had just described. He did not consider it wise to leave a portion of the appendix behind. In answer to Dr. LeWald's question, he thought it must be that non-rotation of the colon and cecum would have a tendency to produce appendicitis. He had not the slightest doubt but that a non-rotated colon and cecum predisposed to appendicitis.

Late Results of Tonsillectomy.—Dr. JOHN A. VIETOR presented this contribution, which consisted in a statistical report of 500 cases of tonsils and adenoids operated upon by the Second Surgical Division of the New York Hospital from April 1, 1915, to October 1, 1919. The end results were arrived at through the Follow-up Clinic, where the patients were personally seen by one of the attending surgeons. On each return to the Follow-up Clinic a careful history was taken, emphasis being laid on the gain or loss in weight and strength; occurrence or frequency of sore throats; change in breathing voice or hearing. The patient was then examined by one of the attending surgeons and notations were made of any remaining tonsillar tissue, the condition of the pillars, fauces and uvula. The presence or absence of ear discharge was looked for. The result at each examination was put down, but not classed as an end or final result until the patient was discharged from the Follow-up Clinic. This tentative result was classified under two headings: "The Anatomical Result" and the "Symptomatic Result." Under each heading the net results were classified as "Good, fair, or poor." A patient might have a good symptomatic result and a poor anatomical result. Of the total 500 cases, 394, or 79 per cent., had been followed for an average period of 5½ months; 106 cases, or 21 per cent., were lost sight of, or were based solely upon the reports of the social service nurse. Of the 394 cases 327, or 83 per cent., were children referred to the service by local school board or public health officers for frequent sore throats, faulty breathing, or simple hypertrophy. The remaining 44 cases were admitted for other complaints. In 26 cases the tonsils were hypertrophied and were removed as a prophylactic measure at the time of an operation performed for an independent condition such as circumcision, hernia, chronic appendicitis, and Pott's fracture. There were 18 cases in which the tonsils and adenoids were a contributory or etiological factor. These included 8 cases of tubercular lymph nodes, 3 of arthritis of the knee, 2 of chronic valvular disease, 2 of chorea, and 3 of chronic otitis media. Of the 394 cases followed, 97 per cent. were reported symptomatically good and 3 per cent. as fair. Anatomically, the results were 84 per cent. good, 10 per cent. fair and 6 per cent. poor. The author analyzed these results in detail, stating in the course of his analysis that the two cases of chronic valvular disease were not benefited by the operation, while chronic otitis media afforded a brilliant field for adenoidectomy. The routine treatment was practically the same in all tonsil cases. A complete physical examination, including a urine examination, and in children a Schick test, was made on admission. The operation was performed in the operating room under a general anesthetic (nitrous oxide gas and ether) with only two exceptions. No operations were done in the out-patient department, as that procedure was considered unsafe and dangerous on account of the subsequent bleeding and danger of infection in an open throat. The tonsils were enucleated with instruments instead of by the fingers, the Rose position combined with the Ilitz mouth gag and the Pool and Kemyon aspirator with a specially designed suction tip, being used to get the best exposure and protect the patient from the aspiration of blood, mucous, and pus. After operation the patients were put to bed, kept quiet, and watched for any undue hemorrhage. Children were kept in bed a day longer than adults. The writer then considered the early and late complications, the former being hemorrhage, 5 cases; lobar pneumonia, 1; abscess of neck, 1; diphtheria, 1, and acute mastoiditis, 1 case. After discussing these complications in detail the author concluded as follows: (1) Ton-

sillotomy and adenoidectomy in well-chosen cases, performed by general surgeons, in a general service, under proper conditions, shows 97 per cent. symptomatically good results. (2) The complications arising either early or late were few, and not severe in character. (3) The benefits arising both in simple cases and in those in which tonsils act as a portal of entry, warrant their removal. (4) The dangers of the operation are almost nil, as shown by the fact that there were no deaths due directly or indirectly to the operation in this series of 500 consecutive cases.

Dr. EDWARD C. BRENNER commended the paper and said he was very glad to hear Dr. Victor say that the patients came into the hospital the night before and were given a complete physical examination before being operated upon. He presumed they also took throat cultures. He did not recall having heard Dr. Victor mention the indications for tonsillectomy, but supposed the children were referred mostly from the schools. One fact often overlooked in delicate children was that if the tonsils were affected the carotid chain of lymph nodes was also involved, and in these cases the lymph nodes usually diminished in size following tonsillectomy. The 97 per cent. of symptomatic cures was very high, but apparently this series had very few symptoms. Patients who had recurrent sore throat following tonsillectomy were usually those in whom tonsillectomy and not tonsillectomy had been performed. The recurrence of sore throat was usually evidence of an incomplete operation. As to the prognosis following tonsillectomy, in about 80 per cent. one might expect joint symptoms to be relieved. If there was pain in the muscles as torticollis, or growing pains, these symptoms were relieved in about 50 per cent. of the cases. If the glands of the carotid chain were tuberculous, and the tonsils were removed, the chronic tuberculous condition would remain. Until a few years ago it was not customary to operate upon children under three or four years of age, but now we were coming more and more frequently to operate on children at an earlier age if the tonsils were distinctly diseased, as shown by cervical adenopathy. Dr. Victor stated that in his series 10 per cent. gave poor results, 6 per cent. fair results, and 84 per cent. satisfactory results. These were good results, but not ideal. He stated that the Rose position and aspiration with sucker were used and gave the impression that this snare was a very bloody procedure. He had used the snare for three or four years, then finger enucleation, then the Sluder operation, and finally came to the Beck-Müller. He had tried practically all the procedures and preferred the Beck-Müller, even for small, contracted and buried tonsils. By this method both tonsils could be removed simultaneously, and it was practically a bloodless operation; one could see the tonsillar fossa bare with only slight oozing. This operation did not require artificial illumination, and many patients did not have even a sore throat the next day. The technique was easily mastered, and if general surgeons would perfect themselves in its use the results would be excellent and the imical criticisms now sometimes indulged in by the nose and throat men would no longer be justifiable.

Dr. WILLY MEYER said he was greatly interested in hearing that the surgical division of the New York Hospital was doing tonsillectomies, because in many hospitals this work was entirely in the hands of the specialists. Of course, all specialties were branches of general surgery. The follow-up system of the New York Hospital showed that they were fortunate in this series in having no case of aspiration of blood with its terrible consequences. Anyone interested in lung surgery knew that some of these patients aspirated blood during the operation, and that later the condition of bronchiectasis set in. All knew it to be a fact that a foreign body, hard, soft, or fluid, aspirated into the bronchus usually caused suppuration in the respective lung lobe that belonged to the bronchus in which the foreign body was lodged. It was much worse if liquids were aspirated, and these might be infected water, pus, stomach contents and blood. He knew of three cases of lung abscess perhaps belonging to the bronchiectases occurring in boys who had gone swimming in the waters around our metropolis, the pus showing the colon bacillus in pure culture. Our

wonderful city, that spent almost four hundred million dollars a year, still followed the old system of draining its sewage directly into the surrounding waters. The Health Board had often issued an order that there should be no swimming in these waters. It was regrettable that a city like New York should dispose of its drainage in this way instead of by a proper modern sewage system. In performing tonsillectomy, with the proper posture and aspiration with the electric aspirator, the surgeon could keep the operative field perfectly dry and avoid aspiration of blood and mucus as well as particles of the tonsillar tissue. Those who saw these cases of lung abscess, or rather bronchiectasis found that they gave a history of having been perfectly healthy until the time when tonsillectomy was done. Not long after they became seriously sick. The condition resulting was not curable except by a serious operation, lobectomy, which still gave a mortality of over 50 per cent. Dr. Meyer asked whether at the New York Hospital tonsillectomies were also done under local anesthesia. He knew of surgeons who did a beautiful tonsillectomy with the patient under local anesthesia, and the loss of blood was not more than one-half to one teaspoonful of blood.

Dr. L. M. HURD stated that the specialists were using general anesthesia in the removal of the tonsils in children and local anesthesia for adults. With the local anesthesia in adults they did away with aspiration pneumonia and lung abscess, and the mortality and morbidity under local anesthesia was less. That point was now being worked up by a committee of the American Medical Association. Tonsillectomy in the adult under local anesthesia was nearly always bloodless. The patient was given hyoscine and morphine as a preliminary. In reference to the Sluder and Sluder-Beck operations the speaker said he could not say that one method was more likely to be bloodless than another. One had hemorrhage with any operation at times. The results reported by Dr. Victor were good, and compared favorably with those of other hospitals, including the special hospitals. The symptomatic results were certainly first class. A very instructive paper had been published by Dr. St. Lawrence in the October 16 issue of the *Journal of the American Medical Association*. It showed 85 cases followed 3½ years, mostly rheumatic cases, and some heart cases. One point brought out by this report was that in 22 cases a clean operation was not done at the first operation. He did not know whether these operations were done at one clinic and by one man or at different places and by different operators, but they should have 100 per cent. clean dissections. Occasionally following tonsillectomy in a child there would be a strong effort to reproduce lymphoid tissue, but the older the child the less likely was this to occur, and the adult never reproduced lymphoid tissue following tonsillectomy. In children with toxic heart lesions it was only by destruction of the lymphoid follicles that the heart trouble could be relieved.

Dr. WILLIAM ST. LAWRENCE said that, as reference had been made to his recently published paper, he would be glad to answer the questions asked. He believed that final judgment upon the success of a tonsillectomy as to the physical removal of the tonsils, varied largely with the standard adopted. If to be successful, the tonsillar fossae must be absolutely free from tabs or lichen-like plaques of tonsil tissue, the operation could have been called successful in less than 60 per cent. of the cases in his series. In 22 per cent. of the cases the amount of tonsil tissue remaining was so great that the operation had been a failure from the standpoint of the focal infection and another attempt at removal was indicated. He felt that he owed it to the men at his own hospital to make quite clear the fact that the operations in the 22 per cent. of cases mentioned were not performed by them. These operations had been performed at both general and special hospitals throughout the city. At St. Luke's Hospital, the pediatricists' attitude was appreciated, and splendid co-operation was rendered by the nose and throat department. Dr. St. Lawrence said that he regretted that Dr. Victor had not presented the rheumatic and chorea cases in greater detail, for there are not nearly enough carefully studied cases in the literature.

Dr. MEYER spoke of the case of a lady with a soprano

voice who had a bilateral chronic recurring tonsillitis, and said he would like to know whether removal of the tonsils in such a case would interfere with her voice and prevent her from reaching the high "C." It would be a great favor to this woman to know that she could have her tonsils removed without interfering with her singing voice. He would like to know whether any observations had been made on this point by those present.

Dr. L. T. LEWALD emphasized what Dr. Meyer said about lung abscess. He said the roentgenologist saw these cases of lung abscess as well as the thoracic surgeon. He had seen four cases of lung abscess within the last year, and he had seen an operation done that afternoon by Dr. Howard Lilienthal. In this case there was no doubt that the abscess or the lung followed tonsillectomy. It started about the sixth day following the tonsillectomy, which was rather early. At the end of two years the man still had a bronchiectatic condition and a small cavity. A lobectomy had been thought of, but it was decided to do a compression according to Dr. Lilienthal's method. He recalled another case in an adult which ended fatally, so lung abscess was a complication of tonsillectomy that it was well to bear in mind.

Dr. BRENNER said he would like to reply to Dr. Meyer's question. Some time ago he had asked Dr. Alexander who was associated with the late Dr. Holbrook Curtis what the effect of tonsillectomy was upon the singing voice. Dr. Alexander assured him that the voice was not altered if the person was past puberty. If, however, the person had not reached puberty the voice might be affected. In adults in whom a faulty technic was employed with scarring of the pillars with subsequent scar contraction distorting the uvula and soft palate, occasionally a change in voice did occur.

Dr. VIETOR, replying to Dr. Brenner's question with reference to contraindications, said a culture of the throat was always taken and a positive culture was considered a contraindication. In the paper he had mentioned that an acute abscess did occur in one case. The average age of all cases was about 10 years. In regard to Dr. Meyer's question whether any of these operations were performed under local anesthesia, there were only two cases operated upon under local anesthesia, both by Dr. Erskine, who was a specialist, and operated upon other cases at the hospital not coming under this series.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

OHIO STATE BOARD OF MEDICAL EXAMINERS.

Columbus, December 1-3, 1920.

(Continued from page 636.)

DIAGNOSIS.

1. Name five endocrine organs. Give cardinal symptoms of diseases occurring in four.
2. Describe two diastolic murmurs. What is the prognosis for duration of fairly active life in each?
3. State the typical blood-findings in myelogenous leucemia.
4. What four signs suggest and what evidence proves the presence of fluid in the chest?
5. Describe urinary findings and symptomatology in two types of nephritis.
6. How differentiate between scarlet fever and measles on the first day a rash appears?
7. Differentiate cancer of the rectum from other conditions simulating it.
8. How confirm a diagnosis of diphtheria? Be precise.
9. Name five characteristic signs in various syphilitic diseases.
10. Differentiate dementia paralytica from senile dementia.

PATHOLOGY—BACTERIOLOGY—PUBLIC HEALTH

AND HYGIENE.

1. Describe the repair of bones after fracture, with explanation of reasons for faulty union in some instances.

2. Give the etiology and pathology of aneurysm of the aorta.

3. Explain the possible relation between abscesses of the teeth and some forms of arthritis.

4. What pathological conditions are included in the term "organic heart disease?"

5. Give the proper method of obtaining a specimen of suspected tuberculosis sputum. How would you send it through the mails to a laboratory, and give technique of laboratory examination?

6. Describe the colon bacillus. How isolate it? When may it be pathogenic?

7. What organisms are sometimes found in the spinal fluid? How would you identify them?

8. Name the requirements for an acceptable drinking water.

9. Mention some "industrial diseases" directly dependent upon improper working conditions.

10. Outline the objects of school inspection.

ANSWERS.

DIAGNOSIS

1. *Five endocrine organs:*—Thyroid, parathyroids, thymus, pituitary, and suprarenals.

Cardinal symptoms of Addison's disease:—Extreme weakness, loss of appetite, nausea, vomiting, bronzing of skin, low blood pressure, with feeble pulse.

Hyperthyroidism:—Rapid and often irregular pulse; nervous and psychical excitation, with muscular tremors; a feeling of warmth in the skin, and throbbing of cutaneous vessels, often accompanied by profuse sweating; shallow respiration; markedly increased metabolism (especially nitrogenous), with abnormal appetite and loss of body fat; a decreased assimilatory power for carbohydrates; an anxious, restless expression; prominence of the eyeballs; wide palpebral aperture, often with dilatation of pupils. The enlargement of the thyroid may involve only one lobe. (From Schäfer.)

Disease or removal of (two of) the parathyroids is followed by tetany, and wasting.

In *Acromegaly*:—"The face is egg-shaped, with its broad end downwards; the lower jaw-bone particularly is much increased in size, and may cause the lower teeth, which are wide apart, to project in front of the upper; the tongue is considerably enlarged, and this may cause a similar leathery speech to that of myxedema. The eyelids and nose are thickened and the ears hypertrophied. The extremities are markedly altered, the hands being huge and spade-shaped, and the nails broad and large. The feet show similar abnormal overgrowth, but the hypertrophy does not extend beyond the wrists and ankles, the long bones being but slightly affected. Later, the spine may become kyphotic, and the simultaneous prominence of the abdomen causes a characteristic "double hump." The ribs and sternum are also thickened. There is much general lassitude and weakness, and usually marked headache and anemia." (Wheeler and Jack's *Handbook of Medicine*.)

2. *TWO DIASTOLIC MURMURS.* In *aortic regurgitation*, there is a soft, blowing, diastolic murmur, heard over the aortic area to the left of the sternum, and transmitted down the sternum. The prognosis is variable; this is the lesion in which sudden death is most apt to occur.

In *pulmonary regurgitation* there is a diastolic murmur, which is generally loud and blowing and is heard most distinctly at the junction of the third left costal cartilage with the sternum; it is said to be transmitted along the left pulmonary artery. The prognosis depends upon the cause of the cardiac condition.

3. In *myelogenous leucemia*, the blood shows a permanent increase in the leucocytes other than the polymorphonuclear variety; myelocytes are present in great numbers, constituting from 20 to 60 per cent. of all leucocytes. The total number is about 300,000 per cubic millimeter as an average, but counts as high as 750,000 have been reported. The number, however, may be as low as 100,000 or even in some the count may approximate the normal. The differential count of the white cells in combination with the usual increase in number is the characteristic feature. The

main form is the large mononuclear myelocyte containing neutrophilic granules. They may constitute some 35 per cent. of all the leucocytes. The nucleus is situated, as a rule, in the center and is well staining, it may be eccentric, however, or poorly staining. The large cell with the pale nucleus is seldom found in any other condition than in this form of leucemia. The neutrophilic granules may be lacking entirely and the nuclei show hydropic degeneration. Occasionally small myelocytes with deeply staining nuclei may be present. Eosinophilic myelocytes may be found in large numbers, varying from 3,000 to 100,000 per cubic millimeter. Such an increase is pathognomonic of splenomyelogenous leucemia. The ordinary type of eosinophiles is also increased. Basophiles or mast-cells are increased, sometimes very markedly, this condition being quite characteristic of leucemia. Polymorphonuclear neutrophilic leucocytes are relatively diminished as the myelocytes increase, and form about 46 per cent. of the total. They are absolutely increased to 60,000 or 70,000. Degenerative changes are very common, the cells becoming more cohesive, the nuclei pale and showing karyolysis or rhexis and frequently mitotic figures. Lymphocytes are not very numerous as a rule; they constitute about 10 per cent., although the number may vary considerably. The blood itself may be pale and the specific gravity lowered. Coagulation takes place slowly. The erythrocytes are decreased to about 3,000,000, the hemoglobin is diminished also, 40 per cent., color index about 0.6. Many of them are nucleated and show changes in size and shape. The normoblasts are very common, and megakaryoblasts are frequently seen." (McConnell's Pathology).

4. *Four signs of fluid in the chest:* (1) Obliteration or bulging of the intercostal spaces; (2) vocal fremitus is diminished or absent; (3) dullness on percussion, the border of which varies according to the position of the patient; (4) Skodiak resonance above the border of the fluid, posteriorly. The presence of fluid in the chest is proved by tapping with a needle or trocar and cannula and drawing off some of the fluid.

5.

ACUTE PARENCHYMATOUS NEPHRITIS.

1. Most common in children, from exposure or infectious fevers.
2. Edema of lower eyelids; then of upper extremities, trunk, and, lastly, lower extremities.
3. Urine scanty, dark or smoky color, high specific gravity, 1025 or over.
4. Large amount of albumin.
5. Variety of casts, such as hyaline, blood, epithelial, and waxy casts, also free red blood globules, and epithelial cells.
6. Urea diminished.
7. Recoveries frequent.

CHRONIC PARENCHYMATOUS NEPHRITIS.

1. Later life; often the consequence of acute attack.
2. In early stage same as acute form; later, dropsy may diminish.
3. Urine normal or increased amount; specific gravity may fall to 1010; urine pale.
4. Late in attack, fremitus diminished; occasionally absent.
5. Large and small granular casts; compound granule cells, and fatty epithelium.
6. Urea diminished.
7. Recoveries rare.

(From *Cyclopedia of Medicine and Surgery*.)

6. *Scarlet fever:* Period of incubation, from a few hours to seven days. Stage of invasion, twenty-four hours. Character of eruption, a scarlet punctate rash, beginning on neck and chest, then covering face and body; desquamation is scaly or in flakes. The eruption is brighter, is on a red background, punctiform, and is more uniform; the temperature is higher, the pulse quicker; the tongue is of the "strawberry" type, the lymphatics in the neck may be swollen, and there is sore throat; Koplik's spots are absent.

Measles: Period of incubation, ten to twelve days. Stage of invasion, four days. Character of eruption, small dark red papules with crecentic borders, beginning on face and rapidly spreading over entire body; desquamation is branny. The eruption is darker, less uniform, more shotty; the temperature is lower, pulse slower, the tongue is not of the "strawberry" type;

coryza, coughing, and sneezing may be present; Koplik's spots are present.

7. *Diagnosis of cancer of the rectum:* "This is usually easy if the case is examined locally. In the early stages it is impossible to diagnose cancer from piles, prolapse, polypus, or fistula without a rectal examination."

In piles there is no new growth, but merely swollen veins, but it is important to remember that piles often complicate cases of cancer, so that the inside of the bowels should be examined in every case of piles.

In fissure the pain is much more severe, and is almost unbearable on digital examination. A linear ulcer with sentinel pile is evident, and the inside of the bowel is healthy.

In polypus the mass is small and pedunculated, and the mucous membrane healthy.

In fibrous stricture the parts are indolent and there is no new growth. Bleeding on examination is absent or very slight.

In syphilitic disease the gummata are soft, painless, and non-vascular. The ulcers ragged, undermined, and not at all indurated.

In prolapse and intussusception inspection and palpation will make the case clear.

The sigmoidoscope is useful for cases of cancer occurring out of reach of the finger (three to twelve inches from the anus)." (Grove's *Synopsis of Surgery*.)

8. *Laboratory diagnosis of diphtheria:* "In obtaining material from a throat, be sure that an antiseptic gargle has not been used just prior to taking the throat swab. The part of the swab which touched the membrane or suspicious spot should come in contact with the serum slant. This is best accomplished by revolving the swab. An immediate diagnosis is possible in probably 35 per cent. of cases by making a smear from a piece of membrane. In doing this Neisser's stain or the toluidin blue stain are usually considered the most satisfactory. I prefer the Gram stain, however. The diphtheria bacilli found in such smears are not apt to be clubbed and stain more uniformly. If there is any doubt about the nature of an organism in a throat culture, always stain: 1. with Löffler's alkaline methylene blue for two minutes; 2. with Gram's method, being careful not to carry the decolorization too far, and 3. by Neisser's method. With Löffler's you obtain a picture which, after a little experience, is characteristic; at times the polar bodies show as intense blue spots in the lighter blue bacillus. One is liable to confuse cocci lying side by side for diphtheria bacilli with segmental or banded staining. This difficulty is not apparent when Gram's staining is used. This gives us great information, as the diphtheria and the pseudodiphtheria are the only small Gram-positive bacilli usually found in the mouth. The cocci are also well brought out. Neisser's stain gives a picture which, when satisfactory, is almost absolutely characteristic. You have the bright blue dots lying at either end of the light brownish-yellow rods. When first isolated from a throat, the diphtheria bacillus is apt to stain characteristically by Neisser. Later on in subculture, there may be no staining of the polar bodies. Neisser originally recommended five seconds' application, with an intermediate washing, for each of his two solutions. Thirty seconds for each is probably preferable. Some authorities recommend five to thirty minutes. It is well to bear in mind that about 2 per cent. of the people in apparent health carry diphtheria bacilli of the granular or barred type in their throats and of these about one in five will prove virulent for the guinea-pig." (Stitt's *Practical Bacteriology*.)

9. *Five characteristic signs in various syphilitic diseases:* (1) Hutchinson's teeth in congenital syphilis; (2) the chancre in the primary stage of acquired syphilis; (3) the rash in the secondary stage of acquired syphilis; (4) gumma in tertiary stage of acquired syphilis; (5) a positive Wassermann reaction in practically any form of the disease.

10. *In dementia paralytica*, "the diagnosis is based on the history of syphilis, the facial and tongue tremor, irregular and rigid pupils, exaggerated or irregular knee-jerks, the disturbance of speech, weakness of memory, loss of power to work, irritability and change of character, change in the handwriting, and presence of convulsive or apoplectic attacks. Examination of

the cerebrospinal fluid usually shows the presence of monocuclear lymphocytes instead of a normal clear fluid. Cholin is usually found in this fluid.

In *senile dementia*, "the main characteristics are a forgetfulness and mixing of old with new memories, repeating stories and questions; weakness of the power of attention and inability to remember or acquire recent things, and mental fatigue; the lack of interest in new things, apathy, with variability of moods; peevishness, suspiciousness, temper. At times conduct is easily influenced, and at other times the patient is obstinate and perverse. Change of character, episodes of maniacal excitement, and delusions of grandeur or suspicion distinguish the condition from simple dotage." (Dana's *Text-Book of Nervous Diseases and Psychiatry*.)

PATHOLOGY, BACTERIOLOGY, PUBLIC HEALTH, AND HYGIENE.

1. *Repair of fracture*: "The broken ends of the bone are rough and irregular, and the periosteum is torn more or less, but some portion usually remains as a bridge between the fragments. The soft structures in the neighborhood are lacerated, so that the parts are infiltrated with blood clot, which fills up the spaces between the bone ends. As in repair of any other part, the blood clot in a few hours is infiltrated with leucocytes, whose duty it is to absorb the clot. The connective tissue cells in the surrounding parts proliferate, and the bone undergoes rarefying osteitis, so that the place of the blood clot is taken by granulation tissue. The granulation tissue becomes calcified, and the calcified tissue is ultimately replaced by bone. The periosteum plays a large part in the ossification of the new tissue. It becomes stripped up for some distance, hyperemic, and thickened. Granulation tissue is formed from it, and unites with that which has replaced the blood clot. This mass binds the bone together and forms the *provisional and ensheathing callus* which is subsequently ossified by the growth of the periosteal osteoblasts spreading over the mass. The medulla becomes plugged with granulation tissue or *internal callus*, and this, as well as the granulation tissue lying between the fragments of compact bone, becomes ossified, the bone cells of the compact tissue probably proliferating to take part in the repair." (Aids to *Surgery*.)

Faulty union: "Union with marked displacement of the fragments is most common in fractures which have not been properly treated—as, for example, those occurring in sailors at sea; and in cases where the comminution was so great that accurate apposition was rendered impossible. It may also result from imperfect reduction, or because the apparatus employed permitted of secondary displacement. Restlessness on the part of the patient from intractability, delirium tremens, or mania, is the cause of mal-union in some cases." (Thomson and Miles' *Manual of Surgery*.)

2. *Aortic aneurysm*. "In sacular aneurysm of the aorta it is found that the sac most commonly springs from the convexity of the arch, and that intense arteriosclerotic alterations of the aorta surround its mouth. The orifice is round or irregular in outline, and the edge is rolled over into it somewhat, so as to almost overhang its cavity. The cavity itself may reach a very great size, the sac thus formed pushing aside the surrounding organs or embedding itself in them. Mechanical effects produced in this way are of great variety, depending largely upon the point of origin and size of the sac. Pressure on the recurrent laryngeal nerve produces an alteration of the voice from spasm or paralysis of the vocal cord, coughing, dyspnea, etc. Pressure on the trachea flattens it and causes dyspnea—later the aneurysm may rupture into it, after eroding its wall. The lungs yield and collapse before the aneurysm. Pressure on a bronchus narrows it, and behind the obstruction bronchiectasis arises. When the sac reaches the bony structures of the thorax, which do not yield, it hammers its way through them, appearing under the skin through a hole in the ribs or sternum. If it extends backward to the spine, it destroys the centre of the vertebrae even down to the spinal canal, leaving the yielding intervertebral discs standing almost unaltered—in the same way it may break through the ribs in the back and appear under the skin there. Then it is not long before the skin becomes thinned out and bluish, and finally the sac

ruptures, so that death follows at once. Often it ruptures long before it reaches the skin—into the pleura or pericardium, trachea, or esophagus, or even into the superior or inferior vena cava. . . . The sac is not composed of the stretched-out walls of the vessel, for microscopic examination shows that practically all these elements stop sharply at the edge of the orifice. The elastic tissue and the muscle are suddenly interrupted. Endothelium may persist and attempt to line the sac, but it soon fails in this and is lost. Indeed, nothing but connective tissue, and that essentially new formed, goes to make up the sac. It grows largely by new breaks in the wall which seem to be made good by further formation of fibrous tissue. The current of blood eddies about in the cavity, and its pulsation gives the sac its power of breaking down the resistance of the tissues. But the endothelial lining is imperfect, and thrombosis occurs, and if time be allowed, layer after layer of compact thrombus material may be hammered down on the wall of the sac until it is in large part filled up. Occasionally the aneurysm may be completely obliterated in this way. The character of the fibrous wall is such that little upgrowth of organizing granulation tissue into the thrombus appears, and the lower layers become even more compact, until, on a smoothly cut section, they look like onyx. The wall itself becomes hyaline, and it is often impossible to say, in a microscopic section, where the wall ends and the thrombus begins. In the smaller and fresher aneurysmal sacs the wall, wrinkled and irregular, is generally shining, thick, and rather translucent, and quite uncovered with thrombi or covered with only the merest film." (MacCallum's *Text-Book of Pathology*.)

3. "It is also possible that arthritis is of microbic origin, as it is often the sequel to an acute infection, in certain cases its onset is acute, in children there is often wide-spread enlargement of lymphatic glands and of the spleen, and organisms of various kinds have been found in the articular fluid. One view is "that it is due to a settlement of micro-organisms in the affected joints, that they there produce a toxin, and that that toxin, passing into the circulation, is responsible for any nervous symptoms which occur" (Luff). "Another, which has much recent evidence to justify it, is that the joint condition is due to a chronic sapraemia, the result of a local microbic infection." (Wheeler and Jack's *Handbook of Medicine*.)

These local infections are very common in the teeth, giving rise to the so-called focal infections, and pyorrhea alveolaris. The toxins are carried by the blood to the joints, and there the pathological changes occur.

4. The term "*organic heart disease*" includes: Valvular defects (aortic stenosis and regurgitation; mitral stenosis and regurgitation; tricuspid stenosis and regurgitation; and pulmonary stenosis and regurgitation); hypertrophy and dilatation of the myocardium; sinus irregularity; heart block; extrasystoles; bradycardia and tachycardia.

5. The sputum must be recent, free from particles of food or other foreign matter, it must come from the lungs or bronchi and not from the nose or nasopharynx. Disinfectants should not be added to the sputum. To make the microscopic examination: Select a cheesy-looking nodule and smear it on a slide, making the smear as thin as possible. Then cover it with some carbol-fuchsin, and let it steam over a small flame for about two minutes, care being taken that it does not boil. Wash it thoroughly in water and then decolorize by immersing it in a solution of any dilute mineral acid for about a minute. Then make a contrast stain with solution of Loeffler's methylene blue for about a minute; wash it again and examine with oil immersion lens. The tubercle bacilli will appear as thin red rods while all other bacteria will appear blue. The tubercle bacillus is rod shaped, is from 14 to 34 mikrons in length and about one-third to one-half a mikron in breadth, is a strict parasite, is not motile, and has no flagella. It is slightly curved, does not form spores, is not liquefying; is nonchromogenic; is aerobic; it resists acids; it grows well on blood serum; stains well by Ehrlich's, Ziehl-Neelsen's, or Gabbett's method; it is Gram-positive.

With regard to the sending of sputum by mail, the following was issued by the Post Office Department of the U. S.:

"Specimens of diseased tissues may be admitted to the mail for transmission to the United States, State, or municipal laboratories, only when enclosed in mailing packages constructed in accordance with the specifications hereinafter enumerated: Liquid cultures, or cultures of microorganisms in media that are fluid at the ordinary temperature (below 45° C. or 113° F.) are unavailable. Such specimens may be sent in media that remain solid at ordinary temperatures. Upon the outside of every package shall be written or printed the words "Specimen for Bacteriological Examination. This package to be treated as letter mail." No package containing diseased tissue shall be delivered to any representative of any of said laboratories until a permit shall have first been issued by the Postmaster General certifying that said institution has been found to be entitled, in accordance with the requirements of this regulation, to receive such specimens."

The regulation includes not only cultures, but "specimens of diseased tissues." The specifications prescribing the manner of packing, which are minute and complicated, may be obtained from local postmasters.

6. The *colon bacillus* is a rod-shaped microorganism with rounded ends; it is about 2 microns long by 0.5 to 0.7 broad; but sometimes it is oval or nearly spherical; it stains with the ordinary anilin dyes, and is decolorized by Gram's stain; it grows on all the usual culture media; in media containing sugar, it causes fermentation and production of acid and gas; it forms indol.

Isolation of the colon bacillus from mixed cultures is accomplished by plating upon the Endo medium after the addition of bile.

It may be *pathogenic* when some of its poisonous products become absorbed. Such absorption does not occur when the intestinal mucosa is healthy and intact. It may be found in septicemia, peritonitis, appendicitis, cystitis, pyonephrosis and in inflammatory conditions of the liver, gall-bladder, and pancreas.

7. "The routine examination of *spinal fluid* is best made upon the sediment of centrifugalized specimens. The microorganisms with which we deal most frequently in this fluid are the meningococcus, the pneumococcus, the streptococcus, and the tubercle bacillus. If morphological examination reveals bacteria resembling the first three of these in appearance and staining-reaction, surface smears should preferably be made upon plates of serum agar, blood agar, or upon tubes of Loeffler's coagulated blood-serum. Failure to find organisms morphologically does not exclude their presence and careful cultivation should be done in all cases. When organisms are not found by simple morphological examination and the fluid and sediment are scanty, specimens should be stained by the Ziehl-Neelsen method for tubercle bacilli. In such cases it is often of advantage to set away the specimen until a thin thread-like clot of fibrin has formed in the bottom of the tube. In smears of such a clot, tubercle bacilli are found with far greater ease than they are found in centrifugalized specimens. If these examinations are without result, inoculation of guinea-pigs should be resorted to." (Hiss and Zinsser's *Bacteriology*.)

8. *Characteristics of a good drinking water*: (1) It should be clear and limpid. Cloudy and muddy waters should be avoided. (2) It should be colorless. A greenish or yellowish color is usually due to vegetable or animal matter in solution or to organisms. (3) It should be odorless; especially free from sulphuretted hydrogen or putrefactive animal matter. (4) It should not be too cold, but should have a temperature of from 46° F. to 60° F. (5) It should have an agreeable taste; neither flat, salty, nor sweetish. A certain amount of hardness and dissolved gases give a sparkling taste. It should contain from 25 to 50 c.c. of gases per liter, of which 8 to 10 per cent. is carbon dioxide and the rest oxygen and nitrogen. (6) It should be as free as possible from dissolved organic matter, especially of animal origin. (7) It should not contain too great an amount of hardness. A certain quantity of saline matter is necessary, however, to give it a good taste. It should not contain over three or four parts of chlorine in 100,000 parts of water.—(From Bartley's *Chemistry*.)

9. *Industrial diseases due to improper working con-*

ditions: Compressed air illness; bronchitis and nephritis may result from excessive heat and moisture; insolation may occur in stokers and foundrymen; bronchitis may be found in cold storage workers; the eyes may be strained by excessive or inadequate light; miner's phthisis or anthracosis; rhinitis; conjunctivitis; eczema; poisoning of lead, mercury, phosphorus, arsenic, antimony and anilindyes; emphysema; pneumonia.

10. "The object of a medical inspection of schools is not primarily the treatment of diseases, but rather their prevention. One of the principal objects is the early recognition of physical defects such as errors of refraction, imperfect hearing, malformations of the body from abnormal positions, adenoids, enlarged tonsils, and other obstructions of breathing, and sources of inflammation, etc. An important object of the medical inspection of school children is to determine their fitness to enter school and to recognize mental and nervous disorders; also the early recognition of the communicable diseases and measures to prevent their spread; the supervision of vaccination, and disinfection; the teaching of personal hygiene to pupils and teachers, and the sanitation and cleanliness of the school building and its surroundings; the adjustment of the seat and desk, and the medical supervision of the mental and physical work of the child." (Rosenau's *Preventive Medicine and Hygiene*.)

(To be continued.)

Miscellany.

NEW BOOKS AND OLD.

By JOHN RUMRÄH, M.D.

BALTIMORE, MD.

IV—JOHN ARMSTRONG.

A PHYSICIAN of the eighteenth century, far better known as a poet and literary man, John Armstrong led a curious career and has been variously estimated. He was born in 1709 in the parish of Castleton, Roxburghshire, his father was a clergyman and destined his son for the profession of medicine. He studied in Edinburgh and received his degree on February 4, 1732, reading as his thesis "Dissertatio de Tabæ purulenta." This inaugural dissertation is the first volume of William Smellie's "Thesaurus Medicus." It is dedicated to Hans Sloane.

Turning his way to London he took to the practice of physic and poetry. He was a prolific writer; medical papers and books, poems and plays flowing from his pen in rapid succession. His first venture was an article "On Penetrating Topic Medicines" in 1734, followed in the same year by "Alcaescent Disposition of Animal Fluids." The following year he turned out a satire entitled "Essay for Abridging the Study of Physic." The succeeding year he published anonymously a very poor poem entitled "Economy of Love." After a silence of eight years the "Art of Preserving Health," a poem in four books, appeared. This had great vogue and was reprinted many times.

When Dr. W. A. Alcott reprinted the poem in Boston in 1838 he stated in the preface that "the two passages which I have omitted related exclusively to the occasional use of wine, which the doctor, with strange but very common inconsistency, seems inclined to permit." This is extremely interesting as it shows the inevitable tendency to censor a practice so dear to the heart of the reformer. Imagine the editions of the Bible, Omar,

Shakespeare, *et al.* as the Anti-saloon League would doubtless have them reprinted. Think not that this is a jest. What has happened can easily happen again.

Hugh Downman, himself the author of a pediatric poem, in it pays the following tribute to Armstrong:

... nor blind to worth,
 The still upon this wave worn shore it stood
 Of troublous life, by enemies blasts assail'd
 Be thou ungreeted, Armstrong, in my verse,
 Thou parent of the prophylactic lay.

Armstrong's description of the sweating sickness which ends the third book of the poem is one of the best parts of it.

... A monster never known before,
 Reared from Cocytus its portentous head:
 This rapid Fury not, like other pests,
 Pursued a gradual course, but in a day
 Rushed as a storm o'er half the astonished isle,
 And strewn with sudden carcasses the land.

First through the shoulders, or whatever part
 Was seized the first, a fervid vapor sprang.
 With rash combustion thence, the quivering spark
 Shot to the heart, and kindled all within;
 And soon the surface caught the spreading fires.
 Through all the yielding pores the melted blood
 Gushed out in smoky sweats; but nought assuaged

The torrid heat within, nor aught relieved
 The stomach's anguish. With incessant toil
 Desperate of ease, impatient of their pain,
 They tossed from side to side. In vain the stream
 Ran full and clear—they burnt and thrashed still.
 The restless arteries with rapid blood
 Beat strong and frequent. Thick and pantingly
 The breath was fetched, and with huge laborings heard.
 At last a heavy pain oppressed the head—
 A wild delirium came; their weeping friends
 Were strangers now, and this no home of theirs.
 Harassed with toil on toil, the sinking powers
 Lay prostrate and o'erthrown; a ponderous sleep
 Wrapt all the senses up. They slept and died.

In 1746 we read of his serving as physician to the Hospital for Lame, Maimed and Sick Soldiers in London. Practice, however, did not keep him from his literary activities; 1751 saw the appearance of "Benevolence, an Epistle"; two years later, "Taste, an Epistle to a Young Critic." Next he tried his hand at tragedy, "The Forced Marriage," which was written in 1754, but not printed until 1770. In 1758 he published, under the pseudonym of Launcelot Temple, "Sketches or Essays on Various Subjects." In 1760 he secured the post of physician to the army in Germany. "Day, a Poetical Epistle," resulted in an acrimonious controversy with Wilkes. Returning from the army he was retired on half pay. In 1770 he published the volumes of miscellanies. At this time he made a tour of Italy and France, stopping at Leghorn to visit the dying Smollet. His travels are described in "A Short Ramble Through France and Italy." In 1773 he printed his "Medical Essays."

He died as the result of a fall on September 7, 1779. He left three thousand pounds, quite a sum in those days, so that he must have lived rather parsimoniously. Armstrong was a man about whom there are many opinions. There is a mezzotint portrait from a painting by Sir Joshua Reynolds inscribed:

"John Armstrong, The suffrage of the wise,
 the praise that's worth competition is attained
 by sense alone and dignity of mind."

The Rev. Henry Francis Cary includes a short account of Armstrong in his "Lives of the English Poets." He states that early in his career he published "a licentious poem, which I have not seen, and the title of which I do not think it necessary to record." He also states "His Art of Preserving Health" is the only production by which he is likely to be remembered.

The industrious John Aiken wrote a critical essay on the poem that has been reprinted in some of the editions.

Dr. Cuming of Dorchester said: "He always appeared to me (and I was confirmed in this opinion by that of his most intimate friends) a man of learning and genius, of considerable ability in his profession, of great benevolence and goodness of heart, fond of associating with men of parts and genius, but indolent and inactive, and therefore totally unqualified to employ the means that usually lead to medical employment or to elbow his way through a crowd of competitors."

In 1773, Armstrong wrote concerning himself that "he could neither tell a heap of lies in his own praise wherever he went; nor intrigue with nurses; nor associate much less assimilate with the various knots of pert, insipid, lively, stupid, well-bred, impertinent, good humored, malicious, obliging, deceitful, washy drivelling gossips; nor enter into juntos with people not to his liking."

In Thomson's "Castle of Indolence" there are some lines supposed to refer to Armstrong.

With him was sometimes join'd, in silent walk
 (Profoundly silent, for they never spoke),
 One shyer still, who quite detested talk:
 Oft, stung by spleen, at once away he broke
 To groves of pine and broad o'er shadowing oak;
 There, inly thrilled, he wandered all alone
 And on himself his pensive fury wroke,
 Nor ever utter'd word, save when shone
 The glittering star of Eve—"Thank Heaven, the day is done."

Churchill's posthumous satire "A Journey," in 1764, took a fling at him as follows:

Let them with Armstrong, taking leave of sense,
 Read musty lectures on Benevolence,
 Or con the pages of his gaping Day,
 Where all his former fame was thrown away,
 Where all but barren labour was forgot
 And the vain stiffness of a lettered Scot.

All the above apropos of the two copies of Armstrong's poem, "The Art of Preserving Health," which the Medical and Chirurgical Faculty recently acquired at small expense. If your library does not boast a copy of this poem, now is a good time to pick one up in England for a nominal sum.

11 EAST CHASE STREET.

Rights of the Pharmacist Against the Physician.—Perreau reports on the ethics of a pharmacist towards a physician's prescription. One of two contingencies may arise, the first of course when the prescription itself is in violation of some legal restriction, and the second, when in the judgment of the pharmacist the prescription might injure the patient. In refusing he should give his reasons and be moderate in his language. If the prescription is merely worthless for any reason he may communicate with the prescriber before refusing to fill and must not inform the patient of the transaction. He can say nothing which reflects discredit upon the physician. In damage suits by physicians against pharmacists the plaintiff must show intent to injure him, and wilful publicity on the part of the defendant. The plaintiff must also be shown to have committed a definite statutory offence.—*Journal de médecine et de chirurgie pratiques.*

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Original Articles.

SPECIALIZATION IN THE MEDICAL AND SURGICAL TREATMENT OF ULCERS OF THE STOMACH AND DUODENUM.

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THE rational treatment of ulcers of the stomach and duodenum must obviously be based on an exact diagnosis. No symptom is pathognomonic of the presence of ulcer in the stomach and duodenum; the diagnosis must be made on the interpretation of facts collected by the history, physical examination, gastric analysis, and roentgen-ray investigation. *The physical examination and the history have not lost any importance since the other means have come into use, and we believe them to be still the most important elements if properly collected.* The physical examination is important, mostly because it might reveal lesions of other organs beside the digestive ones. The gastric analysis and roentgen-ray investigations are a great help, but are often misleading. Some of the mistakes caused directly by the roentgen-ray are well illustrated in the following cases:

CASE I.—A nun, aged 64 years, suffered for years from stomach trouble. The history and gastric analysis pointed to the presence of chronic ulcer of the stomach, probably cancerous; no mass could be palpated. The roentgen-ray showed a filling defect in the region of the pylorus. (Fig. 1.) All investigations and the operation were performed at St. Catherine's Hospital in Brooklyn. At operation the pylorus was seen to be absolutely normal; an ulcer that proved to be carcinomatous, and of a size somewhat larger than a silver dollar, was found in correspondence to the small curvature, close to the cardia.

CASE II.—A woman, aged 23, six months previously operated on for chronic appendicitis, had symptoms unimproved, and various physicians made a diagnosis of ulcer of the duodenum. The Roentgen rays showed constant deformity of the duodenal cap. (Fig. 2.) I was called to operate on this patient as a clear case of ulcer, in order to demonstrate my technique for gastroenterostomy to local surgeons in Scranton, Pa., after having read a paper before their county medical society. On operation, the stomach, duodenum, biliary tracts, in fact all the abdominal organs, were absolutely normal.

CASE III.—A woman, aged 29, whose past history gave nothing worthy of notice, except that her appendix was removed when she was eighteen years of age, about two years ago began to complain of stomach troubles and was under the care of several physicians. A gastroenterologist made a diagnosis of duodenal ulcer, treated her for several months, and the patient was apparently cured and remained well for about a year. Her troubles recurred and the patient went back to the gastroenterologist, who stated that the ulcer had recurred and started the same treatment again which

had been successfully followed previously. The patient's condition did not improve very satisfactorily, until she finally began to vomit. Consultations with other specialists were held and the gastroenterologist advised surgical intervention, his diagnosis being always duodenal ulcer with pylorospasm. The patient came to me with the history referred, asking to be operated upon. From the complete investigations which I carry on in similar cases, I felt that I had to deal with a neurotic subject, and notwithstanding the constant deformity of the duodenal cap, as shown in the roentgenograms (Fig. 3) I thought operation was not advisable, because I did and do believe that all the patient's troubles were caused by reflexes due to the early removal of the appendix. However, the patient and relatives were so convinced that only an operation could effect a cure that I operated on the young woman only a few weeks ago in a private sanatorium. No lesion of any kind could be detected in any abdominal organ, except adhesions between the cecum, the ileum, and the omentum.

CASE IV.—J. L., female, aged 32, gave history of long suffering from internal troubles. She was referred by her physicians to one of the most competent gastroenterologists in town, who: after an unsuccessful treatment for duodenal ulcer, advised surgical intervention. The x-ray report (Figs. 4 and 5) by a competent radiologist stated: "The consideration of a probable early ulceration in the first portion of the duodenum should be entertained. The condition of marked periceal adhesions should not be overlooked." I was called on to operate on Mrs. J. L. Because the case had been studied by competent men and the lady, who appeared to be very intelligent and self-composed, insisted on early operation, and would not have allowed further investigations, being convinced that she was suffering from an ulcer of the stomach that could only be cured by operation, the operation seemed really indicated, the diagnosis of ulcer of the duodenum was accepted, and the lady was operated on. At the operation nothing abnormal could be found; on the suggestion of the family physician that the appendix might show some pathology, the appendix was removed. It was absolutely normal. As the sufferings complained of by the patient seemed to be real I made inquiries about her family life and found that she and her husband, although living together, were so estranged that no sexual rapports had existed between them for a long time, and the patient suffered therefrom.

These cases prove that mere gastroanalysis and roentgen-ray investigations do actually mislead. In the first case the gastric analysis and the history gave correct indications for the diagnosis; the roentgen-ray instead gave wrong indications as to the location of the ulcer and did not reveal such a large ulcer as the one that was found at the operation. In the second case the gastric analysis and roentgen rays completely misled the physicians, and finally in the third case a competent gastroenterologist had once cured an ulcer of the duodenum that had never existed, and recommended surgical intervention for a recurrence and aggravation of the same phantom ulcer of the duodenum. The gastric analysis, the roentgen rays, and the treatment—ap-

parently successful—had completely misled the physicians who had studied the case.

Case IV was extremely interesting because it proved many of the contentions made in this paper and emphasized, not only the fact that x-ray, lab-



FIG. 1.—Case I. X-ray pictures show a filling defect in the region of the pylorus; the lesion, however, was close to cardias.

oratory analysis, and physical examination may lead to a wrong diagnosis, but because it showed the importance of properly taking the history, *that must give the greatest consideration to the psychic factor in analyzing complaints referred to the digestive organs.* The importance of the psychic factor is confirmed in the case by the fact that Mrs. J. L. is better now because since the operation there has been a better understanding between her and her husband.

In attempting a diagnosis of ulcer of the duodenum and stomach, the history, the physical examination, any method of gastroanalysis, and roentgen rays can mislead the physician, if he does not take *the psychic factor into consideration.* All psychic troubles do influence the function of the stomach, and when the patient has been treated for some time on account of stomach troubles that were only reflex troubles—as is often the case—he feels convinced and often convinces the physician, that his or her troubles really depend on the stomach, so that the history, if not wisely taken, and the physical examination may lead to false conclusions. The gastric analysis and roentgen-ray investigations are often carried on as if the stomach were a mere bag, where certain chemical and contour changes take place. It is sufficient to mention that the fear of the stomach tube, of the investigations that might reveal serious conditions, the test meal or the barium meal itself, will influence the secretions, the motility, and all the complex functions of the stomach. To understand that unless the psychic factor is taken into serious consideration, sad and frequent mistakes will be made, and that mere reports, even from very competent men, should not be sufficient to allow any physician or surgeon to make a diagnosis of ulcer of the stomach or duodenum in all

cases; these reports should not even be suggestive, because the word "suggestive" in these cases means "misleading." We like to emphasize the fact that the x-rays would greatly facilitate the diagnosis of ulcer of the stomach and duodenum, if instead of relying solely on what is shown on the plates obtained following the routine technique, *the competent radiologist would examine carefully each patient with the fluoroscope and draw his conclusions on what he observes directly on the screen.*

Ulcer of the stomach and duodenum is diagnosed more frequently by the patient himself, less frequently by the general practitioner, still less frequently by the good internist or the gastroenterologist, again less frequently by the experienced surgeon, and finally less frequently yet by the competent, thorough gastroenterologist, such as we understand he should be.

The treatment of ulcer of the stomach and duodenum must be based on a complete understanding of the physiology of the digestive organs, and in altering their normal physiological rapports and functions as little as possible, and any treatment either medical or surgical that will preserve them will be more successful than when these rapports and functions are greatly altered or destroyed.

Patients suffering from ulcer of the stomach and duodenum are treated by general practitioners, internists, gastroenterologists, and surgeons. The most successful is the general practitioner; then in order come the internist, the gastroenterologists, and lastly the surgeon. It is easy to understand the main reason why the surgeon comes last; he is the



FIG. 2.—Case II. Picture shows deformity of the cap, but no lesion was present.

only one who actually sees and feels the ulcer, and is the one who has to tackle the problem of curing an ulcer that really does exist; *his task is more difficult than the treatment of a phantom ulcer, very cleverly diagnosed by the internist.*

It is common to divide the treatment of ulcers of the stomach and duodenum into medical and surgical treatments. Does either treatment remove the real cause? I do believe that no internist, surgeon, or the most enthusiastic local focalist will think that



Fig. 3.—Case III. Shows the same condition as Case II.
Fig. 2.

he does remove the *cause prima*, because the real pathogenesis of ulcer of the stomach and duodenum has yet to be demonstrated. A rational treatment must be based on a complete understanding of the pathology and of the value of each therapeutic means, and obviously this knowledge must be concentrated in the one man who intends to undertake the rational treatment of ulcers of the stomach and of the duodenum. Does any such man exist to-day? We have many gastroenterologists who are very competent diagnosticians, and who are supposed to be what is commonly called stomach specialists. But, may I ask, what kind of specialist is the gastroenterologist who refers his most difficult and stubborn cases to the surgeon? Don't you think it sounds rather awkward to be called a specialist along a certain line, which means that the specialist should have the ability to deal thoroughly with the most difficult problems that concern his specialty, when this qualification is applied to the gastroenterologist? A gastroenterologist is consulted by a patient who is studied carefully by him. This patient has an ulcer of the stomach or of the duodenum. The gastroenterologist starts an internal treatment which lasts some time. The patient is not improved or his condition grows worse. What does the gastroenterologist, the specialist, do? He refers the patient to the surgeon. His talk to the patient is not literally, but certainly sounds like this: "I am a stomach specialist, I am one of the most competent, if not the most competent, gastroenterologists, but the condition of your ulcer is such

that I, although a specialist in this branch, cannot do anything personally, but advise you to go to a mere surgeon, who does not know as much as I do about stomach troubles, but, anyhow, will cure you."

I would like to ask gastroenterologists a very plain question: Do you believe that in a certain number of cases of ulcer of the stomach or duodenum surgery of some kind is necessary to effect a cure, or at least an improvement? Either you believe that in certain cases surgery is necessary and then learn how to do it yourselves, or you do not believe in surgery and then do not send any of your patients to the surgeon. I say: do surgery yourselves if you believe in surgery, because when you send your patients to the surgeons you do not know what is being done to them; because the patient acquires the false idea that, after all, surgery is better than medicine; because he thinks he is cured after any kind of surgical operation, no matter what the procedure may be. No surgical operation constitutes the whole treatment in cases of ulcer of the stomach or of the duodenum, no matter what kind of operation or series of operations have been performed, the real *causa prima* is not removed, since in the greater majority of cases this *causa prima* is not known, and mainly because any operation will alter the physiological function of the stomach and intestines. These facts have to be considered, because they are of the utmost importance. The surgeon used to consider cured the patients who recovered from the operation; now the follow-up system has shown that many patients are not cured at all, and some are even much worse than



Fig. 4.—Case IV. The x-ray picture shows an apparent duodenal ulcer that did not exist.

before the operation. We may say that the surgeon is not competent to understand the complete rational treatment of ulcers of the stomach and duodenum; indeed, practically in all cases he refers the patient back to the internist or the gastroenterol-

ogist. But what do the internist and the gastroenterologist know of the new physiology created by the operative procedures? Yes, they admit perhaps that medical treatment must follow each and every surgical intervention, but what kind of medical treatment? Naturally this treatment cannot be the same as that which was used before the operation, because the anatomical relations, shape, size, and function of the digestive organs have changed, and, therefore, the treatment must conform itself to the new conditions created by the operation. Who is competent to judge of all these elements? Obviously not the surgeon, who is not interested in the medical treatment, not the gastroenterologist, who cannot know what changes have taken place. It is evident, therefore, that the real gastroenterologist who wants to undertake the treatment of cases suffering from ulcer of the stomach and duodenum must be



FIG. 5.—Case IV. Showing apparent adhesion in the ceval region that did not exist.

the same man who makes the diagnosis, applies the medical or surgical treatment required in each case, according to the patient's age, sex, and physical, mental, and social condition; the location and duration of the ulcer, and certainty or uncertainty of diagnosis. And when this complete gastroenterologist has been developed, we shall not hear any useless discussion on the antagonistic value of internal and surgical treatment, and have the gastroenterologist point out the mistakes made by the surgeon, and *vice versa*, because valuable time will not be wasted by the real gastroenterologist with stomach tubes and buckets, when the patient has a chronic indurated ulcer, and we shall not see young boys and, girls especially, operated on for duodenal ulcers due to anemic conditions, which can be cured in the greatest majority of cases by proper internal treatment better than by any surgical procedure.

Actual personal experience at the operative table will teach the gastroenterologist many valuable lessons; and we believe that the gastroenterologist of the future must be a competent diagnostician who can judge of the value of each diagnostic means, such as history, physical examination, gastric analysis, and roentgen rays and know how to apply it to each individual case; must have had actual personal experience in applying the rational and complete medical and surgical treatment appropriate to each case; must be able to improve his diagnostic ability by actual visualization of conditions at operation; must follow his cases, and so profit by his own mistakes, which are the only ones that leave a deep impression and teach a valuable lesson.

220 WEST FIFTY-NINTH STREET.

A TECHNIC OF INTRAMUSCULAR (EPIDERMAL) INJECTION

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SO-CALLED intramuscular injection is a procedure technical acquaintance with which is generally taken for granted in therapeutic instructions so that a rehearsal of the steps of the procedure seems correspondingly uncalled for. Observations extending over several years have led me to suspect, however, that this method of administering medication in general, and mercurial preparations in particular, involves certain principles and a degree of manual dexterity for its accomplishment *secundum artem* with which physicians are often unfamiliar. A folder recently issued by a pharmaceutical concern, purporting to describe a satisfactory technic for the intramuscular injection of one of its preparations, seems, at least so far as its illustrations go, to violate the first principles of intramuscular technic. For these reasons the following description of a mode of procedure which has proved serviceable in about 40,000 injections is offered.

My experience with the injection of large quantities of solutions (100 c.c. or more) into the buttocks directed my attention to a phenomenon which suggested that the contents of the so-called intramuscular injection when properly introduced are deposited not within the body of the gluteus maximus or between its fasciculi nor yet within the subcutaneous fat, but in the areolar tissue on the upper surface of the fascia forming the extension of the fascia lata covering the gluteus maximus. A large quantity of fluid when thus injected, instead of forming a tense induration in the body of the muscle or spreading laterally onto the hip and thigh or appearing at the sacral margin, presents promptly at the lower border of the buttock in the gluteal sulcus. The markedly better absorption thus obtained and the freedom from local irritation even on the injection of a highly irritating drug were demonstrated by the work of Wechselmann and Eicke* who advocated this technic for the comparatively painless and uncomplicated administration of arsphenamine intramuscularly. A similar principle may be employed

*Wechselmann and Eicke: Zur Technik und Wirkung subkutaner Neosalvarseninjektionen. *Münch. med. Wochenschr.*, 1914, lxi, 535-538.

in the administration of the mercurial preparations into the tissue of the buttock with equally satisfactory results. The technical detail necessary to achieve this end, and the avoidance of other familiar complications of intramuscular injection such as

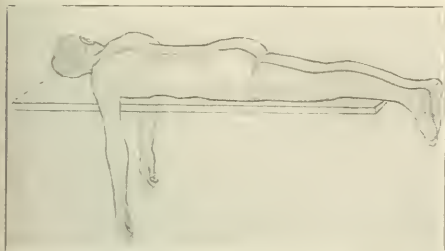


FIG. 1.—Prone position for intramuscular injection, showing arms hanging over the sides of the table to promote relaxation.

deep and superficial infiltrations, embolism, necrosis, and abscess formation, may be briefly described as follows:

1. *The Position of the Patient.*—Injections into the buttock are given to best advantage with the patient lying prone on a table. Other positions induce tenseness of the tissues, which favors leakage of the injected substance along the needle track, makes a careful estimation of the depth of tissue and the placing of the needle difficult, and also makes it difficult to avoid mechanical awkwardness in carrying out the procedure.

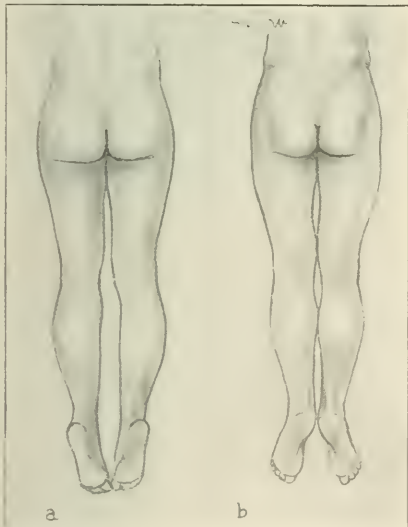


FIG. 2.—a, "Toed in" to show the relaxation of the buttock. b, "Toed out" with the dimpling of the buttock indicative of a tense musculature.

Relaxation after the patient assumes the prone position should be complete. Attention to certain details assists in securing a satisfactory cooperation on this point. The patient should drop his arms

over the side of the table (Fig. 1). His legs should be placed in a position of moderate internal rotation "toed in" (Fig. 2a). The difference in the appearance of the buttock when the patient attempts to keep the heels together is well shown in Figure 2. Dimpling of the lower outer quadrant of the buttock as shown in (b) disturbs the anatomical relations, is a sign of incomplete relaxation, and is the position ordinarily assumed by every patient who fears the introduction of the needle.

2. *Instruments.*—The 2 c.c. glass Luer syringe and three lengths of needles, one for very thin or flabby buttocks; one for medium, and one for fat buttocks are necessary. The aspiration technic described herewith for detecting the presence of a needle in a vein makes possible the use of a smaller gauge needle than that required when the venous pressure alone is depended on to yield a flow of blood from a misplaced needle. My preference is for 22 gauge needles 1.5 inches, 2 inches, and 2.5 inches from the tip of the hub to the point (Fig. 3).

3. *Point of Injection.*—Injections into the buttock should, in general, be given into the upper outer quadrant near its inner angle, approximately at the point indicated by a dot in Figure 4. If the injection is given into the upper part of the outer quad-

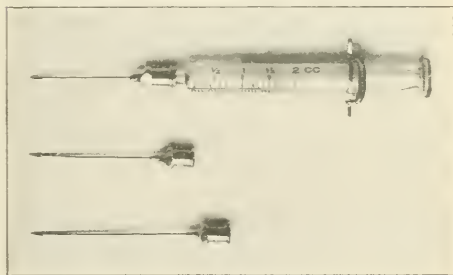


FIG. 3.—All glass Luer syringe with the various sizes of needles used for intramuscular injection.

rant or into the inner quadrant near the sacrum, even a short needle is likely to strike bone, or the injection of the irritant substance above the periosteum or about the roots of the sacral plexus will give rise to induration and pain, and may, as Neisser points out, induce an obstinate sciatica. Injections given into either of the lower quadrants are subject to pressure on sitting, and are correspondingly painful. If administered near the great sciatic nerve a neuritis may result. Such injections, moreover, cannot be deposited on the fascia with the exactitude possible in the upper outer quadrant, and for this reason are likely to give rise either to superficial nodule formation, abscesses, or deep firm indurations.

4. *Technic of Injection.*—The syringe and needle may be sterilized with alcohol. The alcohol should be thoroughly expelled from the syringe and the needle wiped with sterile cotton moistened with alcohol. The emulsion is then aspirated into the syringe through the needle which has been previously attached, and the needle is again wiped. The syringe is grasped in the right hand (Fig. 5). The left hand is placed flat on the buttock and with moderate pressure is drawn firmly downward toward the

patient's heel, thus flattening and fixing the tissues (Fig. 6). The syringe is introduced to its full length by a quick stroke at an angle of approximately twenty degrees from the vertical in a sagittal plane, with a slight inclination inward (Fig. 7).

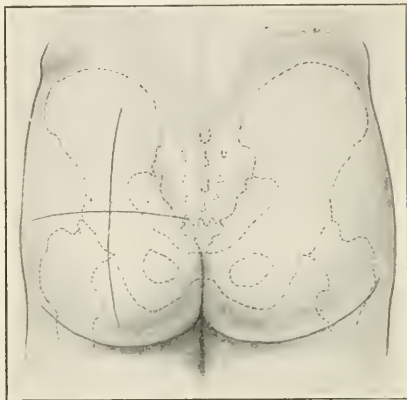


FIG. 4.—Outline of the buttock and pelvic bones illustrating (black dot) the point in the upper outer quadrant, about which injections may be made to the best advantage.

The removal of the left hand slightly increases the slant of the syringe. During the process of introducing the needle the piston must be controlled by the pressure of the index finger against it above the barrel, to prevent the leaking of a solution or thin emulsion.

5. *Testing for the Presence of the Needle in a Blood Vessel.*—As soon as the needle is introduced the syringe is steadied with the left hand while an attempt is made to aspirate by pulling upward on the piston with the right hand (Fig. 8). This at-

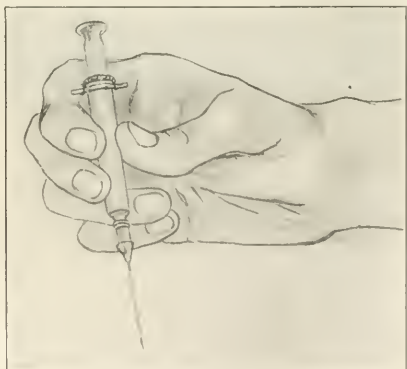


FIG. 5.—Right hand holding the syringe.

tempt should be continued for at least ten seconds. This in my experience is an entirely safe and much more trustworthy method of detecting puncture of a deep vein or capillary than is the mere detaching of the syringe or the introduction of an empty

needle in the expectation that the pressure of the blood in a capillary vessel will cause a backflow of emulsion or of blood, as the case may be. I have never seen an accident of any type occur if the aspiration step in the technic was rigidly adhered to. As soon as it appears that nothing can be aspirated from the deep tissue about the needle point, the contents of the syringe may be injected (Fig. 9), the right hand maintaining the proper angle of the needle.

It is not necessary in this technic to use a sign, such as Wechselmann's torsion sign, for demonstrating that the needle point is near or on the fascia. The site of the injection, the length of the needle when properly adapted to the type of buttock, the fixation of the tissue with the left hand, and the position of the syringe when introduced soon become matters of habit and seem to place the injected material in such a way that induration is a very unusual occurrence. The flow of injected material into

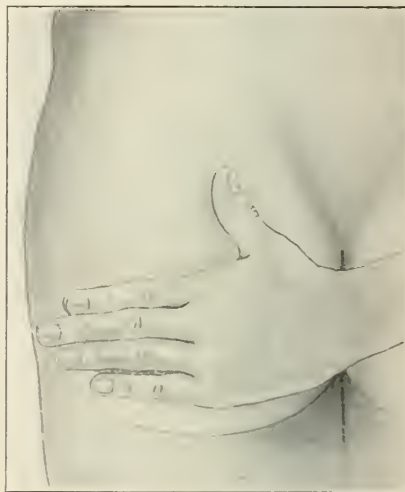


FIG. 6.—Left hand drawing down the buttock.

the tissue should be free and the needle point should not "feel" as if stuck in a board. A little experience soon enables one to control the technic by recognizing the deep, painful lemon or orange sized induration that has followed on too deep injection (intramuscular) and the hazel-nut to hickory-nut sized nodule in the skin or panniculus secondary to too superficial injection or to leakage along the needle track.

Deposition of injected material along the needle track is avoided; first, by securing complete relaxation; second, by using a small caliber needle; third, by completely emptying the syringe before withdrawal; fourth, by a rapid withdrawal; fifth, by quickly pushing the tissues which have been drawn downward by the left hand back to their normal position like a sliding valve the moment the needle is withdrawn; and sixth, by light massage with a cotton pledget over the site of puncture which results in a rapid flattening out of the injection mass in the

areolar tissues over the fascia (Fig. 10). In buttocks which have been rendered fibrous by repeated courses of intramuscular injections, leakage cannot be prevented, and the intramuscular injections must ultimately be abandoned.

Attention to several additional details materially contributes to a uniformly satisfactory technic. It goes without saying that the buttocks should be used in alternation for injection. Needle points should be of a rather long bevel and exceedingly sharp. The use of a needle with a turned point is very painful. In wiping the needle a turned point can be detected by a grating sound and feel as it passes over the cotton, often when it is scarcely visible. The operator may unconsciously turn the point of his needle by touching it against the bottom of his bottle of emulsion or solution when filling the syringe. For this reason every movement of the needle should be carefully controlled and it should never be brought into contact with hard substances. A needle which

If a Needle Breaks.—First, do not exclaim or discuss the situation with the patient or the nurse; second, keep the left hand in position until an attempt can be made to recover the needle. The usual point of fracture is at the juncture of the hub and shaft

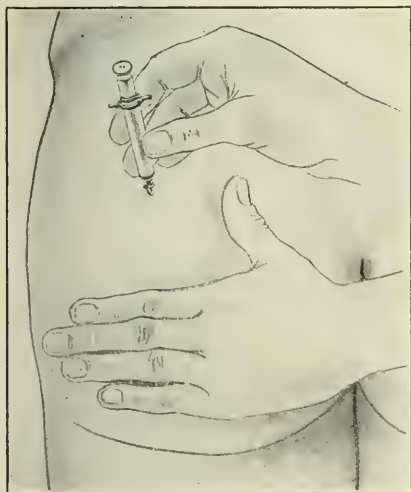


FIG. 7.—Introduction of the syringe.

has been allowed to become rusty, corroded, or pitted will also bring a protest from the patient.

The breaking of a needle is one of the most unpleasant complications of intramuscular injection and may be due first, to an incorrectly placed puncture which causes the needle to strike on bone, fracturing it at some point along the shaft; second, to a sudden movement on the part of the patient, especially if the point is caught in the fascia or lies in the muscle, and third, to weakening of the needle by internal or external corrosion. The first cause seldom operates except as a result of gross misjudgment. The second can usually be avoided by an effort to secure the cooperation of the patient and by guarding against sudden movement in those in whom cooperation cannot be expected (children for example). The third cause can be controlled by frequent inspection of needles with a forcible attempt to bend the shaft on the hub. If a steel needle is used for corrosive solutions, its life will be short and inspection must be frequent and critical.



FIG. 8.—Aspiration to test for the presence of the needle in a vein.

and with an assistant at hand the fragment just beneath the skin may sometimes be recovered by a small incision and with the aid of a hemostat if the

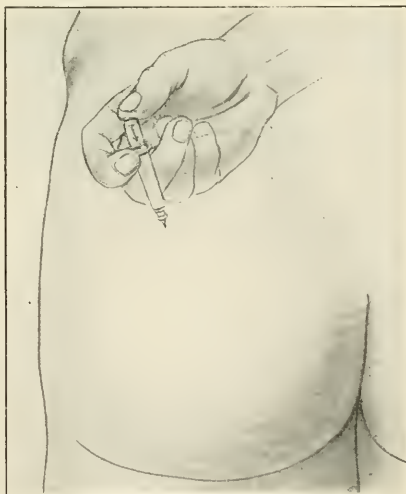


FIG. 9.—Injection; the emulsion or solution should flow in freely and not have to be forced.

operator keeps his presence of mind. On the other hand, the moment the left hand is released from the buttock the needle is lost and can usually only be identified by the roentgen ray and removed through an extensive surgical incision. Such situations are

so embarrassing that the finest types of steel and tempered gold needles should be used for intramuscular work.

In the use of insoluble suspensions for intramuscular injection a word of caution as to the preparation of the suspension is important. Concentrated suspensions requiring small amounts for each injection are often less painful than thin suspensions. An insoluble preparation made up in a fluid base, settles rapidly and the collected powder can only be returned to suspension by from five to twenty minutes persistent vigorous shaking, and kept in suspension by shaking after each injection. The suspension may appear entirely homogeneous when a considerable portion of the solid material still adheres to the bottom of the bottle. A satisfactory test of complete suspension consists of shaking until none of the suspension can be recognized in the groove at the juncture of the sides and bottom of the bottle when the bottle is inverted.



FIG. 10.—On release of the left hand the tissues of the buttock return to their normal position, producing a valvular action. The emulsion is spread out in the epifascial tissue and leakage prevented by massage with a cotton pledget.

6. *Treatment of Complications.*—If blood is obtained on aspiration after the introduction of the syringe, even in the minutest amount, the syringe should be withdrawn and the procedure repeated 1 cm. or more from the site of the unsuccessful attempt. To continue the injection in the face of a return of blood or even a tinged suspension may be attended by fatal consequences from embolism.

Superficial indurations or nodules may be treated by painting them once or twice a week with iodine and requesting the patient to pinch and massage them between the thumb and forefinger. Deep indurations attended with pain from injection below the fascia are much relieved by prolonged hot applications and massage. Indurations seem to occur with special frequency in certain subjects, especially the obese, and are sometimes unavoidable even with the best technic. Each node represents a certain amount of encapsulated mercury which may be

abruptly released for absorption by trifling trauma such as that of sitting down more heavily than usually. The sudden onset of salivation in patients who have not had intramuscular injections of insoluble mercurial salts for a considerable period may be to some extent a result of technical errors which have interfered with absorption. There can be no object in continuing a method of administration in which persistent nodule formation, even with a careful technic, shows that the drug does not absorb.

Pain referred down the leg has always in my experience been evidence of the technical error of injecting too deep or too near the sacral plexus and the great sciatic nerve.

Pulmonary embolism following the use of insoluble salts, such as mercury salicylate, calomel, and gray oil, probably cannot be absolutely avoided but should be an excessively rare occurrence. The symptoms of pulmonary embolism may vary from a slight and transient cough after the patient rises from the table to evidences of extensive pulmonary infraction with severe and persistent cough, rise of temperature, pleural irritation, and occasional pneumonic complications. Pulmonary embolism may occasionally supervene some hours after an injection made in accordance with the strictest technical exactness. Cerebral embolism is exceedingly rare.

Abscess formation I have seen only twice in 40,000 injections. The abscess is usually sterile and resolves promptly on evacuation. A certain percentage of deep indurations doubtless undergo central softening, but under rest and hot dressings the process subsides.

BACKACHE.

A CONSIDERATION OF LOW BACK PAIN OF A MILD TYPE.*

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NEW YORK.

ORTHOPEDIC CHIEF, MOUNT SINAI DISPENSARY AND BRONX HOSPITAL.

FORTY years ago the plaster-of-paris jacket treatment of spinal diseases and deformities had been firmly established by the late Lewis A. Sayre. The jacket has since received much criticism; it remains to-day, however, the sheet-anchor for spinal injuries and inflammations. Still there exists in many minds the fear that patients and their doctors express, "that they are heavy, and they interfere with breathing." This can be answered in a satisfactory manner. We have learned to avoid many mistakes of commission and omission in their application, as well as in the selection of suitable cases for their use. The plaster room is one of the busiest spots in any orthopedic dispensary or clinic. We have learned to instruct parents or attendants in the art of keeping the skin clean and free from accidentally dropped crumbs, coins, keys, etc.; the use of suitable felt for padding, over spinous processes or bony points is a small detail carefully watched over by trained attendants, so that we are no longer surprised to see instances, where the appliance has been worn for one or two years, with entire comfort. With experience has come better judgment in the removal of jackets at the proper time, to be replaced by light braces. The use of such adjuncts as the jury-mast and the shoulder straps, and the in-

*Paper read before the New York Physicians' Association, November 23, 1920.

vention of ingenious apparatus to facilitate the process of applying them, are all evidences of progress in a fertile field. We make them thinner and stronger, and we ventilate them better than we did a decade ago.



FIG. 1.—Spöndylitis deformans.

All this is intended as a preface for a discussion of some comparatively mild cases of pain in the lower back in adults, and in whom plaster-of-paris jackets are measures of prime importance in the relief of pain.

Mild cases of traumatic spondylitis are often seen, the result of blows on the back, or falls, more or less severe. A few days' rest in bed is followed by a period comparatively free from pain. A few months later, in the same locality, the patient experiences a sudden shock or darting pain in the lumbar or dorsal region. This recurrence is dated definitely to a time when he was bending forward at his work or lifting some heavy weight. Shortly after this a small gibbus appears, looking like that of Pott's disease. Here we have a post-traumatic softening of part of a vertebra, not by the tubercle bacillus, as the cause of the disability. If a demonstrable injury to a vertebral body is present, a plaster jacket, with or without extension and counter-extension, is an excellent method of treatment. A transverse process fracture, or an isolated spinous process fracture can be treated by strapping and a period of rest.

There is a class of infectious arthritides of the spine which I would have you consider. Their duration is short, they are common in the lumbar region, and they are often accompanied by a peculiar lateral deformity, or sidewise list of the trunk. They might be classed as chronic lumbago, but are most likely to be called "sacroiliac," because the word sounds good. These patients suffer from sharp pain in the back, in the buttocks, and down one or the other sciatic nerve. Medication does them no good, and perineural or epidural injections are vain procedures, as the patients will tell you. Some of the x-ray plates will bring out the reason why plaster jackets relieve and cure them very promptly. From the iliac crests downward these patients look symmetrical, but one side of the pelvis appears to be much larger than the other, the fact being that the

trunk has shifted laterally upon the last lumbar vertebra. In some we see destruction of part of the body of this fifth lumbar. In others the affection consists of an atrophic process in the intervertebral disc, with or without adhesions and ankylosis. Without support these patients suffer from a series of recurrent attacks of backache, due to an infectious arthritis.

Mention must be made of another type of spondylitis that is diffuse, progressive, polyarticular, and eventuates in the bow-back or poker-back deformity. In the early stage of this crippling affection, a jacket is indispensable to straighten out the distressing bend in the spine. Some of the cases are hereditary, some of them are traceable to gonorrheal urethritis, and a large percentage of older patients present an osteoarthritis, essentially senile in nature.

Two French authors, Lance and Jaubert, have described a number of interesting cases of a familiar, rigid form in soldiers. Six out of their eighteen cases suffered from tuberculosis of the lungs, or from testicular tuberculosis, while one had been sent to their Alpine Hospital for grave anemia. I have seen a number of cases that could be definitely traced to the toxins of infection from softened tuberculous lesions.

When trauma occurs, or is ascribed as the direct cause, it can be shown by an x-ray plate; the loosening of a little spicule, or adhesion at the margins of one of these vertebrae, can be demonstrated. This differentiation is often a matter for wise judgment in courts of compensation.

Backaches are said to be occasionally due to impingement of the lateral processes of fifth lumbar upon the adjacent iliac bones; without stereoscopic plates, carefully studied, these shadows overlap and



FIG. 2.—Senile spondylitis.

lead some surgeons to operate. I believe that the postoperative rest that must follow after such an ordeal cures the patient; it is to be hoped that these excisions will be less frequent.

The sacroiliac joint is often complained of by

women, whose spondyroses have separated during pregnancy; I maintain that the requirements of such a diagnosis include: first, a confirmatory x-ray plate; second, a full measure of relief by the application of a plaster spica, or a sacroiliac belt. So many diagnostic sins are committed in the name of this interesting joint! A traumatic separation of this articulation is possible, but rare. To illustrate: A medical acquaintance, 6 feet tall, and weighing 250 lbs., tried to lift a calf out of a gully into which the creature had wandered and became wedged. He braced himself with one foot on either bank, and pulled; the calf did not budge, but his right sacroiliac joint did; the doctor was in bed for six weeks, and required a plaster-of-paris spica for a long time afterwards. A third-class of lesions of the sacroiliac articulation comprises those of bone or joint disease, and I hold that it is permissible to establish the diagnosis only when the x-ray or an incision demonstrates them. An interesting case was seen recently. A man of 36 complained of sudden pain just above the hip, and radiating into the sacroiliac joint. He noticed it first while exercising. This case proved to be a sarcoma of the iliac bone, and the man died in three months from metastasis in the dorsal spine. It was difficult to exclude myeloma until the examination for Bence-Jones albumose was found to be negative. Although the Wassermann test had once been positive, treatment had no effect whatever.

Needless to mention, all cases of backache should be examined as to their stature and gait, all clothing being removed; then one should invariably test the mobility of the spine. Other elementary essentials are tests of the nervous and urinary systems, thoracic, abdominal and pelvic organs; the teeth should be inspected, as well as the upper respiratory passages. It is well to scrutinize carefully the hips, knees, feet, and hands. The feet may be deformed or flat; the hands may show the telltale evidences of osteoarthritis or gout. When in doubt, do *not* "use potassium iodide," but order x-ray plates of the spine, complete examinations of the blood, and a survey of the endocrine gland system. Occasionally one finds the need of doing all these things twice, for even the gynecologist and the proctologist are not infallible.

In closing this impressionistic survey of some of the milder forms of backache that belong to the

1. Memories of a wood-cut of a man with the blues, stooping forward with one hand on his back; a look of anguish is on his brow, advertising pink kidney pills in a yellow journal.

2. Woman, ditto, advertising a pink vegetable potion, 14 per cent. alcoholic content. Form letters sent free to all who write for advice to a nice old lady, long deceased.

3. Articles, without wood-cuts, next pure reading matter, full column, released by high-priced advertising agencies, laden with glittering generalities about the awful effects of spinal displacements, and their wonderful cure "by adjustment."

4. The science stage—no advertising, but spread by word of mouth at experience meetings. Symptoms are related with much gusto and in great detail. Patient herself holds the stage, including the spot-light.

6. Furnish to suit; the assortment is large.

7. Let us hope that the seventh age will last as long as the civilized world endures, that it may have for its slogan, "See your doctor first." For then the family medical adviser will meet the requirements of a safe and sane diagnosis, and institute logical treatment based thereon.

15 WEST FORTY-FOURTH STREET.

CASE OF SYPHILITIC DACTYLITIS, WITH X-RAY FINDINGS.

BY JOSEF SEILIN, M.D.,

CHICAGO, ILL.

PATHOLOGIST, LAKE VIEW HOSPITAL.

K. J., colored, age 22, single, laundress, consulted me December 1, 1920, for pain and swelling in the right thumb of about a week's standing. She stated that her mother had had several living children, several miscarriages, and a still-birth. Her own past history showed her to have been in fair health, having had the usual diseases of childhood and no other serious illnesses. However, on questioning, she admitted the possibility of venereal infection. She also had had nocturnal headaches, tibial bone pains, and shortness of breath, with oppressive sensations beneath the sternum on exertion.

Examination gave the following data: Well-nourished, well-built female, palpable glands in the posterior cervical region on both sides and with epi-



December 1

December 10

December 17

December 25

December 29

domain of the orthopedist, may I not recall seven stages of the popular beliefs in regard to backache cures? They are the consequence of a habit of reading all of the newspaper, including the advertisements.

trochlear glands on both sides, the axillary glands were small but palpable; the inguinals large on both sides. Mouth negative; chest negative except for heart findings as follows: enlargement of left ventricle, loud systolic and diastolic murmur in aortic

area, and an arrhythmia which on closer investigation proved to be a partial heart block with an occasional ventricular extrasystole. The ascending and transverse aorta were markedly dilated. Abdomen was negative. The tibiae had palpable nodules on the crests. Reflexes and sensation tests negative. The right thumb was swollen on the volar aspect at the interphalangeal joint and slightly red. It was extremely tender, painful on motion, and also hurt somewhat even at rest. Urine negative. Routine blood negative. Wassermann of blood positive. An x-ray picture of the thumb showed a proliferative periostitis on the volar aspect of the interphalangeal joint. The bony nodules seemed to be deposited in the synovial sheaths and tendons besides the periosteum itself. The series of pictures reproduced show the condition at beginning of and during treatment. She was put on ascending doses of potassium iodide and mercury protiodide by mouth. The pain and tenderness disappeared in about five days, and the swelling gradually went away in the course of a month. The x-ray pictures were made on the following dates and show the changes in the bony deposits: December 1, 10, 17, 25, and 29, on which date the joint looked practically normal.

4420 CLARENDON AVENUE.

PHYSICAL THERAPEUTICS IN NEW YORK HOSPITALS.

By A. B. HIRSH, M.D.,

NEW YORK.

ONE of the notable changes in the attitude of the medical profession since the recent war is the growing tendency to add physical methods to its other means of treatment, an advance that applies with especial interest to practitioners in North America. Information from various sources shows a widespread awakening in this direction. True it is that in former years some few confrères, in scattered localities, did employ various physical modalities or, if not trained in their use, would for this purpose send patients to non-medical persons with more or less knowledge of this or that phase of the subject. But the interest of doctors, as to its importance, was usually aroused only as some one physical method affected their particular field of practice. Fulguration of intravesical neoplasms by the urologist is an instance.

It was probably only lack of opportunity to obtain accurate data and training in this branch of rational therapeutics that had until recently created a feeling of indifference, if not of mild antagonism, for it within professional ranks generally. Curiously, what seemed inconsistent in leading practitioners here was the fact that they had for years been referring seriously ill patients to European spas and specialists; then, when such patients returned much improved or cured, following resort to certain physical means, little or no effort was made to introduce the latter on this side of the Atlantic. Farsighted men have often given voice in protest at this attitude. "The physician who simply cures his patient without giving heed to the functional result obtained or to the future employment of the individual is falling short of his duty," in the opinion of Mock,¹ who also holds that "Physicians . . .

who, by careless methods, such as leaving the after-care of their patients to untrained assistants, persist in turning out injured workmen with permanent handicaps—such physicians must be reeducated or in some way barred from the practice of medicine."

There is no denying that American physicians, broadly speaking, in the absence of the subject from the medical school curriculum, had in prewar days been rather slow to realize the value of physical treatment measures. Because of such tardy recognition we are far behind our continental European brethren whose facilities in this direction have for decades been systematically utilized.* Not that pioneers to advocate adoption of these necessary treatment adjuncts were lacking; indeed, quite the contrary was the case as the medical schools were often called on to include teaching of these branches. But while undergraduate instruction, as is well known, had steadily advanced in standard within the past generation there seemed to be no room for introduction of physiotherapy in the curriculum.

On the other hand, the thirty years' efforts of the American Electrotherapeutic Association and its organ, *The American Journal of Electrotherapeutics and Radiology*, had done much in Canada and the United States to prepare the way to a more progressive view of the matter. Included in these efforts was application of the Roentgen ray to malignant conditions and dermatology which, starting in the first decade of this century, had further served to arouse curiosity among physicians as to additional physical treatment methods.²

It was the strikingly favorable results achieved in the physiotherapy service of war hospitals, however, when directed by experts, that made their permanent impression on (a) the many civilian practitioners who were officers, stationed at these large centers, and (b) the thousands of patients so benefited who together carried the news to all sections. Success was the rule with a great variety of serious conditions, usually chronic, medical as well as surgical, following the military life.³ To remove a seemingly permanent eye traumatism with accompanying mental hebetude by the direct current; to see an old empyema clear up under diathermy⁴ after repeated operative failures; to end a distressing paroxysm of asthma by three minutes of static effluve; to build up defective muscle action progressively by the sinusoidal current; to fill out tuberculous and other extensive surface ulceration by the ultraviolet ray after ineffective resort to other therapeutics; to stimulate subnormal metabolism by autocondensation, the static wave, diathermy, and the ultraviolet ray; to remove longstanding osteomyelitis and osseous non-union by diathermy with ample outpouring of osteoblasts⁵; these were but a few of the many convincing lessons taught. That medical officers often came themselves or sent members of their families for treatment will serve to illustrate the confidence inspired. It was this revelation that within two years had

*There is an extensive literature on the subject in most modern languages. International Congresses on Physical Therapeutics have been held at stated intervals—the first one since the war, in September last, at Antwerp. The proceedings at these meetings are always of high standard and its participants usually eminent scientists.

brought about, in the desire for progress in treatment, ideas that are epochal.

A factor of lesser importance in causing this change of view is a frank recognition of the situation that the public itself, no longer satisfied with mere prescription writing, surgery, etc., and insistent on physical applications with which but few medical graduates are acquainted, flock in considerable numbers to the various new cults—to the detriment, of course, of the ethical medical practitioner.*

It is of good promise, therefore, that the old-time professional prejudice fades gradually as physiotherapy, the collective term for the various methods discussed, is permanently established in the armamentarium.

Such physical measures are here implied to include treatment, under modern technic, by manipulation, exercise, water, heat, light rays of various kinds, electricity, mechanical apparatus, special games, and training in selective occupations. The day of empiricism in their application may be said to have passed, and their various indications in disease and injury are, as a rule, supported by laboratory tests, by standardization of apparatus, and by continually improving technic. Some of these measures have, of course, been given by adepts, according to one system or another, since the dawn of modern civilization. One need but mention, as instances, the jiu jitsu of Japan, massage and curative movements in Scandinavia, medical baths throughout Europe, etc. The recognized medical profession has for generations given its approval to these rational modes of treatment—more especially so, those abroad. What had, however, usually been lacking—at least, so far as concerned American practice—was a coordination of all of the established physical measures with each other and with treatment in general. What must be stressed is the fact that it was this important coordination that was brought about in some of the larger war hospitals, under direction of certain medical officers who for many years had restricted their civilian practice to this field.⁴

This is not the place to go into details of the various physical modalities, their indications in accident and illness, or their mode of application; the ground to be covered would be too vast for even a series of journal articles. Those interested may find dependable textbooks in the lists of leading medical publishers. There is unfortunately not as yet a comprehensive work in English dealing with the entire subject, although a series of manuals on *Physiologic Therapeutics*, edited by Solis-Cohen some twenty years ago, was a laudable effort in this direction.

Whether used apart or as an adjunct to older remedies, physiotherapy is daily being successfully

*The sudden large demand for the specialized apparatus needed for physiotherapy in war hospitals forced quick expansion of manufacturing plants that, to utilize their broadened facilities, in post-bellum days advertise extensively and urge doctors to use these appliances for various demands of every day practice. This, also, by repetition helps to spread a knowledge of the physical treatment methods. One of the world's greatest electrical manufacturing corporations has lately entered this field of commercial enterprise, a further indication of the probable increasing call by the medical profession for this class of products.

applied to the whole range of disease and injury, acute as well as chronic, and often where other means utterly fail. It is this fact that must be grasped by the entire profession.⁷ In New York, for example, it grows constantly in favor at the Manhattan State Hospital with its 6,000 cases of mental disease; likewise, for the patients who are usually aged or else worn in the industries, at the Montefiore Home; for the great variety of sickness and accident met among seafaring people in the U. S. Naval Hospital, and for the crippled and sick war veterans in Fox Hills and Polyclinic Hospitals.

Progressive specialists are well aware of its value and growing importance, and each specialty appropriates some one or more of its modalities, previously tried out by the pioneer physiotherapist.

The chief obstacle now preventing a more rapid spread of knowledge on physiotherapy here is the insufficient number of teaching courses available, either for the undergraduate or the full-fledged practitioner. Abroad, in addition to the lectureship at Oxford, professorships of physical therapeutics have been founded in the Universities of Ghent, Bordeaux, and Madrid. In Canada courses on the subject are given at Hart House, Toronto, and at McGill University. In the United States, according to information at hand, instruction is given in physical methods in Boston at City Hospital, at Harvard and at the Children's Hospital; and similar courses are given to New York undergraduates at the Montefiore Home; also, at the Jefferson and the University medical schools in Philadelphia. It is announced that physiotherapy is to be regularly included in the medical curriculum at the University of Indiana.

In the way of institutional postgraduate study courses, however, but little is as yet obtainable here; private instruction is the only resource at present. Ultimately hospital facilities must be at hand for the larger groups of physicians who are sure soon to find it necessary to add this knowledge to their other attainments. And for this end the hospitals of the metropolis, the main graduate teaching center of the country, must furnish the clinical and other needs. But where are the physicians to be found at present capable of giving this coordinated instruction?⁸ How soon will the great hospitals in New York be prepared to furnish these necessary physical treatment facilities for patients generally? Do their authorities realize that a nationwide agitation for introduction of a physiotherapy service is being carried on by American medical leaders—and what better opinion than that of Dr. Frank Billings who, during the war, was

*Just as in the war hospitals, the demands for physiotherapy for similar civilian institutions call for full-time, salaried medical directors with previous experience in the various phases of the subject. In this connection, an unusual opportunity to obtain such skilled men was missed when the advice of Cotton was neglected in February last. (Vide "The Need for War-Trained Physiotherapy Experts in the Hospital," by Frederic J. Cotton, M. D., Formerly Surgeon-in-Chief U. S. Army General Hospital No. 10, *Modern Hospital*, Feb., 1920, p. 101; also, the editorial, p. 119, on "Physiotherapy in the Hospital an Outcome of the War.") In this appeal the eminent New England surgeon urged that the specially trained physicians, then leaving army duty as provisional hospitals closed, be promptly engaged because of their extensive clinical physiotherapy service.

[illegible]

*Information supplied by a member of the visiting staff. At other institutions above data was given and all apparatus shown the writer by either the superintendent or by an interne or member of the staff, at the request of the superintendent. The plus-mark signifies that the method printed at the head of the column is utilized by the hospital named at the left-hand end of the horizontal line.

head of the Division of Reconstruction under the Surgeon General of the Army? Dr. Billings maintains that every hospital needs a physiotherapy department just as much as an operating room. The orthopedist's viewpoint has been given quite lately by Mock,⁶ also formerly active in the Army, who insists that "Inadequate medical and surgical care has been responsible for an appalling number of permanently handicapped individuals. . . . The knowledge that more than three times as many men and women were being disabled annually in industry as were disabled in our entire army has awakened the nation's conscience to the need of rehabilitating these unfortunates and of preventing such a casualty list. . . . Patients are discharged to convalesce outside to make room for more acute cases. . . . The lack of proper care during this stage of recovery often causes a relapse with re-

turn to the hospital, with all the needless economic loss which such a system incurs . . . physiotherapy departments in the hospitals with facilities for baking stiffened joints or contracting scars, or facilities for hydrotherapy and massage given daily will prevent many permanent deformities and will hasten recovery." Both Billings and Meek, among many others, thus voice the experience of practitioners familiar with the subject that a well-rounded physiotherapy service, separate from but on an absolute equality with each other department, is absolutely indispensable for any hospital claiming to be modern.

To study the local situation in this respect visits were paid to fifty hospitals throughout New York City, and five of these were found to have fairly complete arrangements for physiotherapy. The information thus obtained was then tabulated so as

to list the separate kinds of treatment in parallel columns, saving much needless description.

The results, as shown in the accompanying table, proved to be encouraging in prospect even if a little disappointing in number of institutions aroused to the importance of the subject. The brighter side of the outlook for advance in this direction is seen in the outfits, in daily use, in the larger hospitals. Even if some of the latter do lack important kinds of apparatus and, too, even if those in charge (because uninformed as to its proper use and value) do oppose its introduction, the fact remains that unmistakable progress has been made. Addition of a complete department of this kind is noted as a feature of almost all new hospitals planned to be erected. The authorities of several other large hospitals, now in operation, are at this time busy with the problem of installing such a service. With these advances assured, there can be no question but that all others must follow the precedent established. And with New York hospitals thus equipped, equal or superior to the best European standards, those elsewhere must follow suite, and thus a great betterment in treatment become permanent.

CONCLUSIONS.

1. Physical treatment methods, long viewed askance by the medical profession, are now regarded as essentials in practice. America has fallen behind Europe in their introduction.

2. The number of these physical modalities is a growing one, research study supporting their original empiric use, and their application is to the whole range of disease and injury.

3. Proper use of such agents calls for as well-rounded training as for any other special division of practice. Non-medical persons should apply such various agents when under direction of physicians recognized as authorities in this field.

4. Undergraduate instruction on the subject, at present found in a few centers, must soon be included in the curriculum of all medical schools. Postgraduate courses, now given only by private individuals, should become part of the work of hospitals everywhere.

5. Hospitals lacking physical treatment facilities, in charge of full-time medical directors, fail to give proper service to patients and can no longer be considered as modern. Some hospitals in New York have made a fair start in the new direction, but active propaganda may be needed to make medical staffs and directorates in general realize the urgent need for introducing these indispensable measures.

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71 WEST NINETY-FOURTH STREET.

Bhang Smokers.—Briand and Livet have studied the Indian hemp smokers of Mauritius and generally speaking find them not different from the consumers of hashish. The *bhang* of the Anglo-Indian is known as *ganidin* by the French. The effects of cannabis among the Mauritians is comparable to that of alcohol in inciting to crimes of violence. Among the hemp consumers are found smokers, eaters, and hypodermists. The pipe used is especially designed for the purpose, being made of terra cotta with an opening for the stem close to the base.—*Le Bulletin Médical*.

HOW MAY WE REDUCE THE MORTALITY IN APPENDICITIS?*

By MAURICE KAHN, M.D., F.A.C.S.,
LOS ANGELES, CAL.

It is with a certain diffidence that I bring to your attention the subject of appendicitis which may seem to some too trite to merit discussion; but until the blemish is removed from our reproachful statistics, just so long is it necessary to call attention to the causes responsible for the results obtained, that the honor of surgery be not traduced.

Paterson¹ gives the mortality of appendicitis in the London hospitals at at least 10 per cent., and probably nearer 20 per cent. Murphy² gives the average hospital mortality in appendicitis as a little over 10 per cent. These figures are taken from the printed annual reports of hospitals which are progressive enough to publish reports. So it is safe to assert that the actual mortality in this country is much higher.

Kakels³ quotes De Quervain as follows: 1,723 cases operated upon on the first day of illness with mortality of 0.69 per cent.; 1,389 cases on the second day, 4.7 per cent.; 788 cases on the third day, 10.7 per cent.; 1,197 cases on the fourth and following days, 21.2 per cent.; giving a total of 5,097 cases with average mortality of 8.1 per cent. In the last two groups the patients reached the surgeon much too late, and doubtless some in the second group could have been diagnosed earlier than they were. At any rate, there should be no third and fourth days of appendicitis, so at the least calculation, 1,985 out of 5,097 cases were late or mishandled cases.

Kakels³ also quotes Van Arx as reporting: 162 cases without perforation, 1 death, 0.62 per cent. mortality; 70 cases with localized abscess, 10 deaths, 14.25 per cent. mortality; 58 cases with general peritonitis, 31 deaths, 53 per cent. mortality. Here we have 128 neglected cases out of 290, or 44 per cent.

Turner⁴ states that 40 per cent. of his cases reach him when the inflammation is no longer limited to the neighborhood of the appendix.

Wood⁵ reports 221 cases, with a mortality of 5.88 per cent. There were 90 cases without peritoneal involvement without a death, 10 abscess cases without a death, 121 cases with peritoneal infection with a mortality of 10.74 per cent.

Morf⁶ recently reported a series of 822 cases operated on by the staff at Cook County Hospital, with a mortality of 58, or 7 per cent. There were 266 cases with abscess and 26 cases of diffuse or general peritonitis, making 292 tardy cases, or 35 per cent.

My own series of 307 cases show practically the same proportion of late cases; in fact, it was this large percentage of advanced cases in my own practice that prompted me to investigate the experience of other surgeons. Ninety-three were acute, average time since onset, 24 hours, no deaths; 19 local peritonitis, 30 hours, no deaths; 74 gangrenous, 38 hours, no deaths; 35 diffuse peritonitis, 3½ days, 6 deaths; 86 abscess, 4½ days, 3 deaths. One hundred of these patients gave a history of hav-

ing had one or more previous attacks. That is to say, one-third of the patients comprising this series required repeated warnings before consenting to operation. Practically 40 per cent. are late cases, indicating that in 40 per cent. some one blundered—the patient, a relative or friend, or the doctor who first saw the patient.

These figures are appalling and in contemplating them one's first thought is apt to be one of incredulity; or if one be not actually incredulous, perhaps the statistics are thought to be gathered from communities in which men of mediocre attainments are practising. Or again, one may be consoled with the specious notion that an analysis of his own cases would not disclose any such dissatisfying picture. We are all too prone, I think, to dismiss the subject with the satisfied feeling that we are doing all that is required. But so long as 10 per cent. mortality or higher exists, we are manifestly not doing our full duty. Is surgery at fault? By comparing the figures it is noted that practically all cases operated on in the first twenty-four hours recover; but the mortality rises progressively after that time. So the conclusion is forced on one that surgery is not culpable, but acquits herself creditably if given a fair field. Procrastination which permits cases to develop complications is the cause of death in this disease. One may state, indeed, that a case of appendicitis that has progressed to the stage of abscess formation indicates that some one has mismanaged. Knowing then as we do that scarcely one out of a hundred cases of acute appendicitis operated on during the first twenty-four hours is lost, it becomes important, in order to reduce our present mortality to a reasonable and proper percentage, that the patient should be operated on within this twenty-four hour period, the earlier the better. This in turn requires an early diagnosis; hence, it follows that the fate of the patient rests with the physician who first sees him.

Possibly the diagnosis is frequently missed in its early stages because the general practitioner sees many simple cases of indigestion, whereas he is seeing comparatively few of appendicitis, so perhaps he gets the habit of assuming cases of abdominal pain to be simple until proved serious. This assumption would also explain the frequency with which cathartics are given in these cases. It were better, however, to assume every belly ache serious until proved simple. This attitude should result in eliminating cathartics with their power for harm, and the substitution therefor of the harmless enema. This would be a long stride in advance and would of itself reduce the mortality appreciably.

Just a word about vomiting, as I feel that many cases have not been diagnosed as early as they should have been, merely because this symptom was lacking. Too much value should not be placed on this sign, as not all patients with appendicitis vomit; in fact, one may have peritonitis well advanced without vomiting. Even nausea, which results from the same stimulus as that causing vomiting, only milder in degree, is not always evident. The symptoms are, however, so generally comprehended that there is little excuse for failure to make an early diagnosis. But should doubt exist regarding the diagnosis, I would recommend surgical consultation rather than await the possible spread of infective

*Read before the Los Angeles County Medical Association.

processes to certify it. Here let me venture the opinion that physicians would obtain more satisfaction from surgical consultation, and tardy operations would become less common, if they would develop the habit of calling surgeons while the diagnosis is still doubtful, instead of waiting till the diagnosis is clear and then calling a surgeon for the operative work only. Neither the laity nor the physician should have the idea that surgical consultation is invariably followed by operation. Incidentally, there is nothing that contributes at once so much pleasure and profit to practice as frequent consultation with men of integrity and discernment.

Further, it is regrettable but true that some doctors still adhere to the notion, very prevalent fifteen or twenty years ago, that all acute appendicitis cases are alike, in that they tend to progress in a uniform manner; that operation between the third and seventh days is particularly fatal, and should not be performed until the inflammation shall have been localized by nature's own defenses. They maintain that those cases that die without operation during this period of spreading infection would also have died with it. This form of reasoning fails to convince me; in fact, for fifteen years I have searched in vain for evidence supporting this theory; and until the advocates of this method shall have produced statistics proving that a greater number of these cases are saved by this method, my conscience refuses to be sung to sleep by this sophistical lullaby.

There are also some medical men, who for one reason or another, the importunities or rebellion of family or friends, or what not, permit their judgment to be impaired, and temporizing measures are instituted, thus granting a respite from surgery, and this despite the teachings of Osler who fifteen years ago said: "There is no medicinal treatment of appendicitis." For instance, a mild attack of appendicitis, which begins with colicky pains, nausea and vomiting and a slight elevation of temperature, may develop a leucocytosis and local sensitiveness in the right flank in the first six or eight hours. Twelve to eighteen hours later the pain and fever have disappeared. The doctor is then in a quandary which his own procrastination has matured. He is unable to tell whether the patient is going on to an uneventful recovery, or headed straight for the grave because the infected appendix has undergone complete gangrene.

There is only one treatment for appendicitis—surgery. Inasmuch as the progress of a given case defies prophecy, there is only one time to operate—now. In other words, a diagnosis of appendicitis should be followed immediately by operation.

To summarize briefly: Reliable statistics show a mortality of from 10 to 20 per cent. in appendicitis.

Sixty per cent. are early cases in which the infection is within the confines of the appendix, and these betray practically no deaths.

Forty per cent. of those operated on are late cases, *i. e.* the infective process has spread beyond the confines of the appendix and it is this class which gives us our mortality. This present high mortality can be greatly reduced by timely intervention, but early diagnosis is essential in order that early operations may be performed.

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A CONCEPT OF X-RAY PATHOLOGY.

XII. GASTROPATHY.

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(Concluded from page 701.)

Gastrospasm.—In the x-ray pathology of the stomach the law of contrary innervation plays a more prominent rôle than is the case with the esophagus. In fact, the law of contrary innervation seems to be more accentuated as the distal end of the tract is reached.

Spastic phenomena in the stomach require careful observation and study. They may be divided into two types, according to the origin of the irritation causing the spasm. First, the extrinsic, and, secondly, the intrinsic phenomena.

Extrinsic incitants result from abnormal conditions arising outside and away from the stomach, often remotely removed. They are less frequent than in intrinsic spasms. Gastrospasm is evidenced by a disturbance in the form, size, outline, and position of the organ. One form of extrinsic gastrospasm is that in which an incisure appears in the wall of the stomach, usually in the pars media, and progresses to the pars pylorica, greatly resembling a giant peristaltic wave. The appearance of this phenomenon is usually intermittent. Another form is that in which the gastropacity assumes an "hour-glass" form which may persist during the entire time of the examination or may relax at any moment. In the pyloric end a spastic filling defect is often reflexly produced, particularly when evoked as a result of accumulation of the ileopyloric reflex of Barclay. Cholecystitis and chronic appendicitis induces a spasm of the pyloric sphincter.

Extrinsic spastic manifestations, though generally localized and regional, may sometimes affect the entire gastric musculature when it is manifested as hypertonus far exceeding the usual normal physiological limits and rendering the stomach contracted, inert, and tense. The subject of extrinsic gastrospasm is summarized by saying that it may manifest in a manner oftentimes precluding the possibility of absolute differentiation from gastrospasm that results from intrinsic cause.

Carman summarized gastropastic manifestations of intrinsic reflex as follows:

1. Displacement of the stomach upward and to the left.
2. Diminution of gastric capacity.
3. Small size of the gas bubble and small amount of secretion.
4. Tardy canalization.
5. Lessened mobility and flexibility of the stomach.

6. Disturbance of peristalsis: (a) diminution; (b) exaggeration.

7. Disturbance of the pyloric function: (a) gaping of the pylorus; (b) spastic contraction of the pylorus.

8. Incisura production and hourglass form of the stomach.

9. Deformity and pseudo filling defects of the gastric contour, either local or general.

Gastrospasm of intrinsic cause is most generally produced by ulcer and less frequently by cancer. Spasm due to gastric ulcer may present as an hourglass incisura of the stomach; a diffuse spastic distortion; or a spasm of the pyloric sphincter.

When the indentation is the result of ulcer it is persistent and permanent as to situation and at once suggests the character of the lesion responsible for the spasm. Gastric ulcer may occasion a diffuse spasm involving much of the pars pylorica, whether the ulcer is situated in the pars pylorica or in the pars media. When in this latter location a six-hour retention frequently accompanies the x-ray pathology. Cancer of the stomach may, through the irritation that it incites, also occasion gastrospasm.

When the case presents gastropastic irregularities in its radiopacity the x-ray pathology should determine whether the irregularity is due to an organic lesion producing gastrospasm in its immediate locus; whether the spasm is due to a lesion in the stomach located other than at the site of spasm, or whether the spasm is the result of an abnormal irritation reflexly referred to the stomach from some other locality.

Gastric deformity due to organic lesion presents the following characteristics: (1) persistency, (2) constancy of location, (3) repeated similarity. The deformity does not disappear after the administration of an antispasmodic. The mass responsible for the deformity may sometimes be palpated under the screen. There is usually associated with the deformity a typical crater or niche.

If spasm results directly from an ulcer or cancer in the stomach it manifests generally at the level of the involvement in the area opposite the site of lesion. Its appearance may vary in repeated examinations, but the presence persists. The deformity is not dispelled after administering antispasmodics.

Gastrospasm reflexly produced is usually brief. It may not be persistent as to locus. It is dispelled under the action of antispasmodics.

The administration of atropine forms the most practical test for the differentiation between reflex and intrinsic gastropastic phenomena. In employing antispasmodics it would seem the best practice to administer tincture of belladonna, the roentgenologist being guided by the physiologic effect produced. An arbitrary dose is not recommended, but rather repeated therapeutic doses should be given until the throat dries, the skin flushes, and the pupils dilate. Unless the antispasmodic physiologically operates, its administration is without effect on the gastrospasm and will lead to error in conclusion.

Gastric Cancer.—The x-ray pathology of gastric cancer rests with determining the presence or absence of gastric tumor. As Graham has indicated, benign tumors of the stomach are rare, nearly 95 per cent. of gastric tumors being cancers. Also, practically always erosions encroaching on the gastric lumen are malignant.

Carman shows that about 70 per cent. of all gastric cancers occur in the pyloric end of the stomach, while 90 per cent. of all gastric ulcers occur on the lesser curvature and posterior wall.

The x-ray pathology of gastric cancer includes abnormal departure in the contour, pyloric action, peristalsis, motility, position, and size of the stomach.

The basic x-ray sign of cancer is a filling-defect in the stomach lumen. This results from the extension into the stomach space of the tumor. Permanent irregular filling-defects are strongly suggestive of carcinoma. The defect should show no change in location or appearance on repeated examinations after palpatory manipulation or the administration of antispasmodics.

Filling-defects may result from causes other than cancer, the most common being faulty media (improperly opaque meal), secretion in the stomach, food remnants, and miscellaneous stomach pressures from without. But these are not permanent either as to persistence or form on repeated examination or after administering antispasmodic.

Altered pyloric function generally accompanies cancer. The pyloric antrum may have a sphincteric interference resulting in infiltration and stiffening so that the pyloric pars media may bulge and give the appearance of gaping. Pyloric obstruction resulting in a six-hour residue accompanies about 60 per cent. of gastric cancers, the amount of residue varying, of course, with the degree of obstruction.

Perversions of peristalsis, retardation, or acceleration in the emptying time of the cancerous stomach, fixation of the stomach, occasionally, diminished flexibility of the viscus (especially in scirrhus type), persistent gastrospasm, alterations in the size and capacity of the stomach, all are evidences conducive to the x-ray inference of gastric carcinoma.

Usually before the patient complains of symptoms incident to gastric carcinoma the extent of malignant invasion is such as to permit the ready detection of the lesion through the use of x-ray study. It is important that early cancer be detected. The x-ray pathology of early cancer is less defined than that of advanced malignancy. Its detection depends upon the character of the malignancy, whether an outspoken tumor or an insidious infiltration, its locus and the amount of corroborated x-ray pathological evidence weighed against the clinical findings. If the cancer is frankly tumorous its projection into the gastric lumen is manifested by a filling-defect which may be smaller than one produced by more advanced cancer, but shares every characteristic of the filling-defect of advanced malignancy; so that the true test in the x-ray pathology of cancer lies more in the permanency rather than with the size of the filling-defect ulcers undergoing cancerous degeneration present x-ray signs that can be differentiated from ordinary ulcer.

Gastric Ulcer.—In the x-ray pathology of ulcer there are two types of signs: those that are primary and virtually pathognomonic, and, secondly, those that are secondary and corroborative, but nevertheless diagnostic.

The pathognomonic signs of ulcer include the niche, the accessory pocket and the hour-glass stomach. The niche is a visible ulcer crater which has become filled with opaque meal. It appears as a

bud-like diverticulum on the outline of the stomach. Often the niche is not revealed unless the stomach has first been subjected to lavage for the purpose of removing food remnants that may remain lodged in the pocket. It is characterized, as a sign of gastric ulcer, by its undeviating persistency in locality. The accessory pocket results from perforation of an ulcer, and is also characterized by persistency in location. Hour-glass stomach occasionally follows as a sequence to perforated gastric ulcer. It cannot be distinguished on the x-ray plate from the spastic contraction due to other origin excepting by the antispasmodic test and by the presence of concomitant signs. The contributory signs of ulcer include spastic manifestations, incisures, six-hour meal retention, hypotonus, peristaltic alterations, localized tenderness, and impaired mobility. Of these, the six-hour residue, incisure, hour-glass, and diffuse spasm are important secondary manifestations strongly suggesting ulcer.

Duodenal Ulcers.—The x-ray signs of duodenal ulcer may be direct or indirect. The direct sign is the absolute visualization of a deformity of the duodenal cap. The important point in connection with diagnosing duodenal ulcer from bulbous duodeni distortion rests with making certain that the defect truly represents an actual irregularity in the scar tissue incident to the ulcer and resident in the cap and not an irregularity due to artefact. A duodenal ulcer may vary from a simple to a perforating lesion. If the ulcer is simple or superficial the emptying time of the stomach is normal or decreased in contrast to the delayed emptying time in cases of gastric or pyloric ulcer. If the ulcer is puncturing, which is less frequent, in addition to the symptoms of superficial ulcer, it presents a characteristic diverticulum which persists after the rest of the duodenum is cleared of barium. The indirect signs may be grouped under the convenient mnemonic triad of "hypers"—namely, hypertonus, hyperstalsis, and hypermotility. (Carman.) In the diagnosis of duodenal ulcers the use of the silk string test is greatly recommended. If the silk string test shows blood at exactly the site where a persistent duodenal deformity is visualized on the plate or screen, the evidence is strongly in favor of a positive diagnosis.

Duodenal Cancer.—Cancer of the duodenum produces little x-ray evidence, if any, that is pathognomonic of the condition. Perhaps the most constant and important x-ray finding is the gas and fluid distension of the bowel. Obstruction may present leading to dilatation of the stomach and decided retention after six hours and even twelve and twenty-four hours.

Differential Diagnostics of Stomach Diseases.—Diseases of the stomach may be classed as inflammatory, neoplastic, motor, neuralgic, anomalies in position, and foreign body inclusions. The inflammatory gastropathies may be primary or secondary. Primary gastropathies affect the physiologic activity of the viscus as the result of derangements primarily inherent in that organ; whereas secondary gastropathies result from conditions in which the stomach suffers because of encroachment upon it by extraneous pathology.

Gastritis.—Gastritis may be acute or chronic. Acute gastritis is hardly an x-ray entity; and the only significant x-ray pathology incident to an acute

gastritis is that that results from the symptoms of delayed motility. The x-ray is useful in differentiating acute gastritis between conditions that are sometimes mistaken for it. The conditions are gall-stone colic, appendicitis, gastric or duodenal ulcer, acute peritonitis, acute pancreatitis, gastric crises of locomotor ataxia, nervous gastralgia, and angina pectoris. The differentiation should be a clinical one and never so confusing as to demand x-ray aid.

Chronic gastritis may be primary or secondary in form. When primary it results from improper treatment of the stomach itself through dietetic errors, hasty eating, and similar faults. The secondary form accompanies various organic diseases, such as carcinoma, tuberculosis, cardiac insufficiency, and others.

The mucous membrane may swell, its surface become granulated, or polypi may form, and, later, connective tissue may proliferate, when the condition is known as hypertrophic catarrh; or there may be an atrophic catarrh with primary atrophy of the gland, thinning of the mucous membrane, and subsequent dilatation of the stomach.

In the hypertrophic form the contraction of the stomach that follows connective tissue proliferation is known as cirrhosis of the stomach, as leather-bottle stomach, or as Brinton's linitis plastica. When the stomach lumen is encroached upon by the thickened walls, owing to linitis plastica, the resulting microgastrica is readily demonstrable by the x-ray.

Chronic gastritis must be differentiated from gall-stone, chronic appendicitis, dilatation of the stomach, cardiopneumosis, gastric ulcer, carcinoma, pancreatitis, and infection of the bowel passages. The dilatation and ptosis are at once recognized by the x-ray; the gastric ulcer and carcinoma may be identified under careful serial x-ray plate study.

Achylia gastrica may be benign or malignant, for which differentiation the x-ray is invaluable. In the benign form the motility of the stomach, if impaired, generally shows hyperactivity; from which it is distinguished from the malignant form, wherein hypomotility presents.

Dilatation of the Stomach.—This may be acute or chronic. The acute form is rarely referred to the x-ray laboratory for examination, but when it is, simple fluoroscopy of the abdomen will reveal the gas-distended stomach in a manner that is unmistakably diagnostic. No previous preparation of the patient is required. Chronic dilatation may be intrinsic or extrinsic in origin; extrinsic when there is an obstruction at the pylorus due to the cicatrization of an ulcer, hypertrophic stenosis of the pylorus (either simple or cancerous), congenital stricture (particularly in children), or occasionally by pressure of a tumor from without; intrinsic when there is a relative or absolute insufficiency of the muscular power of the stomach. Atonic dilatation is characterized by the apparent lack of limit to the capacity of the stomach. It shows on the x-ray plate as an enormous sac. Dilatation due to pyloric obstruction likewise manifests as an enlarged gastric radiopacity; but it differs from atonic dilatation in that in atonic dilatation there is a loss of gastric irritability which sometimes persists in the dilatation incident to pyloric obstruction.

Gastric Ulcer.—Gastric ulcer has already been discussed in part. When considered in connection with

the clinical history, the age and sex of the individual form important criteria. The clinical diagnosis depends upon the cardinal symptoms of pain and hematemesis. The x-ray diagnosis depends upon visualization of the actual gastric defect as previously outlined. When the pain is exactly over the site of gastric defect, as can be determined by fluoroscopic examination, and the string test referred to shows the origin of hematemesis to be located at the point of gastric defect, the triad of signs (pain, defect, blood) is pathognomonic of gastric ulcer. The conditions that are to be differentiated from gastric ulcer are appendicitis, disease of the gall bladder and ducts, gastric neuroses, gastritis, gastric crises, and carcinoma. The x-ray diagnosis of appendicitis will be considered further on in these studies. The important differential rests between malignancy and simple ulcer. The x-ray differential has been discussed above.

Specific inflammations of the stomach are rare. They include syphilis, tuberculosis, glanders, actinomycosis, anthrax, and typhoid; and of these syphilis of the stomach is more likely to be found than any of the others.

Syphilis of the Stomach.—It is, of course, difficult to differentiate diffuse fibrous infiltration of the stomach from syphilitic infiltration by roentgen methods alone. The term "leather-bottle" stomach, applied to the chronic inflammatory thickened stomach wall, appears to be derived more from the consistency of the wall rather than from any resemblance to modern leather water bottles. Syphilis may manifest in the stomach in one of three types: simple syphilitic gastritis, syphilitic ulcer, or syphilitic hyperplasia. In the hyperplastic form the x-ray findings include deformity and diminution in the size of the stomach, compensatory dilatation of the esophagus, and gaping or obstruction of the pylorus. The stomach deformity may also be the result of intensive salvarsan therapy. LeWald mentions the rapidity with which the stomach empties itself, as observed particularly under the fluorescent screen, in cases of syphilitic gastritis. The diagnosis of gastric syphilis is arrived at through the conjoint effort of the clinician and roentgenologist, rather than through the x-ray findings alone.

Neoplastic Gastropathies.—Of these, cancer of the stomach, common between the ages of 40 and 60, is the most usual etiology of a gastric new growth. The x-ray signs of cancer vary according to the location of the lesion. If the cancer is in the pars cardiaca the symptoms are those of painful deglutition of solids marked with regurgitation; delayed esophageal passage of opaque meal, and stenotic encroachment by a tumor mass in the pars cardiaca. If the cancer is at the pyloric region there are accentuated peristalsis, markedly impaired gastric motility, and irregularity or filling-defect accompanied by tumor mass in the pyloric area. If the cancer is in the pars media, it is accompanied by an achylia gastrica, which tends to increase the motility and, therefore, overbalances the tendency to stagnation induced by the cancer, so that the emptying time or total motility is not impaired. The peristalsis is altered; the x-ray shows a constant filling-defect in the pars media.

Sarcoma of the stomach is exceptionally rare. When it occurs, its x-ray findings simulate gastric

cancer. It can be differentiated sometimes only on the score of the patient's age, sarcoma occurring most usually in young persons.

Disturbances of Motility.—Motor insufficiencies of the stomach may be manifested by inadequate peristolic movement. The stomach wall fails sufficiently to contract around its contents and, because of the weight of the included meal, it may become dilated (atonic dilatation). The contents of the stomach are emptied into the duodenum by means of the peristolic activity; and if this is injured the condition is one of motor insufficiency. Motor insufficiency is usually accompanied by atonic dilatation, though the two conditions may be separate.

Gastric atony may be (1) a part of a constitutional defect; (2) secondary to general diseases; (3) due to frequent overloading of the stomach, or (4) reflex, as in cholelithiasis or chronic appendicitis. The x-ray studies are directed to the motility test, the delay in the emptying time of the stomach, and to the abnormal filling of the stomach observed under fluoroscopy.

Secondary motor insufficiency of the stomach may be due to (1) a scar of ulcer; (2) perigastritis; (3) pylorospasm; (4) hypertrophic pyloric sphincter. If the motor insufficiency results from a malignant cause it is generally due to a carcinomatous obstruction at the pylorus. The x-ray findings include markedly intensified peristalsis often amounting to gastropasm. The dimensions of the stomach are demonstrably increased. The motility is impaired so that a residue is found after six hours.

Anomalous Positions of the Stomach.—When the stomach is posed abnormally low in the abdomen the condition is known as gastroptosis. This may be accompanied by enteroptosis and even a general visceroptosis. In gastroptosis the pylorus occupies a lower level than normal, there being a marked elongation of the main mass of the viscus.

In connection with gastric ptosis, which should remind of LeWald's water-trap type stomach, the important position that the roentgenologist must take is that of including a statement of the functional activity of the organ besides the statement of its position. A stomach of exaggerated fish-hook type hanging low in the abdomen may be described as to position; and, while its form represents that generally assumed by water-trap type stomachs, it may not be termed a water-trap type stomach unless extended x-ray investigation shows that at the end of six hours or longer an actual retention of fluid foodstuff is trapped in the organ. That is, water-trap type stomach is not a water trap unless it actually retains fluid for longer than the usual permissible time. If the roentgenologist includes a statement of the functional activity of the stomach, to which he is justly entitled, there need be no unnecessary apprehension regarding the condition of gastroptosis.

Nervous Gastropathies.—Of the sensory neuroses of the stomach the most important are nervous gastralgia and gastric hyperesthesia. There is nothing of x-ray certainty in the diagnosis of these conditions. The principal motor neuroses include atony, cardiospasm, and pylorospasm. These have already been discussed. There are nervous anomalies affecting the secretion of the stomach; and, while the secretory test often aids in inferring the presence

of a nervous gastropathy, the x-ray is of limited value in their study.

Foreign Bodies.—Foreign bodies in the stomach include particularly hair-ball. A hair-ball is readily visualized after the barium meal and persists for some time.

In closing a discussion of gastropathy and duodenopathy there should be mentioned the condition of congenital pyloric stenosis. In this condition LeWald has experienced extensive observations. The summary of x-ray pathology of pyloric stenosis rests with finding an enlarged gastric outline, a slowly emptying pylorus, and a residue that persists for a time, depending upon the completeness of the stenosis. Delayed emptying time in the stomach in young infants should always lead to the suspicion of the presence of congenital pyloric stenosis.

Often the roentgenologist is called upon post-operatively to survey the stomach with the view to ascertaining the operative success. The examination is conducted exactly in the manner that would be pursued in the usual gastrical survey, especial attention being paid to the patency of the stomach in the case of intestinal anastomoses.

OBSERVATIONS ON THE TREATMENT OF INCOERCIBLE VOMITING OF PREGNANCY.

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VOMITING of pregnancy may be of so intense a character as to place the prospective mother's life in jeopardy and form one of the few complications justifying the emptying of the uterus before term. In its most severe character the condition is a rather rare one and the practitioner must be very sure not only of the probable persistency of the trouble but also of the fact that it constitutes a real danger to mother and child before he decides to produce an abortion. I have seen a woman drool for months and apparently vomit all she took and yet, apparently by sheer force of will, go on to term and be delivered of a viable child.

In the treatment of a few of these cases, in the last three years, the writer chanced upon a measure that gave relief very rapidly and which appears to deserve trial at the hands of men having larger opportunities for observation.

CASE I.—Mrs. McC., born in U. S., a rather stout and strong woman, aged 26. States that three years ago she became pregnant. At this time she was living in California. At the beginning of the third month of pregnancy she was vomiting persistently and lost weight so rapidly that her medical attendant feared that further delay was dangerous. After consultation he decided to empty the uterus. Within a very short time after this had been done the patient regained her normal condition. Some months later she came to New York, where the writer treated her for minor ailments. She soon stated that she was most anxious to bear a child and asked about the possibility of becoming pregnant without having to go through the same ordeal again. The answer was that a second pregnancy might not bring symptoms as severe as in the first instance, and that if they occurred some means of relieving them, at least to some extent, would probably be found.

In March, 1919, the patient sent for me and told me that she was pregnant. She was then having nausea of pregnancy of moderate severity, for which the usual remedies were prescribed without much effect. A week or two later the vomiting rapidly became of extreme severity. No liquid or solid appeared to remain in her

stomach for more than a few minutes. By April 4 the patient was rapidly becoming emaciated and told me that, if anything, her condition was more severe than it had been in California. Of all her symptoms thirst appeared to trouble her most. Water at any temperature, champagne, aerated waters, lime water in milk or water, milk, pure or peptonized, whey, etc., were all rejected as soon as taken. In spite of this the patient asserted that she would undergo anything if only she could be kept alive long enough to have her child. As soon as the thirst became severe enemata of saline solution were ordered, to be repeated several times a day. This afforded some relief, but was soon replaced by the Murphy drip, used persistently for many hours day and night. The very capable nurse in charge took great interest in the case, and I suggested colonic washings twice a day. By April 20 the patient was beginning to retain water and peptonized fluids. On the 26th she ate and retained eggs, broth, and milk in liberal amounts. The vomiting had stopped entirely, to such an extent that there was not even a tendency to salivation. There was a rapid gain in weight and the patient felt so well that I did not see her again till May 29, and then for some trivial ailment. She declared that in the last four weeks she had only vomited twice and acknowledged that this seemed to have been brought on by some indiscretion of diet.

The pregnancy went on to term, with no further trouble, and she was delivered of an eight pound girl on December 4. At this time she is eager for another child and would welcome a third pregnancy.

CASE II.—Mrs. M. A. B., et. 31, walked into my office on November 1, 1919. I heard her retching in my waiting room. When she entered the office she presented a shocking picture of emaciation and looked so weak that I at once gave her some aromatic spirit of ammonia. She was at the time in the second month of pregnancy and gave a history of having had her uterus emptied twice on account of a similar condition. She was crying as she told me that she supposed she must lose this child also and that she had come to arrange for another dilatation and curettage. Her means did not permit of the employment of a trained nurse. I saw her in bed an hour later and personally washed out her colon, as far as such a thing may be done, and established a Murphy drip, giving directions to a sister for the continuance of the treatment and the preparation of peptonized foods. Three weeks later, when she walked into my office, I failed at first to recognize her, so great was the improvement in her appearance. She was delivered of a seven pound child on June 11, 1920.

CASE III.—In this instance the term "incoercible" can hardly be applied. Mrs. A. S., age 19, sent for me on January 15, 1920. She was two and a half months pregnant. She was vomiting from the time she awoke in the morning till the middle of the afternoon, on an average. After this she was able to retain a little water with a few drops of alcohol and a small quantity of milk or broth. Occasionally she could take a little white meat of chicken for supper, with dry crackers or toast or zwieback. Of this she usually vomited a little, but was under the impression that she retained some of the food. She suffered from constant hunger and thirst and had become so thin that her husband feared she had consumption. The patient was Jewish and exceedingly eager for a child. For a few days the usual remedies were prescribed with no visible result in abating her symptoms. Then she was put to bed and given colonic washings and the Murphy drip. Her condition cleared up entirely in about three weeks. After this she went to live in a suburb, where, I was told, she was delivered of a boy in July. As the symptoms in this case were far less severe than in the other two, it is possible that her pregnancy might have gone safely to term. At any rate, she was promptly relieved.

Whatever may be the principal factor in severe vomiting of pregnancy, whether toxemic, nervous, or due to some endocrine disturbance, it would appear that the supplying of large amounts of water, so that it is rapidly absorbed through the intestines, is capable of reducing the severity of the condition and enabling the mother to carry a child to full term.

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HEMORRHAGE AND PERFORATION OF THE INTESTINE REMOTE FROM TERMINAL OCCLUSIONS.

BESIDES perforation of the cecum and ascending colon occurring in terminal occlusion of the large intestine, hemorrhages of the intestine may occur at a distance from the occlusion, whose cause must be attributed to the ulcerative process. The ulcerations, of which the hemorrhage or perforation merely represents a more advanced degree of evolution, are simple intestinal ulcers of inflammatory and not neoplastic origin, although the cause of the occlusion may be a malignant growth. These hemorrhages should be looked upon with suspicion, but one must not necessarily conclude that an intestinal neoplasm is present just because an elderly subject has a bloody discharge from the rectum, accompanied by constipation and notable emaciation.

Cecal perforations appear to have a more complex pathogenesis in terminal intestinal stenosis. The perforation may have a perfectly mechanical origin in which distention from feces and gas is the principal phenomenon, while degeneration of the muscular fibers of the gut plays a secondary part in the process. Secondly, there are perforations due to toxo-infection, in which the ulcerative process is of the first importance, the mechanical distention being merely an adjuvant factor facilitating rupture. Among the latter are those occurring during the evolution of chronic occlusion in which the intestinal walls, and especially the muscular coat, are greatly hypertrophied, and those which arise during acute occlusion following a long standing stenosis, in which the intestinal walls may be unchanged or even thinned. Usually these perforations occur after a long period of constipation, the result of a stenosis, but there are cases in which constipation is replaced by diarrhea obstinate to all treatment both medicinal and dietetic. The persistence of this diarrhea to the end of the last phase of the clinical evolution of the process, affords evidence of an enteritis added to the cause of the occlusion, a fact that has led some to suppose that in certain cases, at least, the cecal or colic ulcerations are not exclusively the result of coprostasis.

The symptoms of these cecal perforations, al-

though not different from those usually met with in ordinary intestinal perforation, nevertheless offer certain peculiarities which should be known. Although in some cases, the perforation gives rise to sudden stabbing pain and aggravation of the patient's general condition, it is undeniable that the most common condition is that of rather attenuated symptoms of general peritonitis. In the majority of cases the expression and pulse remain good for some time, the pain is so mild that deep palpation is necessary to awaken it, vomiting is apt to be bilious rather than fecaloid, and the temperature is about normal; but hypothermia—one of the principal symptoms of acute peritonitis—is absent in most cases. To the symptoms of occlusion, these very slight symptoms of peritonitis are progressively added, the symptomatic ensemble imparting to the clinical evolution such an indefinite and complex character that when operation is undertaken—and this is always done too late, for obvious reasons—the surgeon is surprised to find the abdominal cavity filled with fecal matter and often presenting the commencement of a reaction of the serous membrane, thereby proving that the perforation often dates back one or two days.

Since adhesions are almost invariably absent, the peritonitis is general and death is the outcome. The prognosis is always bad on account of the absence of adhesions which would otherwise set up a barrier to the infection, while on the other hand, the rupture having occurred in a segment of the intestine above the stenosis, the products emptied into the peritoneal cavity are unusually septic.

As to the hemorrhages resulting from cecal ulcerations, their symptomatology is evidently that of any intestinal loss of blood. Particular attention should be directed to the difficulty of diagnosing the site of the hemorrhage in these circumstances, because, considering that the stenosis upon which they depend is in the majority of cases a malignant growth in the terminal portion of the large intestine, they are almost fatally attributed to the cancerous ulceration whose diagnosis has been previously made.

MENINGEAL REACTIONS.

To give a description of the meningeal reactions would necessitate a review of the clinical history of all the bacterial cerebrospinal meningitides, but briefly the symptomatology is as follows. The onset of the process may be sudden or preceded by some prodromes, such as headache, fatigue, and anorexia. This prodromal phase is usually wanting, but when it exists it is so short and indistinct that it probably escapes notice. The temperature, with or without a chill, quickly attains as high a degree as in pneumonia or erysipelas, and remains high throughout the duration of the disease. Headache precedes, accompanies, or soon follows the appearance of the fever and is from the start intense and distressing. It has no special localization, makes sleep impossible, and provokes moaning even when

the patient is comatose. Vomiting is almost constant and typical of cerebral origin, that is to say it occurs without effort. Constipation is usually present during the first few days, but is not obstinate, giving way to a laxative. There is a disturbance of the intelligence and frequently a noisy delirium with hallucinations.

In children convulsions mark the onset of the affection; they are sometimes general, at others partial. Stiffness of the neck muscles and Kernig's sign are present in most cases. Paralyses are less common and preferably involve the muscles of the face and limbs. Disturbances of the sensibility also exist, characterized by hyperesthesia with exaggerated reflexes and photophobia. Vasomotor disturbances are noted—alternating redness and pallor of the face and the meningitic line. The pulse, rapid at the onset, becomes slow, and when death is near becomes small, frequent, and irregular. Such is the *ensemble* of the alarming symptoms observed in bacterial cerebrospinal meningitis and which are likewise observed in meningitides of otic origin which, as Korner and Huguenin point out, are merely incomplete meningitides, arrested in their progress toward suppuration.

In most cases of meningeal reaction arising, for example, in aseptic puriform pleurisy, secondary syphilis, etc., the disease presents an insidious onset with headache and asthenia. Then suddenly the temperature goes up, followed by either a frontal or an occipital headache, but without a distinct localization. The meninges may react although they may not be directly attacked by the infectious agent, and Rist has shown that bacteria confined to a limited area in the body may determine a diffuse inflammation of the meninges although their location may be far distant from the cerebrospinal system. A meningocortical syndrome may be observed when fluid is injected into the spinal canal and Ravaut and Aubourg have shown experimentally that the intraspinal injection of a non-isotonic liquid may produce congestion of the meninges, the want of isotonia of the solution explaining perhaps the morbid phenomena presented.

Not one of the symptoms of bacterial cerebrospinal meningitis is therefore characteristic of this affection; with the exception of meningeal reactions there is not a single one that may not be encountered during the evolution of this latter meningeal state. In some cases it is the causal disease that attracts all the attention of the physician and the meningeal reaction simply complicates these distinctly characteristic infections. Syphilitic affections of the nervous system, the toxic agents of chemical nature—as in renal insufficiency or puerperal eclampsia or poisons introduced by injections into the spinal canal, may determine irritative or exudative lesions of the meninges giving rise to a cloudy, puriform, and aseptic cerebrospinal fluid. The meningocortical syndrome can therefore complicate distinctly characterized infections, although not always easy of recognition, and the clas-

sic phases observed in the other meningitides must not be expected to be found in these meningeal states. Their onset may be sudden or prolonged, while the meningeal tripod—headache, vomiting, constipation—will be rarely complete. Fever may be absent and frequently is irregular. The pulse is normal or only slightly increased during the entire evolution of the process. The delirium is not so violent as it can be in suppurating meningitis, while pareses, and local paralyses are fleeting. Stiffness of the neck and Kernig's sign are often present, likewise ocular symptoms.

The differential diagnosis between meningeal reactions and septic meningitis is consequently embarrassing and it is only by lumbar puncture that a diagnosis can be made with any degree of certainty. There is not a single clinical symptom belonging to true or pseudomeningitis which can be regarded as pathognomonic.

IDEALISM IN MEDICINE.

POSSIBLY there is more idealism among medical men than among the members of any of the so-called learned professions. The drawback is that in hitching one's chariot to a star one is not only apt to fall but to fail in life from the material standpoint. However, the true idealist is not discouraged by a knowledge of this fact, as he does not hanker after the fleshpots of Egypt, but is content to strive to reach the heights he may never attain. The roll of doctor contains the names of many men of this stamp. John Hunter belonged to this category, for while he achieved success, to the end of his life he was attempting to gain the summit. The idealist is not satisfied with success in a single branch of endeavor; indeed if he were satisfied he would not be an idealist. In the annual oration of the Hunterian Society on February 16, Dr. H. H. Bashford took as his text the ideal element in medicine illustrated by the life of John Hunter. He began by regretting that at the present time so little is heard of medicine as an art, because it is chiefly as it is regarded from this standpoint that its ideal element becomes manifest. Bashford went on to say that, although art has never yet perhaps been successfully defined, it is in any case a giving out, a yielding up, an expression, the concrete acknowledgment in some shape or other, of the divine privilege of consciousness. The true artist, whether he would or not, is thus always an altruist; and, although he is ever in pursuit of an ideal he may never attain, he is yet the happiest man alive, whether renowned or obscure.

The definition of art places many medical men in the list of idealists, for what profession is more altruistic than that of medicine? Bashford then proceeded to compare, taking Hunter as an example, the kind of regard in which the art of medicine and its practitioners are held in these days and were held in the time when the

great investigator and surgeon lived. The condition of medicine and surgery in those days was almost stagnant and it is pointed out that in Hunter's own country, Scotland, at the time of his birth, all that was required before qualification, before the conferring, that is to say, of the title of surgeon apothecary, was a three years' apprenticeship to some surgeon apothecary already in practice, who was himself in too many cases a deeply ignorant person. The candidate had then to appear before the College of Barbers and Surgeons, the barbers, by the way, had recently dropped out, when he would be required to dissect a part, write a thesis, and make up a prescription. There were exceptions, of course, to this state of ignorance. Harvey's researches were known and accepted, the thermometer had been discovered but was little used, the early microscope had revealed the presence of red corpuscles in the blood, the tourniquet had been invented, while inoculation against smallpox had just been introduced into Europe by Lady Mary Montagu, that she meteor as Horace Walpole described her, although, as Bashford remarks, it was being strongly opposed by the clergy as an interference with the divine prerogative. However, in spite of these discoveries and inventions, which were employed by only a few men, "the mind of contemporary medicine was still largely clouded by the medieval legacy of formulating in advance some all-embracing hypothesis with which facts and treatment had to be made to square."

Referring to the growth of medical power, the speaker said that even with the picture before us of the position of medicine in the year of Hunter's birth, it is perhaps doubtful whether we any of us have quite realized how great that stride has been. The doctor is needed everywhere and wields almost unlimited power, "not only in the sick room and the hospital, but in the every-day life of the school and the factory, in the building of houses and the planning of towns, the community of to-day demands his presence." As for the teaching and training of the embryo medical man, Bashford rightly warned against the dangers of an expensive curriculum and of medicine becoming the preserve of a particular social class. Up to the present time its gates have stood more widely open, perhaps, than those of any of the so-called learned professions. But stress is laid on the point that, with the increased length and necessarily increased cost of medical education, there would seem to be a danger that in future only the better endowed will be able to undertake it. This statement applies more forcibly to Great Britain than to any other country. Idealism, which is the fuel that feeds and keeps the flame burning brightly, will be kept ablaze by the example of such men as Hunter. Medicine, to continue in its path toward an idealistic goal, must be taught in a more human way. The student should know something of the life work of the pioneers of and the great men in medicine and

surgery. The art of medicine should not be dry as dust, but be invested with a personal interest. Some at least of the romance of medicine should be imparted to those who are intending to make of it a career, in order that they may learn how difficulties have been overcome and success and fame have been attained by the great surgeons and physicians of the past. In short, and in these times in particular, when the aim of most seems to be to outvie their neighbors in extravagance, idealism, as exhibited by John Hunter and a host of bygone medical worthies, should be cultivated by the rising generation of medical men, the idealism, indeed, now being practised by another remarkable Scotchman, Sir James Mackenzie.

PRIMARY GANGRENE OF THE PREPUCE AND SULCUS PENIS.

GANGRENE in the balanopreputial fold remains the same mysterious affection, despite all advances of science. We at once exclude the secondary sloughing seen in chancre or chancroid with phimosis, although as a matter of fact there is little if any difference between the primary and secondary condition. In a certain number of cases primary gangrene may follow coitus or simple traumatism, but no distinction can be made between cases which originate in the sulcus and others which may first appear on the shaft of the penis and scrotum—authors often speak of penoscrotal gangrene to denote that one malady may originate in the entire genital area. In some of these cases the condition corresponds to gangrenous erysipelas, but in the majority the latter affection does not figure at all. Milian and two others report a case of primary gangrene of the balanopreputial fold which appeared a few days after coitus (*Bulletin de la Société Française de Dermatologie et de Syphiligraphie*, 1920, no. 8). Persistent efforts were made to find Ducrey's bacillus and autoinoculation was practised but chancroid could be definitely excluded. Blood cultures were negative (the patient had considerable fever). There was inguinal adenopathy. Although a spirocheto-bacillary symbiosis was found in the pus, the author says nothing of a Vincent infection. Syphilis in any stage was apparently excluded, although the authors do not discuss this possibility. The fusio-spirillary association was also accompanied by streptococci. The case ended in recovery with hardly a trace but the symptoms were for the time somewhat menacing. In the foudroyant type of this affection death may rapidly come about from sepsis, while in other patients there may be extensive local mutilation. Admission of air is the indication for treatment, since we are dealing with an anaerobiosis.

THE OCULAR SYMPTOMS AND CEREBRAL LOCALIZATIONS OF ENCEPHALITIS LETHARGICA.

MORE or less marked ocular disturbances are almost constantly met with in encephalitis lethargica, and to read the reported cases it would seem as if these ocular manifestations were very varied and that the clinical symptoms are rarely the same in any two

cases. But they nevertheless can be classified and grouped into recognizable forms. Paralyzes and nothing else represent the ocular symptoms of encephalitis lethargica, but these paralyzes are of divers kinds. At times they are partial, involving only such or such a branch of the common oculomotor, while at others the entire nerve is involved. Finally, they may affect the form of paralyzes of associated movements. These associated paralyzes are frequently hardly outlined, making themselves evident by an atypical and variable diplopia, and also by bilateral nystagmiform jerks, which, according to Sauvinau, are characteristic of the existence of a mild degree of associated paralysis. These different clinical forms would lead us to suppose that equally different anatomical localizations exist. The simple paralyzes—partial or total—of the oculomotor nerves have a nuclear origin, but the associated paralyzes would seem to point to a lesion situated higher up than the mesencephalic nuclei. Now, in reality, at autopsy precisely the same lesions are found that were formerly described by Wernicke in cases of hemorrhagic polioencephalitis and which Sauvinau, in 1892, used for the basis of his theory of the supranuclear centers. The existence of these centers of coordination explains the paralyzes of associated movements, whose clinical picture had been previously described by Parinaud with, however, the exception of the nystagmus to which they give rise. At the present time this theory is quite generally accepted, but the exact localization of the supranuclear centers still remains to be discovered. It would consequently be interesting, when examining subjects dead from encephalitis lethargica after having presented associated paralysis during life, to search carefully for the exact site of the lesions, because it might lead to the anatomical discovery of the supranuclear centers.

News of the Week.

Philosophical Society Awards Honors.—Among those to whom the American Philosophical Society awarded the John Scott medal for scientific work of high order, at its general meeting in Philadelphia, April 23, were Dr. Edward Calvin Kendall of Rochester, Minn., for his feat in having isolated the iodine compound in the thyroid and the establishment of the chemical identity of thyroxin, and Dr. Hideyo Noguchi, of the Rockefeller Institute for Medical Research, for having succeeded in isolating the germ of yellow fever and producing a serum to combat its action. It was announced that another John Scott medal would be struck next month and presented to Madame Marie Curie during her visit to this country.

Insane Ex-soldiers Increasing.—According to an informal report submitted by Colonel Cornelius W. Wickersham, Chairman of the American Legion's investigating committee for disabled soldiers, insane ex-service men are increasing in New York State at the rate of between two and three hundred a month. The Federal Government has provided only 177 beds for the mentally deficient in hospitals in this State. The report points out that there is no way to determine the exact number of insane veterans in New York City without hospitalization,

but the committee believes it is extremely large because so many parents and guardians of insane men have appeared before the committee urging that something be done to hasten relief. A similar situation is reported to exist as regards tuberculosis. A recent Federal report shows that up to April 1, 1921, 716,682 physical examinations for disability in ex-soldiers have been made. The number of men given some hospital treatment to April 1, is 118,636; the number of men in hospital on this date was 20,045. The number of men in Government hospitals deemed unsuitable is estimated at 10,000. New hospital accommodations are urgently needed for 19,400 men.

Bubonic Plague in Egypt.—A cablegram from Alexandria, Egypt, under date of April 21, reports that bubonic plague has broken out in that city, and an average of thirty-five cases are being reported daily. A quarantine is being imposed, and vessels have been leaving the port in order to avoid being held.

Suicides in Budapest.—A communication from Captain Pedro, chief of the American Red Cross at Budapest, states that the famine there is increasing. He declares that during March alone 1200 suicides in Budapest were caused by the famine and that similar reports are arriving from lesser Hungarian towns.

Favor Advertising to Warn Public Against Quacks.—The Franco-Anglo-American League against Cancer has put itself on record as favoring the publication of advertisements by reputable medical organizations to counteract the exploiting of quack remedies for cancer. The suggestion is that advertisements signed by the Pasteur Institute, the Academy of Medicine, or the Franco-Anglo-American League against Cancer be published in the non-medical press, warning the public against quack remedies, giving details of early symptoms of cancer, and information as to where to apply for treatment. Many physicians present agreed that a similar system might well be applied to other common diseases.

Cure of Encephalitis Lethargica Reported.—According to a cablegram from Paris, C. Levaditi and H. Larvier of the Pasteur Institute announce cures of lethargic encephalitis by means of a new serum. The description of the serum has not yet been given out.

Chicago's Allowance of Medicinal Alcohol.—According to an announcement made by Ralph W. Stone, prohibition director for Illinois, each of the two thousand druggists of Chicago may withdraw two hundred gallons of whiskey and two hundred gallons of wine every three months. The commissioner of internal revenue has announced that this quantity could be increased if the druggists could show that they really needed more liquor to supply the demand. At this rate Chicago would be using 3,200,000 gallons of wine and whiskey a year for her 3,000,000 inhabitants.

Annual Registration in Utah.—Under Senate Bill No. 35, creating the department of registration, the members of all professions who heretofore have been licensed are required annually to renew their licenses. The date set for registration in Utah is May 1, and the annual fee to be paid is \$5.

Medical College Retains the Term "Homeo-

pathic."—A proposal to drop the word "homeopathic" from the name of the New York Homeopathic Medical College met with unanimous disapproval at a recent meeting of the board of trustees of that institution.

Fund to Provide Glasses for School Children.—The Junior Red Cross of New York City, at the request of the New York City Principals' Association, has established a \$5,000 loan fund from which parents may borrow the amount needed for the purchase of glasses for their children. Over 200 children have already used the fund, paying back in instalments the total sum borrowed.

Cooperation Between Nursing Forces.—A plan of cooperation for constructive field work has been agreed upon by the directors of the public health nursing of the State Department of Health and the Atlantic Division of the American Red Cross, so that the former may have the advantage of the assistance of local field nurses in the employ of the Red Cross whenever necessary and possible, and may also be kept informed of the extent and character of the work of local Red Cross public health nurses.

Work of Babies Welfare Federation.—The Babies' Welfare Federation of New York City has recently made public its annual report for 1920, which shows that through the agency of the various organizations belonging to the federation more than 15,000 children of needy families have been cared for during the year. Public health nurses have visited 12,641 mothers to make sure that new born infants are receiving proper treatment and that the mothers are taking advantage of the facilities offered by the Baby Health Stations of the city. Hospital treatment, as well as convalescent and fresh air care, have been provided for a large number of other children, while more than 2,000 whose mothers are obliged to go out to work have been placed by the federation in homes certified by the city.

Hospital Changes Hands.—Dr. J. J. Moorhead and Dr. Irving S. Haynes have acquired possession of the Washington Square Hospital, of which Dr. Carlo Savini was formerly the head.

Dr. Ales Hrdlicka of the American University, Washington, D. C., has received a diploma from the University of Prague conferring upon him the degree of Doctor of Science.

Dr. Peter L. McKallagat has been appointed city physician of Lawrence, Mass., to succeed Dr. W. J. Sullivan, who recently resigned.

Dr. John H. Jamar of Elkton, Md., was tendered a complimentary dinner by the Cecil County Medical Society on the evening of April 6, on which occasion he was presented with a gold-headed cane.

"Modern Medicine" Changes Its Name.—Announcement is made that, beginning with the May issue, the name of *Modern Medicine* will be changed to *The Nation's Health*. This change is made so that the title will be more clearly descriptive of the present scope of the magazine.

Opposed to an Increased Tariff on Surgical Instruments.—At a meeting of the Hospital Conference of New York City held April 13, the following resolution was adopted: *Whereas*, A bill has been presented to Congress to increase the tariff on surgical instruments; and the Hospital Conference of the City of New York, representing forty of our

leading hospitals, is opposed to this increase, because of the additional burden it will entail in our charitable work. Therefore be it *Resolved*, That the Conference would respectfully call to the attention of Congress the injustice that would be wrought upon charitable institutions by an increase in the tariff on surgical instruments.

Goucher College Aids Radium Fund.—A mass meeting was held in Goucher College "further to acquaint the people of Baltimore with the importance of Madame Marie Curie's work for pure and applied science," and to enlist aid in raising the fund of \$100,000 with which to purchase a gram of radium for Madame Curie, was held on April 11. Dr. Howard Kelly and Dr. Florence Sabin of Johns Hopkins made addresses.

Physician Acquitted.—Dr. William B. Wilkinson of New Brighton, Staten Island, N. Y., who was accused of having caused the death of Mrs. Ethel M. Heier by an illegal operation, has been acquitted of the charge of manslaughter by the Supreme Court at St. George, S. I., which found that the operation was necessary to save her life.

Medical Society Elections.—THE THIRD DISTRICT MEDICAL SOCIETY, at its meeting in New Albany, Ind., April 8, 1921, elected the following officers for the ensuing year: *President*, Dr. J. L. Mitchell, Salem; *Secretary and Treasurer*, Dr. Claude Paynter, Salem.

THE NEW JERSEY SECTION OF THE AMERICAN COLLEGE OF SURGEONS, at its first annual meeting, held in Newark, April 11 and 12, 1921, elected the following officers for the ensuing year: *President*, Dr. Edward J. Ill, Newark, N. J.; *Secretary*, Dr. Carl E. Sutphen; *Counselor*, Dr. James J. Brown, Montclair.

THE IBERIA PARISH (LOUISIANA) MEDICAL SOCIETY, at a meeting held in Iberia, April 14, elected the following officers: *President*, Dr. George J. Sabatier; *Secretary and Treasurer*, Dr. Walter F. Carstens.

Obituary Notes.—Dr. NORMAN RICHARDS JENNER of Washington died suddenly of heart disease at his home, on April 16, at the age of fifty-nine years. He was graduated from the Georgetown School of Medicine in 1891.

Dr. WILLIAM H. RICE of Atlanta, Ga., a graduate of the Southern Medical College, Atlanta, Ga., in 1889, and for forty years a practitioner of that city, died suddenly of apoplexy on April 2.

Dr. E. K. MAY, a graduate of Vanderbilt University and of the University of Chicago, died at his home in Maytown, Ky., on April 2, at the age of forty-eight years.

Dr. NEWTON B. WACHHORST, for thirty-five years a practitioner of San Francisco, Cal., died there suddenly, on March 28.

Dr. AUSTIN I. HARVEY of Bangor, Me., died suddenly from angina pectoris, on April 9, at the age of sixty-eight years. He was a graduate of the Hahnemann Medical College, Philadelphia, in 1878, and was a member of the State Board of Registration since 1895.

Dr. FREDERICH KOLBENHEYER of St. Louis, Mo., died at the home of a relative in Omaha, Neb., about April 6, at the age of seventy-eight years. He was a graduate of the Kaiserliche Königlich Universität, Vienna, in 1868.

Correspondence.

TREATMENT OF FOOT ILLS.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—I was surprised to see in a recent number of the MEDICAL RECORD an editorial endorsing the licensing of the self-styled "Podiatrists," and advocating the giving of courses in medical schools to otherwise unqualified students who wished to gain a living by practising such a specialty. The excuse, or reason, given for such licensing and establishment was that the average doctor was unqualified to treat weak feet, anterior metatarsalgia, painful heels, and bunions—the more common, not to say vulgar, group of ailments to which the foot is subject. This premise is true, but the suggestion based upon it is an archaism. It is a concession to a prejudice, and to a prejudice founded primarily upon snobbery. Its adoption would open the field of medicine to further encroachments on the part of the semi-educated, such as the optometrist, the chiropodist, the chiropractor, and the osteopath.

Granted that the average physician or surgeon does not know how to treat the various disabilities of the foot, why is this so? First, because he never received any proper instruction upon the subject in the medical school. Good courses in orthopedic surgery are even now rare, and in the few good ones the mechanism and disabilities of the foot do not receive a fair share of attention. It is an almost irresistible temptation for the practitioner to disguise his ignorance by making light of the seriousness of these conditions, and sending his patients to the chiropodist or brace-maker, in the meantime soothing his own conscience by the more or less subconscious reflection that treating feet, anyway, is not quite genteel, and that one who treats feet is subtly tainted with the odor of blacksmithing, farriery, or veterinarianism.

The influence of social tradition upon the practice of medicine and surgery would make an interesting subject for study. It is not so very long since surgeons and barbers were members of the same social stratum. Indeed, in England surgeons were originally subordinate members of the Guild of Barbers, and pulling themselves up from that level, more or less by their own bootstraps, has been a long, painful, and exasperating process. The modern orthopedic surgeon is continually annoyed by the popular confusion of orthopedics and chiropody. Up to recent times considerable social disability has been attached to the practitioners of various specialties. Dental surgeons are just now emerging from it. However, now that proctologists and genitourinary specialists are no longer apologetic for interest in their peculiar fields, I see no reason why the average practitioner should not apply himself to coping even with the vagaries of the lowly foot, instead of advocating the licensing of a new order of the semi-educated to do it for him.

The truth of the matter is that feet have never been accorded their due measure of consideration. The female foot is generally regarded as being a neat finish to a lady rather than as a legitimate

aid to her locomotion. The male variety functioned as a comic adjunct to a policeman, its locomotive importance having only lately sprung into prominence as a means of getting out of the draft.

From an esthetic standpoint du Maurier was the first to call attention to the deforming effect of footwear, and the baneful influence of bunions upon love's young dream. Nowadays the esthetic considerations, of course, may be summarily dismissed as of no importance, but can one disregard the effect of bad feet upon our national efficiency? Were not almost 40 per cent. of candidates for the draft rejected because of flat feet? Are not the dispositions of a large percentage of domestic servants ruined by them? How many fat men give up golf, how many women dancing, because their feet hurt? What is the influence of painful feet upon the development of obesity?

After mature consideration of these facts, would it not be well for the medical profession to educate itself in the proper mechanical use of the foot, and the causes and treatment of its common disabilities, to inculcate in the public mind the idea that the foot is primarily useful, and perhaps to alter its present conception of the foot it now regards as ornamental? Perhaps, then, in a future generation 40 per cent. of our country's defenders who spring to arms overnight will not have to limp home before sundown. Viewing feet, therefore, from the standpoint of their national importance, are they not worthy of the distinguished consideration of the present practitioners of medicine? Shall we throw 40 per cent. of our young men to the podiatrist?

ARMITAGE WHITMAN, M.D., F.A.C.S.

283 LEXINGTON AVE., NEW YORK CITY.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, April 5, 1921.

Tuberculosis Conference.—The second conference of the International Union against Tuberculosis will be held in London from July 26 to 28 at the Engineering Hall, South Kensington. Sir Robert Philip, president of the International Union, will preside, and the conference will be attended by delegates from the United States and from twenty-four countries within the League of Nations. The retiring president, M. Leon Bourgeois, member of the French Senate, will deliver his valedictory address, and a discussion on the modes of diffusion of tuberculosis throughout the world will be opened by Professor Calmette of Paris. All arrangements for the conference are being made by the National Association for the Prevention of Tuberculosis, 20 Hanover Square W., the members of which will act as hosts to the International Union.

Free Nursing Scheme.—The introduction of free nursing for panel patients in Manchester is expected in the near future. Discussing the scheme with a press representative recently, Councillor Walter Davis, chairman of the Manchester Insurance Committee, said that some time ago meetings were held for the purpose of co-ordinating as far as possible, the various nursing schemes in operation in the city. He put forward

a proposal under which panel patients could have a nurse when the attending doctor deemed one necessary. The local insurance committee promised £1,000 towards the costs and the City Council voted £500. Subsequently, approved societies were recommended to vote out of their funds 3 pence per head per annum for nursing, and for the time being the scheme was held up until the final decisions of the various societies were received.

R. A. M. C. Memorial.—Important decisions have been taken in regard to the memorial which is to be erected to commemorate the officers, non-commissioned officers, and men of the Royal Army Medical Corps who were killed in action or otherwise lost their lives during the war. The amount contributed to the Memorial Fund is £19,328, but £1,566 has been ear-marked by donors for families and dependents of the fallen, and the sum will be allocated for administration to the R. A. M. C. Regular and auxiliary funds in proportion to be determined by the general committee. After consultation with representative officers and other ranks of all branches of the Corps, and with the cordial and generous consent of the Dean and Chapter, the General Committee have resolved to erect a tablet in Westminster Abbey, in a suitable position on the wall near the grave of the Unknown Warrior, and also to place in the Chapter House of the Abbey for permanent keeping, a Golden Book containing the names of all the members of the Corps whose services and sacrifices the memorial is designed to commemorate. Replicas of the tablet will be presented to Edinburgh and Dublin, to be placed in positions chosen by the city authorities. The provision of the memorial in these forms will be the first charge on the unallocated portion of the memorial fund, and the balance, probably not less than £10,000, will be devoted to the fund now being raised for the restoration of certain portions of Westminster Abbey. The gift will be recorded on the tablet to be placed in the Abbey wall, and it will not only be in keeping with the fine work and traditions of the Corps, but will gain additional significance and appropriateness from the fact that very many of the fallen, both officers and men, belonged at the outbreak of the war to the civilian side of the medical profession.

Death Rate from Phthisis and Tuberculosis.—A question was asked of the Minister of Health in the House of Commons on March 22, as to the number of deaths and the death-rate per 1000 from phthisis of all forms in Great Britain in 1920, and similar figures for the previous five years. The question was also put, whether as a measure of public economy he proposed to reduce the number of sanatoriums and beds available for the treatment of this disease. The Minister of Health replied that the total deaths during the past six years from 1915 to 1920 inclusive from all forms of tuberculosis were as follows: 54,295, 53,858, 55,934, 55,073, 46,312, 42,545. The death rates per 100,000 of the population for the same years were as follows: 151.5, 152.9, 162.4, 169.4, 125.8, 112.8. As the Minister had stated already, the figures for the last two years were the most encouraging since the inception of the national

scheme for the treatment of tuberculosis. The number of sanatoriums and beds available for coping with the disease was not to be reduced.

French Birth Rate.—According to the correspondent of the Daily Telegraph in Paris, the French Senate has been occupied recently with the problem of the reduced birth-rate which has troubled ministers and the medical profession for many years, but which continues to become more grave. The debate, which arose out of discussion of health ministry credits, was opened by M. Fernand Merlin, who emphasized the alarming drop in the number of births. From 1914 to 1920, he stated, there were recorded 2,779,583 against 4,232,705 deaths, exclusive, of course, of military losses, which were over a million men. There had also been nearly 70,000 soldiers incapacitated by tuberculosis. During this period the excess of women over men had risen to 2,500,000. That illustrated the peril incurred by the nation. Before the war infantile mortality had risen to 15 per cent, and since the war the population of the country areas had diminished in disquieting proportions. The problem of repopulation, he declared, was as important to France as that of finance. The two questions were inseparable. He asked for a more vigorous effort in combating tuberculosis and other maladies and greater aid to mothers and children. M. Leredu, the Minister of Health, said they must make the utmost efforts so that the French race should be defended against social plagues. The people of France must understand that unwillingness to rear families was a crime against the country. They would be the vanquished of tomorrow if their race was not equal in number to that of other races. It was the feeling of many Senators that the problem was not to be settled by an increase of the credits to the Health Ministry. Canon Collin, the Senator for the Moselle, believed in the benefits of creating a sympathetic public sentiment. "Religion," he said, "which tells women their duty is the universal remedy." All the requests for increased credits to the subvention of maternal and child-aid institutions were rejected.

Venereal Disease Patients.—At the annual meeting of Governors of the London Lock Hospital and Rescue Home, a week ago, the secretary stated in his annual report that during the year 648 inpatients had been treated at the female hospital, and 640 in-patients at the male hospital. No fewer than 99,689 outpatients had been treated, over 87,000 of these being males.

Obituary.—Dr. ROBERT MURRAY LESLIE of London died on March 29. Dr. Leslie was 54 years of age and a well-known specialist in diseases of the chest. He was senior physician to the Prince of Wales's General Hospital and consulting physician to the Royal Hospital for Diseases of the Chest, City Road. Dr. Leslie was a remarkably able writer. He was a man of charming disposition and manners, kindly and courteous to all but absolutely unassuming.

Dr. RUTHERFORD JOHN PYE SMITH, Emeritus Professor of Surgery in the University of Sheffield and consulting surgeon to the Sheffield Royal Hospital, has just died. Although of old Sheffield stock he was born in London in 1848, became P.

R. C. S. in 1875, and went to Sheffield in 1876. Like the older school of surgeons, in addition to his operative work and lecturing, he carried on a large general practice. He was old-fashioned in his ways, motorcars, typewriters, and shorthand clerks were anathema maranatha to him. He wrote all his own letters and he was a voluminous letter writer. He prepared all the patients for operation and put on the dressings afterwards. Everything from beginning to end was done by himself. When the University of Sheffield was constituted, Pye-Smith was elected the first professor of surgery.

Dr. ALEXANDER WINTER BLYTH, public analyst for the County of Devon and the Borough of Marylebone, died suddenly on March 30 in the 76th year. Born at Woolwich, the son of a medical man, Dr. Blyth was educated at King's College, London, and qualified as a medical practitioner in 1870. He was a past president of the Incorporated Society of Medical Officers of Health and Registrar of the Sanitary Institute. Dr. Blyth was the author of a number of works on public health, foods, diet and poisons and their detection.

LETTER FROM GENEVA.

GENEVA, March 15, 1921.

Epidemic Hiccough.—As some cases of epidemic singultus have been observed in the Jura district of Switzerland, the Health Department of Geneva has issued a circular to physicians requesting them to report any cases coming under observation. Although as yet there is no general epidemic of the affection a close watch should be maintained in order to study it from the onset should one develop. This form of singultus belongs in reality to the myoclonic syndrome of encephalitis lethargica; it is met with associated with other symptoms of the infection, singly or as a larvate form of encephalitis, as has been observed at Vienna, Berlin, Paris, and Geneva. The Health Department considers it quite essential to follow this affection very closely in order to ascertain what may be its etiological relations to encephalitis lethargica.

In France a recrudescence of this peculiar affection was noticed at the end of 1919 and is still present. In January of last year Dufour reported three cases of singultus with pyrexia. During an epidemic of encephalitis lethargica at Versailles, Bérard made the same remark and it would now appear that this infectious endemic singultus is unquestionably related to encephalitis, the clinical manifestations of which are at present quite numerous. Sicard and Paray had occasion recently to observe twenty-seven cases of the disease, thirteen being among the employees of the Omnibus Company of Paris. They state that the disease is often ushered in by lassitude, epigastric tension, and mild pyrexia, but they also found that in numerous cases the attack suddenly develops in the midst of flourishing health. The diaphragmatic jerks appear without warning while the patient is at his work. The clonias of the diaphragm—the singultus being in reality a myoclonia like that met with in a certain number of cases of encephalitis—and spasms of the

glottis alternate with a rhythmical paroxysm lasting for a half hour to an hour, with an average cadence of six to eight per minute. The interval between the paroxysms varies, but seems to be about two hours, sometimes more, sometimes less, but the night is usually calm. The entire cycle is from two to three days, after which the patient recovers as suddenly as he was suddenly taken ill. Netter, however, has seen some cases that lasted six or more days. Reappearance or relapses are certainly uncommon.

The temperature is usually about 99.5° to 100° F., but in some few cases it has reached 102°. The pulse remains normal and occasionally it has been slow. The blood-pressure seems to be slightly lowered during the paroxysms; the cerebrospinal fluid is normal. No ocular disturbances have so far been reported and the same applies to the reflexes, and although the psychic state is quite frequently one of distress, no disturbance of an oniric nature has been noted.

Epidemic singultus has a curious preference for males, but respects no age, although the maximum number of cases so far reported were in subjects in the neighborhood of forty, so that it might be regarded as a trifling episode of encephalitis which has an individual autonomous evolution and in itself constitutes the entire disease.

The end of epidemic singultus is usually regular insofar as a cure results, but it should be pointed out that Netter is of the opinion that the possibility of the development of more serious symptoms having the same etiology cannot be excluded, so that the prognosis should be made with some reserve. As to treatment, the usual anesthetics and antispasmodics do not appear to be of any value and morphine and its derivatives especially give no results. In some cases rhythmical tractions of the tongue, epigastric or thoracic compression over the insertion of the diaphragm, distention of the esophagus by means of a thick, hard mass of food, or an ice bag over the cervical region appear to have inhibited the paroxysms to a certain extent. All things considered, however, the treatment still remains to be discovered.

The Venereal Question.—The venereal inquisitorial investigation here seems to be buzzing in the bonnets of uplifters of all countries. It is now busy in Switzerland. The investigation recently undertaken by the Swiss Association for Combating Venereal Diseases, the Swiss Medical Commission, and the Federal Service of Public Hygiene has been approved of by most physicians, but has also met with some criticism. The trouble has arisen from the fact that the blanks sent to all the profession require the initials of the patient to be given and this the Medical Society of Geneva flatly refused to do. The indication of the patient's identity is too evident, especially when he or she resides in a small town or village. The venereal disease blanks, in the case of gonorrhea in women, did not put the question as to whether or not the gonococcus was present. This omission was purposely made in order to avoid giving the physician too much trouble, but in the future it will be asked whether the patient is gonococcus positive or negative.

The text of the blank is not clear as regards complications of gonorrhea, but by the term "complications" is meant all genital and extra-genital processes, such as epididymitis, prostatitis, cystitis, arthritis, affections of the adnexa, etc. By the term "latent syphilis" the authors of the venereal disease blank define it as "syphilis without symptoms with a positive Wassermann." It is true that latent syphilis exists with a negative Wassermann, but in these circumstances the diagnosis can no longer be a precise one and at the best can mostly be presumed and can be confirmed only by the ultimate course of events. However, when the physician is persuaded that, regardless of the absence of clinical manifestations with a negative Wassermann, the patient is not cured he should mention the case as latent syphilis with a negative Wassermann.

Variability in Biology.—The monthly lecture at the Geneva Medical Society in February was delivered by Dr. de Montet of Vevey, his subject being: "Variability in Biology and the Means for Methodically Characterizing It." The lecturer stated that the need of a method adequate for the variability of data obtained is the reason for the real difficulties met with in practical experience. Life is an indecomposable process and the living complexity cannot be broken without loss of its distinctive character. By decomposing it we come down to the physical and chemical processes, such as the synthesis of urea, albuminoids, etc., and the more the organic phenomena are dissociated the more the essential escapes us, namely, life. By substituting the precise notion of interdependence for the obscure idea of complexity, we suppose in principle that every manifestation—regardless of its own character and the particular relations that characterize it—depends upon all that exists at the same time that it does, and upon everything that has preceded it. Such is the character of vital manifestation. Example: (a) coexisting influence, such as climate, epidemics, feeding, social conditions, etc.; (b) preceding influence, such as heredity, physical constitution, education, etc. The influence of these factors should not be admitted occasionally, but always in principle. Interdependence of the entire organism is distinctly manifest; thus the study of the internal secretions reveals such complex linking together that the immediate influence of one organ over another can no longer be admitted and the relations between organs are more and more regarded as chemical correlations.

Psychology shows how much our way of observing varies according to what we want to find, that is to say, that it depends upon our hypotheses. Psychology should make us attentive of the necessity of freeing ourselves from our common prejudices and without cessation to revise our principles by comparing them with facts observed. It will reveal the insufficiency of a pure empiricism which needs no principles. The present day development of international institutes for the study of the same problems is an indication of progress upon the condition, however, that they are perfected from the viewpoint of the elaboration of many data acquired. The speaker did not believe that the adequate solution resides in the

application of the laws of Quetelet, Gauss, and Pearson, such as they are ordinarily applied. Although the method of statistics has fallen into discredit it is because it has been placed at the service of uniformity without taking interdependence into consideration. It too often crystallizes into percentages those relationships which do not bear such mechanical interpretation.

Retroperitoneal Pseudomyxoma.—At the meeting of the Geneva Medical Society on February 2 Professors Kummer and Askanazy reported a case of retroperitoneal pseudomyxoma arising from an appendix formerly the seat of appendicitis in a patient sixty years of age. It is noteworthy that this is the first known instance of a *retroperitoneal* pseudomyxoma.

Typhus.—The latest data relative to exanthematic typhus received by the Swiss Federal Health department are that from June to November, 1920, there were about four million cases in Russia, including Ukraine and Siberia. In Germany there were 255 cases from November 21, 1920, to January 8, 1921. A few cases were reported from Hungary (29) and Czechoslovakia (126 cases) from October to December 5, 1920.

LETTER FROM BELGIUM.

(From Our Own Correspondent.)

LIEGE, March 31, 1921.

Sixth French Language Congress of Legal Medicine.—Returning to the prewar custom, the next French Language Congress of Legal Medicine will hold a double meeting this year in Brussels and Liège. The sessions of the first two days (May 23 and 24) will be held at the Palais des Académies, Brussels, and will be under the presidency of Professor Stokvis. Discussions will be opened by M. Holvoet, on "The Code and Abnormals"; by Professor Ley of Brussels, on "Prison Psychiatry"; and by Dr. De Laet, on "The Spectroscopic Identification of Alkaloids." At Liège there will be discussions by Professor Stokvis of Liège and M. Lerlercq of Lille on "Mechanical Asphyxia," and by Professor Delrez on "Traumatic Shock."

Rectal Incision for Appendical Pelvic Abscess.—In a paper recently read before the Belgian Surgical Society Dr. Mayer of Brussels emphasized the advantages which this treatment offered in certain cases of pelvic suppuration. The operation was advocated by Byford and Gerster in 1887 and 1890 in articles published in those years in the *New York Medical Journal*. Dr. Mayer employs this route for drainage, the general indications for which were formulated by Routier in the *Bulletin Médical* in 1912, in cases of grave complications of appendicitis in which all other forms of treatment are contra-indicated. The technique is very simple—longitudinal incision along the anterior wall of the rectum at the site of fluctuation; drainage through a large rubber tube after copious irrigation with 0.04 per cent. solution of potassium permanganate. The results of this operation are almost always excellent, and the author reported two very serious cases, recently under his care, in which the outcome was most successful.

Otic and Cerebral Troubles Following Concussion.—At a meeting of the Royal Society of Med-

jical and Natural Sciences on March 7 Dr. Mayer of Brussels reported the case of an English officer who, just before the armistice, had suffered a rupture of the drum membrane caused by the explosion of a shell near his right ear. There was immediate deafness followed by symptoms of labyrinthine commotion (tinnitus, vomiting, vertigo), very violent headache, and, seven months later, epileptiform attacks. These attacks recurred some ten times a day. The pulse was slow (52 a minute). There was suppurative inflammation of the middle ear, and the mastoid was tender on pressure. With the assistance of Dr. Merckx the author made a petromastoid évidement, removing the carious ossicles and fungous masses in the tympanum, followed by temporal trephining. The brain, compressed by an encysted serous exudate, did not pulsate; but pulsation returned the following day after evacuation of the liquid, and a speedy cure took place. At the present time, six months after the operation, the patient is in excellent condition; the headache gradually disappeared within a few days following the operation, and the epileptiform attacks never recurred. The author found a satisfactory explanation of the pathogenesis of the ruptured drum membrane of the labyrinthine commotion, and of the tympanic suppuration in the violent atmospheric displacement caused by the explosion of the shell; but the pathogenesis of the endocranial lesions seemed to him somewhat obscure.

Progress of Medical Science.

Boston Medical and Surgical Journal.

April 7, 1921, cxxxiv, 14.

1. Ancient Empiricism vs. Modern Evidence. John B. Deaver.
2. Basal Metabolism as an Index of Treatment in Diseases of the Thyroid. Frank H. Lahey and Sara Murray Jordan.
3. Report on Recent Progress in Dermatology. John T. Bowen.

2. Basal Metabolism as an Index of Treatment in Diseases of the Thyroid.—Frank E. Lahey and Sara Murray Jordan trace briefly the history of the development of the study of metabolism, and present nine charts illustrating, respectively, the rate of basal metabolism; the calculation of percentage variation from normal, based on observation shown in the preceding; variations in estimated rate of basal metabolism by comparison with Harris and Benedict and with Dubois normals (ten cases); pre- and postoperative basal metabolism estimation in a few cases of secondary hyperthyroidism; progressive drop as a result of a single pole ligation; metabolic rate during course of surgical treatment in ten cases of primary hyperthyroidism; two cases in which, after ligation, clinical improvement and gain in weight occurred without proportionate drop in metabolism; effect upon basal metabolism rate of injection of eight minims of epinephrin (1-1000 sol.); average rate of basal metabolism in secondary and in primary hyperthyroidism. From these observations it is concluded that in a clinic for diseases of the thyroid a test of the rate of basal metabolism is an invaluable factor in the data necessary for diagnosis, that it aids greatly in prognosis, and that it probably has its greatest value as an index of the results of treatment in any given case.

Boston Medical and Surgical Journal.

April 14, 1921, cxxxiv, 15.

1. Address to the Graduating Class, Training School for Nurses. Winford H. Smith.
2. Fecal Units and Intestinal Rate. Francis Lowell Burnett.
3. Acute Inversion of the Uterus. James L. Huntington.
4. A Case of Myositis Ossificans Traumatica. Herman W. Marshall.
5. A Further Case of Tubercular Mesenteric Glands. Joseph M. Lynch.

6. Aneurysm of the Splenic Artery. Joseph Garland.
7. A Case of Congenital Cystic Kidneys. Lawrence Weld Smith.

3. Acute Inversion of the Uterus.—James L. Huntington refers, in this contribution, to acute puerperal inversion of the uterus and not to the condition of inversion where a tumor, by its weight, has gradually caused the uterus to turn inside out, or where violent intraabdominal pressure has brought about the same condition, for under these circumstances the condition is essentially chronic, and the feature of hemorrhage is lacking. From his review of the subject, and from the study of a case in point, the following conclusions are drawn: 1. Acute inversion of the uterus, postpartum, can occur spontaneously. 2. Insertion of the placenta in or near the fundus of the uterus seems the most probable etiological factor. 3. Realizing the possibility of encountering the fundus weakened by being the placental site, great care should be exercised in expressing the placenta by pressure from above. 4. Shock, whether or not accompanied by postpartum bleeding, should demand immediate vaginal examination, unless the typical spherical fundus can be plainly felt through the abdominal wall. 5. Where the diagnosis is made too late for manual reposition from below, immediate laparotomy and reposition by traction with direct transfusion, offers the best chance for a successful outcome.

Journal of the American Medical Association.

April 9, 1921, lxxvi, 15.

1. Relation Between the Specialist and the Practitioner. James B. Herrick.
2. Basal Metabolism Determinations with the Original Portable Benedict Apparatus, and a Simplified Method of Calculation. G. W. McCaskey.
3. Rural Health Centers as Aids to General Practitioners. Victor C. Vaughan.
4. Cultivation of a Filtrable Organism from the Nasopharyngeal Washings in Influenza. Leo Loewe and Frederic D. Hoffman.
5. Diagnosis and Significance of Tracheobronchial Adenopathy. Ray M. Balyeat.
6. The Surgical Treatment of So-called Elusive Ulcer of the Bladder. Herman L. Kreschner.
7. Roentgen Observation of a Volvulus at the Duodenojejunal Angle. Charles Winfield Perkins.
8. Cicatricial Laryngopharyngeal Diaphragm. G. B. New and P. P. Vinson.
9. Nutritional Work in Public Schools: Final Report of Experimental Work Done Under the Supervision of the Board of Education in the Public Schools of Chicago. Katherine B. Rich.
10. The Quinotoxin Myth. Torald Sollmann.
11. Two Small Outbreaks of Typhoid Fever Due to a Carrier. Emerson Megrall, R. G. Perkins, and E. R. Miller.
12. Alkali Tolerance in Pellagra. M. X. Sullivan.
13. So-called Pleomorphic streptococci from Human Respiratory Tract. John E. Norton, Katherine Rogers, and Constantine Georgeff.

5. Diagnosis and Significance of Tracheobronchial Adenopathy.—Ray M. Balyeat, at the Oklahoma City Tuberculosis Dispensary, studied the chests of 449 children under sixteen years of age. Believing that the degree of infection is a large factor in determining whether or not a child will develop active tuberculosis some time in life, he tried to determine the importance of certain physical signs and roentgen ray findings as indicators of the degree of the infection. Special attention was given to the significance of the D'Espine sign as an indicator of tracheobronchial adenopathy and the appearance of the hilum shadows in the roentgenogram as a means of differentiating tuberculous from non-tuberculous glands. (D'Espine claims that in young children the tracheal voice normally ceases at the level of the seventh cervical spine. In those cases in which the lymph nodes are enlarged at the root of the lungs, the tracheal voice will be heard over the upper thoracic spine when the patient whispers "thirty-three.")

From his study of the 449 cases the writer makes the following deductions: 1. A positive D'Espine sign is indicative of enlarged glands at the root of the lungs. 2. Enlarged tracheobronchial glands may be due to any one of several causes, the chief of which is an infection by the tubercle bacillus. 3. If tonsillitis, whooping cough, or measles causes enlarged tracheobronchial glands, they are usually not of sufficient size or density to give a positive D'Espine sign. 4.

Chronic bronchitis will produce enlarged tracheobronchial glands which can be differentiated from a tuberculous hilum by means of the roentgenogram. 5. A positive D'Espine sign found in a poorly nourished child usually is evidence of tuberculous infection of the hilum. 6. The degree of the infection can be determined by the roentgenogram. 7. Weight below standard is very common in children with a chronic tuberculous infection. 8. A child with a massive chronic tuberculous infection is a candidate for active tuberculosis, and should be watched carefully for early signs and symptoms. 9. In chronic tuberculous infections in children, few signs can be elicited by physical examination. 10. The degree of the infection in childhood is an important factor in determining whether or not a child will develop active tuberculosis in adult life. 11. Every child should have a thorough physical examination with the idea of determining if possible whether or not there is a tuberculous infection of the chest, and if so, how heavy. 12. Those with evidence of massive infections should be taught how to live and should be instructed in the signs and symptoms of early tuberculous activity. If this were done, the number of advanced cases of pulmonary tuberculosis would be greatly reduced.

9. Nutritional Work in Public Schools.—Katherine B. Rich, in her final report of experimental work done under the supervision of the Board of Education of Chicago, states that it is entirely possible to carry on nutritional work in the public schools without rest periods or free milk, and to obtain appreciable gains in weight and height. It is also possible to place the responsibility for their gains on the children, to their great advantage and with a saving of the nutritional worker's time. It can be done without seriously interfering with studies or classes, and both mental and physical gains more than compensate for the small amount of time lost. One efficient nutritional worker can, at a minimum, teach and care for and do clerical work necessary for 400 children each week. It is not an expensive per capita proposition, handled along the lines followed in these experimental studies. The percentage of gains can be greatly increased over what have been obtained if all-time workers are employed, and if the work has the unqualified backing and support of the school authorities, thus dignifying it as being part of the regular school program. Fifty per cent. of the children that were weighed and measured were found to be below normal in height and weight for age, or in weight for height, and that would approximate the findings in other localities, in all probability.

The country-wide interest that has been aroused in the subject of undernourishment has come none too soon; but unless the interest is wisely directed it will do as much harm as good. It should, primarily and justly, be the problem of the medical profession, of the pediatrician, and particularly of the family physician. For the benefit of the coming generations it might very wisely be given great emphasis in the teaching of the pediatric departments of medical schools.

10. The Quinotoxin Myth.—Torald Sollmann examined the data on which were based the assumption that the toxic effects of quinine are due to the formation of a more toxic substance, "quinotoxin," or quincin, as it is more properly called. It has been held that this may be formed from quinine under suitable conditions, especially in the presence of free organic acids, that these conditions would arise in the stomach, and that prescriptions containing quinine and an organic acid would be dangerously incompatible. These assumptions are not justified by the facts. At most, insignificant traces of quinotoxin could be formed in the body or be present in such prescriptions, and the formation of considerable quantities would not be dangerous. It may be formed in prescriptions containing quinine and organic acids, but this would proceed very slowly, and the quincin would undergo further transformation into inactive products. Such solutions are perfectly proper if used within a few days. They should not, however, be used after prolonged standing, when they have become discolored and precipitated; but this is not because they have become toxic, but only because they have become inactive.

Journal of the American Medical Association.

April 16, 1921, lxxvi, 16.

1. Adequate Medical Service for a Community: Some Factors of Importance. W. H. Smith.
2. Alcohol and Syphilis as Causes of Mental Disease. George H. Kirby.
3. Abruptio Placentæ: Report of Case. Edgar Snowden.
4. Psychic Management of Persons with Cardiac Disorders in Function of Structure. Robert H. Bauckok.
5. Sensitization in Bronchial Asthma and Hay-Fever. A. H. W. Caulfield.

2. Alcohol and Syphilis as Causes of Mental Disease.—George H. Kirby bases this study on data obtained from Bellevue Hospital and thirteen New York State hospitals located in various parts of the State. The data presented regarding the past and present rates of incidence of alcoholic and syphilitic mental disorders in these hospitals would seem to justify the following conclusions: Alcoholism has declined perceptibly in the general population during recent years, the beginning of the decline antedating by some years the restrictions due to war conditions and the passage of the federal prohibition amendment. Coincident with this decline, there has occurred a remarkable fall in the number of alcoholic psychoses, the lowest figure on record having been reached in 1920. During the first period of the World War, there was a noticeable recrudescence in both alcoholism and alcoholic mental disturbances; but after the United States entered the war in 1917, there was again a sharp fall which, so far as alcoholic psychoses are concerned, has not been again interrupted. Psychoses due to syphilis reached the highest point of which we have a record in the year 1918. Since then a decline in the relative and actual number of cases has occurred which, in view of the increase of population, may be regarded as at least a hopeful sign. Whether or not the more thorough and scientific treatment of syphilis in its early stages will bring about a further reduction of neurosyphilis and syphilitic psychoses is a question to be answered in the future. From the standpoint of mental hygiene, the situation may be regarded as encouraging. A notable advance has been made in the direction of controlling one of the outstanding causes of mental disease, namely, alcoholism, and as regards a second great cause of mental disease, namely, syphilis, there are indications that education, prophylaxis and improved methods of treatment are beginning to yield some results, as yet slight, to be sure, but nevertheless sufficient to be considered a sign of progress.

3. Abruptio Placentæ.—Edgar Snowden reports a case of hemorrhage occurring from premature separation of a normally implanted placenta, more precisely termed, abruptio placentæ, which is one of the most serious conditions encountered in obstetrical practice. The term abruptio placentæ is properly applied to an accident occurring in the last three months of pregnancy, for the condition arising prior to the period of fetal viability should be considered under the various forms of abortion and miscarriage. Toxemia, trauma, nephritis, diseases of the placenta and decidua, endometritis, obstruction to the uterine circulation, have been proposed as causes, none of which, in the writer's opinion, can produce a complete symptom picture of a case of abruptio placentæ. He believes a true toxemia is undoubtedly to blame, while these other conditions are but secondary. The sources of the toxin are open to speculation; but from the pathological changes produced the evidence points to some intrauterine condition, due to the pregnancy itself, and possibly being of placental origin. The initial lesion may be the so-called "uretero-placental apoplexy." The onset of a typical case is of a sudden and violent nature, the severity of the symptoms depending on the degree of separation. The management of the case depends on whether or not labor has begun, and the degree of cervical dilatation; but under any circumstances three indications are to be met: The uterus must be emptied, the hemorrhage stopped, and the anemia combated. The best treatment is that which, with the least danger to the mother, most quickly removes the fetus and placenta, considering the life of the child a negligible quantity, as it is almost always lost. With the emptying of the uterus, however, not all the danger is over, for the hemorrhage may persist, not only from atony of the organs, but also from the fact that in certain areas blood has penetrated

the muscle bundles, disassociated the fibers and rendered them absolutely incapable of contraction. Therefore, in cases of doubt a hysterectomy is the safest procedure. The prognosis is most grave, for with the best of treatment the maternal mortality is about 60 per cent., while the fetal is about 90 per cent., and should the patient fortunately survive, her after-treatment will demand for some time the utmost care and attention.

The Lancet.

March 26, 1921, cc. 13.

1. Mackenzie Davidson Memorial Lecture on the Importance of the Infinitely Little. W. D. Halliburton.
2. Congenital Syphilis. Herbert Morley Fletcher.
3. Post-Salvarsan Jaundice. A. T. Todd.
4. Generalia on the Louse Problem at the Western Front. A. D. Peacock.
5. Acute puerperal Salpingo-Peritonitis. Aleck W. Bourne.
6. A Further Series of Forty cases of Bone-Grafted Mandibles. Gilbert Chubb.
7. A Polar Expedition. A. H. Macklin.
8. The Ideal Element in Medicine. Illustrated by the Life of John Hunter. (Concluded.) H. H. Bashford.

3. Post-Salvarsan Jaundice.—A. T. Todd, Major, R.A.M.C., Consulting Physician, Rhine Forces, records observation on twenty-four cases of "914" jaundice, and as controls fifteen cases of jaundice in patients who were nonsyphilitic and had not had any arsenical treatment. The investigations made include clinical findings and narration of symptoms, as these differ from those found in catarrhal jaundice, and are therefore of importance in differential diagnosis. The urinary investigations comprise examination of the amount, acidity, presence of albumin, casts, sugar, acetone, deposit of leucin and tyrosin, bile pigments and acids, urobilin, percentage of urea, estimation of ammonia, and the ammonia-urea nitrogen ratio. The diastase was estimated in each case from time to time. These examinations were made daily until convalescence was established. All the quantitative and most of the qualitative examinations were made by the writer with the same apparatus throughout. The urinary findings justify the opinion that a lesion of the liver tissue is present and that an acidosis results; for 80 per cent. of the cases showed evidence of acidosis at some period of the illness. Moreover, the degree of acidosis was proportional to the severity of the clinical findings; also the acidosis disappeared as the other symptoms subsided. The character of the symptoms in the two classes of cases ("914" jaundice and catarrhal jaundice) show no marked differences, with the exception of abdominal pain, which in the "914" group showed no relationship to food; in three cases, all showing definite evidence of liver enlargement, the pain was dependent upon posture, being aggravated by lying upon the left side. Pyrexia was not observed; the one fatal case showed a sub-normal temperature. The skin desquamation affected chiefly the extensor surfaces of the limbs; in a few cases the trunk, especially the chest, showed scaling; there was no associated dermatitis. In the "914" group the liver was definitely palpable and enlarged in 38 per cent. of the cases; other changes were noted. The liver condition changes with the progress of the case. Somnolence was noted only when distinctly more marked than the depression and lethargy common in other forms of jaundice. The average of the cases shows that the period spent under close observation was 22 days; about three days added to this gives the average time spent in hospital. The last day after admission on which acidosis was present averaged the fourth day. No case was discharged from hospital until he had been on the full diet for a week, and had performed some light duty. Up to the time of the report no relapses have occurred. All the cases were kept in bed until diet, including chicken, was ordered. The only routine drug treatment given was sodium bicarbonate, 60 grains t.i.d.s. Laxatives were ordered when required. For 24 hours after admission full diet and no treatment was given in order that the gravity of the case could be determined. After this the patient was put on the following diets, one after another, as the urinary and clinical findings improved: (1) Starch diet; (2) fish diet; (3) fish and eggs; (4) chicken diet; (5) ordinary diet. Recovery of the jaundice controls likewise appeared to be accelerated by this treatment.

5. Acute Puerperal Salpingo-peritonitis.—Aleck W. Bourne explains the use of the term which lays due emphasis on the peritoneal factor in the pathology and treatment, whereas "salpingitis" is not enough, while "salpingo-oophoritis" is often wrong, especially early in the disease. Further, he is chiefly concerned with acute salpingitis, occurring in a previously healthy tube, which is more common than is generally supposed, and which gives rise to the characteristic clinical picture which he describes. It is known that the disease is due either to extension of organisms along the tube from the infected uterus or to an exacerbation of previous salpingo-oophoritis, which must of necessity have been only slight in degree or unilateral. That the former does frequently occur is certain, and can be easily understood; but that the disease may be caused by organisms that have lain dormant for a long time in otherwise perfectly normal tubes is proved by a case cited. Puerperal salpingo-peritonitis should be operated upon as early as the diagnosis is established. The general principles in operating are to employ conservative measures on structures in an acute condition in order, first, to save them, and secondly, to prevent chronic changes developing in them, but to deal radically with acutely inflamed and seriously damaged appendages in spite of dense adhesions which may be present. In this way very much can be done to conserve function, to prevent chronic disease, and to provide for a reasonably quick recovery to normal health.

British Medical Journal.

March 26, 1921, i, 3143.

1. The Importance of the Infinitely Little: The Mackenzie Davidson Memorial Lecture. W. D. Halliburton.
2. Glandular Fever. H. Lethby Tidy and E. B. Morley.
3. On Ununited Fractures. G. W. Beresford.
4. The Treatment of Hemorrhoids by Electrolysis. J. Curtis Webb.
5. Tuberculin in Epilepsy. James Crockett.

2. Glandular Fever.—H. Lethby Tidy and E. B. Morley record the observation of three cases and review the findings of other clinicians. This rare condition is an acute infectious disease principally of children, characterized by rapid enlargement of the cervical glands and by a less constant enlargement of the liver, spleen, axillary, inguinal, and other glands. The incubation period is from five to ten days. The onset is sudden, with the usual symptoms of an acute pyrexial attack in children; restlessness, loss of appetite, constipation, furred tongue, rapid pulse, and occasionally vomiting. Abdominal pain is sometimes present, and may be severe. Enlargement of the lymphatic glands may be present with the earliest symptoms, or it may develop rapidly within twelve to forty-eight hours. The glands constantly affected are the cervical, deep to the sternomastoid muscle about the middle of its length. The enlargement is marked, and produces a definite swelling of the neck. The cervical enlargement is commonly unilateral at the onset. The parotid and submaxillary glands are not affected. Enlargement of the axillary and inguinal glands has been noticed by most observers. Enlargement of the mesenteric glands may occur, and is accompanied by abdominal pain. There is some evidence that the peribronchial glands may be involved. The tonsils and pharynx may be involved. No rash accompanies the condition. Epistaxis and vomiting may occur at the onset. The pulse may be rapid, while the temperature is high, but cardiac complications do not occur. Constipation may be severe, and may terminate with diarrhea or with the discharge of slimy motions at the end of the first week. The liver and spleen are enlarged in a considerable proportion of cases. The temperature usually rises to 101° to 103°, occasionally to 105°. Bacteriological investigation has been directed principally to cultures from the fauces, resulting in the growth of streptococci, staphylococci and pneumococci, with influenza bacilli in a certain number of cases. Complications are rare, and the prognosis is favorable. In the acute stages only symptomatic treatment is necessary. If the cervical glands are painful, compresses, hot or cold, may be applied, or glycerin of belladonna. Constipation should be treated by simple remedies, and there is no indication for the drastic methods recommended in the past. As convalescence is often

prolonged, as some degree of anemia may develop, and as a poor state of health may persist for several months, care must be taken, especially with delicate children, and tonics of iron and cod-liver oil and malt should be administered. There is no reason to believe that nephritis becomes chronic, but it is advisable to treat it with the same care as an ordinary nephritis. Glandular fever must be regarded as infectious, and patients should be isolated. A period of fourteen days may be suggested for isolation and a similar period for quarantine.

Long Island Medical Journal.

February, 1921, xv, 2.

1. Management of Gonorrhea for the General Practitioner. N. P. Rathbun.
2. Suggestions for Gynecological Diagnosis in General Practice. Charles A. Gordon.
3. Comments on the Diagnosis of Acute Abdominal Conditions. Frank D. Jennings.
4. Inaugural Address. Arthur H. Bogart.

3. Comments on the Diagnosis of Acute Abdominal Conditions.—Frank D. Jennings states, as his own experience, that errors in diagnosis are most often due to failure to get a good history, or failure to interpret symptoms and physical findings because a certain picture is carried in mind, or in some few instances a superficial examination or none at all. Even with careful history taking, careful examining, and careful case analysis, mistakes will occur. He cites a few illustrative cases, and emphasizes that rigidity is not an essential concomitant of acute abdominal diseases, that pain is always a symptom demanding attention and respect; that the pelvic appendix does not behave in the classical way; that the stereotyped text-book description of ectopic is often seen in the case that is not ectopic; that lumps in the femoral region in women of advanced years, no matter how trivial or innocent they may seem, are generally femoral hernias, and that lesions of the abdominal wall may present symptoms suggestive of intraabdominal disease.

Bulletin of the Johns Hopkins Hospital.

February, 1921, xxxii, 360.

1. The Significance of the Bacteria Found in the Throats of Healthy People. Arthur L. Bloomfield.
2. Experimental Inoculation of Human Throats with Avirulent Diphtheria Bacilli. W. L. Moss, C. G. Guthrie, and E. C. Marshall.
3. A Clinical Method for the Quantitative Determination of Calcium and Magnesium in Small Amounts of Serum or Plasma. Benjamin Kramer and Frederick F. Tisdall.
4. The Surgical Treatment of Rhinophyma. With Report of a Case. Edward M. Hamrahan, Jr.
5. The Isolation of *B. Dysenteriae* (Flexner) from the Urine of an Infant with Dysentery. Catherine Creighton, C. E. Wagner, and Wilbur C. Davison.
6. A Contribution to the Staining of Phagocytes and Exudates. Howard B. Cross.
7. A Clinical Study of Tuberculous Salpingitis, Based upon 200 Cases. J. P. Greenberg.

1. The Significance of the Bacteria Found in the Throats of Healthy People.—Arthur L. Bloomfield states that during the course of studies on the fate of bacteria introduced into the upper air passages it became apparent that foreign organisms were rapidly eliminated. It seemed probable, therefore, that the true normal flora of these regions might be relatively simple and constant, and that, if it could be clearly defined, a background could be obtained against which the flora present in various disease conditions might reasonably be contrasted with less chance of misinterpretation. For example, should it turn out that the green streptococcus is constantly present in normal throats, its presence in disease would have to be interpreted with great caution, whereas an organism not normally present in healthy throats, if persistently found in a given individual, would indicate disease or at least an abnormal carrier state. It immediately became clear that a large number of single cultures from various individuals would help but little in the solution of this problem. It appeared more hopeful to study the flora of a few individuals repeatedly at frequent intervals over a considerable period of time, as by this means one could determine not only the organisms present, but their persistence as well as their relative predominance. Moreover, chance temporary

invaders could be distinguished from bacteria actually dwelling in the mouth cavity. Six healthy individuals were selected for this study, from which it was concluded that the organisms present in the throats of healthy people, as revealed by the method described, fall into two groups: (a) The true normal flora including non-hemolytic streptococci and Gram-negative cocci, and (b) Pathogenic or nonpathogenic organisms which are accidentally introduced and are present usually only a short time in a given individual. A true picture of the normal flora is obtained only by making repeated cultures from the same individual.

2. Experimental Inoculation of Human Throats with Avirulent Diphtheria Bacilli.—Moss, Guthrie and Marshall hold that, for a proper appreciation of the relation of the healthy diphtheria bacillus carrier to the community, it would be helpful to know which persons are actually carriers or at least the approximate proportion of carriers in the population at large. Next, it obviously would be of practical importance to ascertain whether any cases of clinical diphtheria develop among the associates of these carriers. Feeling that the results of animal experiments, previously reported, might not be entirely applicable to man, further experiments were carried out, this time with human beings instead of animals as subjects, the object being: 1. To determine whether the introduction of avirulent diphtheria bacilli into the throats of healthy human beings will result in the production of the carrier state and, if produced, how long it may last. 2. To determine whether the lodgment and growth of the bacilli may be prevented by the previous injection of diphtheria antitoxin. 3. To determine whether the organisms introduced are capable of producing (a) clinical diphtheria; (b) any subjective symptoms; (c) any objective signs in the appearance of the throat. 4. To determine whether any cases of clinical diphtheria develop among the associates of artificially produced "healthy carriers" of virulent diphtheria bacilli. 5. To determine whether the organisms introduced into the throats of normal human beings are in any way changed by this procedure, particularly as to (a) morphology; (b) staining characteristics; (c) cultural characteristics; (d) ability to produce toxin (virulence). The following points are emphasized as the result of these experiments: From the results of the experiments herein reported certain facts seem sufficiently important to warrant repetition for the sake of emphasis. (1) The carrier state was easily produced in human beings by inoculation of the throat with avirulent diphtheria bacilli. (2) When thus produced the carrier state lasted for a long time; two of the carriers still harbored avirulent diphtheria bacilli after 15 months. (3) The previous administration of diphtheria antitoxin subcutaneously did not prevent the lodgment and growth of the organisms. (4) Inoculation of avirulent diphtheria bacilli into the throats of human beings did not produce: (a) clinical diphtheria; (b) any subjective symptoms; (c) any objective change in the appearance of the throat. (5) The results of the guinea pig test for virulence were confirmed when thus tested with human beings. (6) No cases of clinical diphtheria developed among the associates of these artificially produced "healthy carriers" of avirulent diphtheria bacilli. (7) When isolated in pure culture after prolonged sojourn in the human throat, the bacilli were not altered in morphology or in their staining or cultural characteristics. (8) The bacilli showed no tendency to become virulent as a result of this type of animal passage, either in the carriers who had received diphtheria antitoxin or in those who had not. (9) Spraying the nose and throat with gentian violet in a strength which could be tolerated seemed to be without effect in eradicating avirulent diphtheria bacilli. The results of this experimental inoculation of the throats of human beings with avirulent diphtheria bacilli are in entire accord with those obtained in their previous work—with healthy diphtheria bacillus carriers. The same general conclusions drawn from their earlier work have merely been confirmed and somewhat amplified: 1. Avirulent diphtheria bacilli retain their characteristics despite long residence in the human throat or transfer from one human being to another. 2. Avirulent diphtheria bacilli are devoid of pathogenic importance for man. 3. The carrier of avirulent diphtheria bacilli is not a menace to the community.

Book Reviews.

MANUAL OF SURGERY (ROSE AND CARLESS) FOR STUDENTS AND PRACTITIONERS. Tenth Edition. By ALBERT CARLESS, C.B.E., M.B., M.S. Lond., F.R.C.S. Colonel (Temp.), A.M.S.; Consulting Surgeon, Eastern Command; Emeritus Professor of Surgery to King's College, London, and Consulting Surgeon to King's College Hospital; Formerly Examiner in Surgery to the Universities of Glasgow, Manchester, Liverpool, and Leeds, and to the R.A.M.C.; Medical Director, Barnardo Homes, etc. New York: William Wood & Co., 1920.

For a work to get to a tenth edition means that the purchaser gets something worthwhile and that the book has not flourished simply on the sometimes evanescent popularity of its author or authors. This is one of the best known and liked works on surgery in the English language, and the present edition represents all that is best.

It is five years since the last revision, during which time the world war has been fought and won. The lessons of this war have made a great deal of revision necessary; for, as Carless says in his preface, "many an old surgical practice has been tried and found wanting and had to make way for younger and more efficient methods." It is not only in the chapters where injuries due to shot and shell are considered that changes in the text have been made necessary, but in the treatment of infected wounds, the treatment of fractures, the handling of joint injuries, the surgery of the chest, cosmetic surgery, and in many other fields formerly accepted methods of treatment have been improved or superseded altogether. To revise large portions of the work on this basis has been a hard task, particularly since, as Carless says, he has been brought face to face with the task of determining the ultimate value in civilian work of the many and diverse methods which have been introduced as wartime emergencies. Time alone will tell how accurately the author has gauged the value of these expedients; but it seems to us that he has used excellent judgment and has been particularly successful in sifting the wheat from the chaff, so that comparatively little will have to be discarded when another edition is demanded.

From the first chapter, on surgical bacteriology, infection, and immunity, through the various chapters covering the so-called principles of surgery and surgery proper, to the final chapter on military surgery, the text is well written and dependable; and the book retains its enviable position as one of the best textbooks on its subject extant. The size of the page has been reduced slightly, to no apparent advantage that we can see and to the detriment of the appearance of the book as it stands on the shelf with others; so that it is to be hoped that when another edition appears the page will be restored to its former size.

TEXT-BOOK OF NERVOUS DISEASES FOR THE USE OF STUDENTS AND PRACTITIONERS OF MEDICINE. By CHARLES L. DANA, A.M., M.D., LL.D., Professor of Nervous Diseases in Cornell University Medical College; Consulting Physician to Bellevue Hospital; Neurologist to the Montefiore Hospital; Neurologist to the Woman's Hospital; Consulting Physician to the Manhattan State Hospital; Ex-President of the American Neurological Association; Ex-President of the New York Academy of Medicine; Corresponding Member of the Société de Neurologie, etc. Ninth Edition. With Two Hundred and Sixty-two Illustrations, Including Four Plates in Black and Color. New York: William Wood and Company, 1920.

For nearly thirty years this has been a standard textbook; and for the medical student and general practitioner there is probably no better book on the subject. The present revision has enabled the author to incorporate the modern advances, some of which were acquired in the late great war. Shock, emotional strain, and injuries to the nerves are some of the newer topics presented; there is also a chapter on psychology, in its dynamic, descriptive, and physiological phases, emphasizing those fundamental things which every student ought to know in order to reason clearly on the subject. A chapter has also been added on encephalitis

lethargica. We would strongly advise all readers of the work to include the two prefaces in their study of the book; the original preface gave a careful selection of the more important nervous diseases, and thereby also indicated what were of lesser importance. This method of elimination is of great value for educational purposes, and the author's brief allusions to psychoanalysis in the text and in the new preface are as illuminating as any long discussion of that subject could be, and are probably more serviceable. The student will find here almost all of the newer work which has proved of value, and in the use of this book will acquire a knowledge of nervous diseases which is sound and serviceable. The book is very readable, it is of moderate size, and it is sanely conservative, while thoroughly up to date.

THE FORM AND FUNCTIONS OF THE CENTRAL NERVOUS SYSTEM. An Introduction to the Study of Nervous Diseases by FREDERICK TILNEY, M.D., Ph.D., Professor of Neurology, Columbia University; Attending Neurologist, the Presbyterian Hospital and the New York Neurological Institute; Consulting Neurologist, Roosevelt Hospital, New York, and HENRY ASLOP RILEY, A.M., M.D., Associate in Neurology, Columbia University, Associate Attending Neurologist, New York Neurological Institute; Attending Physician, Neurological Department, Vanderbilt Clinic, New York. Foreword by GEORGE S. HUNTINGTON, Sc.D., M.D., Professor of Anatomy, Columbia University. New York: Paul B. Hoeber, 1921.

This work is new of its kind in that it is a treatise on the anatomy and physiology of the central nervous system in their relation to clinical neurology. It has been written as a result of the author's experience in teaching neuroanatomy in Columbia University and to members of the Army Medical Corps during the late war. To make the teaching of practical value they aimed to keep always in view the relation of the anatomy and physiology of the central nervous system to the clinical manifestation of the lesion there located, and they found the difficulty of their task greatly increased by the lack of a book such as the one now completed. It is a monumental work, in both size and substance, 1020 pages with 763 illustrations covering only the central nervous system—spinal cord, medulla and brain—but covering it in a way that has never been done before even by a toiling and detail-loving Teuton. It is not, manifestly, a book for the anatomical student in his early encounter with cerebral anatomy, but for the recent graduate with an abundance of time, an hour a day given to conscientious and concentrated study of its pages will give him an insight into the intricacies of the brain and medulla and the causal relationship of lesion and syndrome which will stand him in good stead throughout his professional life to whatever branch of medicine he may devote his energies. The man already in practice will find this an invaluable work of reference which will give him the solution of many a knotty problem. The illustrations, many of them colored, are excellent and add immensely to the ease of comprehension of the anatomical descriptions and of a grasp of the various lesions and their corresponding syndromes.

AN INTRODUCTION TO THE STUDY OF HYPNOTISM, EXPERIMENTAL AND THERAPEUTIC. By H. E. WINGFIELD, M.A., M.D., B.C., Cantab. Consulting Physician, Royal Hants County Hospital, formerly Demonstrator of Physiology in Cambridge University, Ex-President Psycho-medical Society. Second Edition. New York: William Wood and Company, 1920.

BEING an introduction, this book does not propose criticism of the various theories; but it does state the problems presented and discusses them with fairness. It aims to provide the reader with sufficient theoretical and practical knowledge to enable him to use suggestion in suitable cases. In its closing chapter it deals with "Repressed Memories" in common-sense fashion and is therefore most useful. It succeeds in its aim of being an introduction to a subject which needs to be properly understood both by reason of its utility when properly used, and of its risk by exploitation in ignorant and unscrupulous hands.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held January 20, 1921.

THE PRESIDENT, DR. GEORGE DAVID STEWART, IN THE CHAIR.

THE program of the evening was arranged in cooperation with the Section on Obstetrics and Gynecology.

The Administration of Pituitrin at the Beginning of the Third Stage of Labor in One Hundred Consecutive Cases.—Dr. GEORGE H. RYDER presented this paper, in which he said that the third stage of labor had always been a matter of concern to the obstetrician, because at any time during this period hemorrhage might occur. It might occur in any kind of labor, even in the easiest and apparently the most normal. Several methods were in use for preventing hemorrhage during the third stage of labor and for insuring the complete expulsion of the placenta: (1) The fundus was left entirely alone and untouched, and after a certain time the placenta was expressed by Credé. This method was mentioned only to be condemned, for it seemed too uncertain and haphazard. (2) The obstetrician looked after the fundus himself, putting his hand on the patient's abdomen after birth of the baby; he located the fundus through a sterile towel, and by holding it and gently tickling it with his finger tips when it started to relax he could keep it well contracted and prevent hemorrhage. Finally, at the appropriate time, usually in from ten to twenty minutes, he could cause the expulsion of the placenta by using Credé's maneuver. Unfortunately, he could not often use this method, for the new born child claimed his attention. He must see that it cried well, tie, cut, and dress the cord, and attend to the baby's eyes. These duties might be delegated to an assistant, but they were of so great importance that the obstetrician usually felt obliged to attend to them himself. Therefore the third method was used. (3) The obstetrician felt the fundus from time to time, as he was able through a sterile towel, and for the rest of the time, until he had attended to the baby, he intrusted the care of the uterus to a nurse or assistant. Unfortunately few nurses knew how to hold a fundus in the third stage of labor, and even of the doctors themselves many were almost equally ignorant. Except for a few who had had unusual experience, practically all nurses failed to locate the fundus at all, and spent their time holding on to, or actively massaging the patient's abdominal wall, while the fundus was riding above their hand entirely untouched. Or, if they did locate the fundus, they lost it as soon as it softened and relaxed, a time when it especially needed attention to prevent hemorrhage. Again, when the fundus was hard and well contracted, they persistently rubbed and prodded it. This tended to cause premature and incomplete separation of the placenta with bleeding. (4) The use of ergot in the third stage of labor was of little advantage and even dangerous. It was slow and caused a continuous tonic contraction of the uterine muscle, and if that happened before the placenta was expelled, the uterus might clamp down tight upon it and make expulsion difficult, even causing hour-glass contraction. It was a safe rule that ergot should never be used until the uterus was empty. (5) The use of pituitrin in small doses in the third stage of labor acted to produce not tonic contractions but clonic contractions, contraction followed by relaxation. This might be safely used on a uterus that was not empty; its action was much more rapid than that of ergot, and when given hypodermically it acted in from two to seven minutes, but continued its action only twenty to thirty minutes. For years it had been his routine practice to have a hypodermic syringe filled with 1 c.c. of pituitrin, ready during the third stage of labor. On the first sign of undue hemorrhage this dose was given hypodermically, and shortly after, when the uterus was felt to contract firmly, the placenta was expressed by Credé's maneuver. This was followed by a drachm of ergotole by mouth. Many observers had reported good results from the administration of pituitrin at the beginning of the third stage of labor, as a routine, claiming that the management of this stage was thus made

easier, and the satisfactory expulsion of the placenta was made surer. With a view of testing this method, it was tried on 100 ward patients at the Sloane Hospital for Women during the summer of 1920. Irrespective of the kind of labor or of the condition of the patient, each woman at the beginning of the third stage was given 1 c.c. of pituitrin by hypodermic injection. The fundus was then held for twenty minutes, unless the placenta was expelled spontaneously before that time. No attempt was made to express it sooner. For comparison 100 other labors were observed in which pituitrin was not used, at the beginning of the third stage. Of the 100 cases receiving the pituitrin, 86 were normal vertex deliveries; 80 had no medication, pituitrin or ergot, after labor, and showed no need of it; 20 had either pituitrin or ergot after labor, because they did show need of it; in 25 the placenta was expelled spontaneously before 20 minutes; in 75 it was expressed by the Credé at the end of 20 minutes; in 74 with slight pressure. All of the 100 placentas came away complete. None needed manual extraction. There was no hemorrhage of the first degree, namely, 16 ounces, the average amount being 5.9 ounces. After labor the fundus was observed to remain hard for one hour in 93 of the 100 cases. Of the 100 non-pituitrin cases, 88 were normal vertex deliveries; 45 needed pituitrin or ergot post-partum; none of the placentas were expelled spontaneously; 98 were expressed by the Credé easily; two placentas were extracted manually. The hemorrhage was slightly greater than in the non-pituitrin cases, an average of 8.2 ounces. In the puerperium 60 had no temperature at any time of 100° F. or over, as against 74 in the pituitrin series; and 40 did have temperature at some time of 100° F. or over, as against 26 in the pituitrin series. The writer also reported a series of 7 private patients in which he used this method. He concluded that while the series was too small to allow of definite deductions, it was a safe procedure; it tended to spontaneous expulsion of the placenta; it tended to lessen the amount of blood lost; it made guarding the fundus during the third stage easier, though it did not do away with the necessity of watching or holding the fundus; it was probably better not to wait twenty minutes as a routine before trying to express the placenta, as was done in this series. He believed the method worthy of further study and consideration.

Dr. WILLIAM E. CALDWELL said that one hundred cases in which pituitrin was used as soon as the baby was born did not prove that the pituitrin would never cause trouble. But Dr. Ryder certainly had shown that its use was safe as a routine in the majority of cases. There were no cases of really adherent placenta in Dr. Ryder's series. He thought an adherent placenta was comparatively rare, but it certainly did occur, and it was conceivable that the pituitrin might make the manual extraction more difficult. In such a case it might be better to wait until the action of the pituitrin had passed. Or, if there were a partial separation with bleeding, under chloroform anesthesia it should be possible to overcome the action of the drug. Dr. Caldwell believed an adherent placenta should be removed manually and the uterus packed. Having seen some of Dr. Ryder's cases, and having tried it on some of his own, he believed the uterus acted very much much better during the third stage when pituitrin was used. It did not balloon up as much, and therefore it was easier for the nurse, with her fingers on the fundus, to keep track of its condition, without constantly losing the uterus. In multiparae the speaker was disposed to believe that there were fewer after-pains if pituitrin was used in the third stage. Before Dr. Ryder began his experiments he thought it possible that there might be relaxation of the uterus after the effect of the drug had passed. Very few of Dr. Ryder's cases required a second dose of pituitrin or ergot to keep the uterus in good condition.

Dr. RALPH W. LOBENSTINE stated that he had been using pituitrin in the third stage of labor in upward of 115 cases. His practice had been to administer 5 minims directly after the birth of the child and from five to eight minutes after the expulsion of the placenta. The only modification of this dosage was that in those cases with a history of sudden violent hemorrhage in the third stage a full ampoule of the drug had been

given at the first dose, this being followed, after the expulsion of the placenta, with one ampoule of aseptic ergot. Dr. Lobenstein said he was still old-fashioned enough to believe in holding the fundus during the third stage of labor and in gentle massage in case of relaxation. His nurses were taught to do this correctly, and he or his assistant verified this from time to time. His patients in this series had all been private patients, many of them in rather delicate health—women requiring close watching, in whom the unnecessary loss of six or eight ounces of blood was often of real significance. He had not noticed that the placenta was expelled any more quickly by this method, nor did he agree with Dr. Ryder that it was an advantage to have it expelled quickly. This method certainly seemed to lessen the amount of blood lost, but it caused at times a disagreeable amount of pain during the first twenty-four hours post partum. He did not think the method should be generally used. For average cases it was unnecessary; it was expensive and it might be dangerous.

The Least Common Multiple in Obstetrics.—Dr. HERBERT M. LITTLE of Montreal made this presentation. He showed that the views expressed by the modern novelist, if taken as those ordinarily accepted by the laity, would suggest that the average woman entered upon pregnancy not only with a dread of the outcome for herself and baby, but with the practical assurance that, even should both survive, the ordeal would be a terrible one. He questioned whether this point of view was justifiable and whether it was not time to take counsel together, with a view to improving their work, if at all possible, and placing before the public the results of the proper handling of maternity cases, the infrequency of maternal deaths, and the relative unimportance of childbirth as a cause of maternal death, when there had been sufficient prenatal care. The methods in use at the Montreal Maternity today were simpler than at any time since that institution was opened, and the results, so far as he could classify them, better than at any period since that date. It was to a consideration of a simple routine—the smallest possible combination of all that was best—the least common multiple of methods—that he would invite attention. Maternity was a test of function, and pregnancy should be a perfectly normal state for a normal woman. Beyond the injunction to drink plenty of water, to be sure that there was a daily evacuation of the bowel, and to massage the nipples in order to facilitate nursing, little advice was necessary. Apart from relatively frequent examinations of the urine, he believed the best thing to do was to leave the patient alone as much as possible until within the last month. Why they should not ride, rolf, or swim he had never been able to understand, and, aside from being told to be careful at such times as menstruation would take place were they not pregnant, they were allowed every freedom. The three chief complications of pregnancy from the standpoint of the practitioner were vomiting, toxemia, and pyelitis. Personally he believed that there was no such entity as the pernicious vomiting of pregnancy; that to severe vomiting early in pregnancy there were sometimes added the toxic results of acute starvation, which was not remarkable, but in twenty years he had seen no more than five cases in which the emptying of the uterus was necessary or justifiable. He had found that, even where vomiting had assumed rather serious proportions, it had always been possible to prevent starvation by the administration of such foods as were not easily vomited; and a great many patients had found early relief when placed on a diet of nuts, raisins, and milk chocolate. The passive congestion induced by wearing a band about the neck before the patient left her bed was also a help and had given remarkably good results. It might be objected that these were methods of suggestion. Perhaps so. The addition of a hypodermic injection of corpus luteum extract could do no harm and had a therapeutic basis. During the past five years they had had many more cases of pyelitis than formerly, and the surprising thing was that so few were recognized outside the hospital. In the treatment of this complication they avoided catheterization wherever possible, and where postural treatment, large doses of urotropin, and forced fluids failed, and the patient's condition became aggravated and there were recurring chills, they had no hesitation in emptying the

uterus. They had been able to do a very little with the nephritis toxemia of pregnancy. In the management of labor the pelvis was the most important factor, but the present division of pelvis into normal and contracted led, he believed, to many unnecessary difficulties. Pelves, even when normal, might be disproportionate, and the so-called contracted pelvis were only an obstruction to labor if disproportionate to the size and shape of the child which was to pass through the canal. Exact pelvimetry was not a substitute for antepartum examination of presentation and position and careful watching of the child in the second stage. It was perfectly true that when the bi-ischial diameter fell below 8½ cm., the birth would be abnormal. Here, the biparietal diameter of an average head must lie behind the bi-ischial line; and if forceps was applied, the entire instrument must lie posterior to the attachment of the transversus perinei muscle. A realization of the danger of extensive damage to the soft parts, together with the relative certainty that the head could pass the pelvis, indicated either deep episiotomy as a preliminary to a spontaneous birth of the head or the application of forceps, with the distinct understanding that a laceration involving the rectum was almost inevitable. The ability to repair satisfactorily such laceration, however extensive, was, he believed, the hallmark of a competent obstetrician. In discussing the question of operative interference, Dr. Little said he did not believe version was a desirable operation in the case of a primipara, and in the case of a multipara he believed it always attended with the grave risk of extensive laceration of the cervix. On the other hand, when the head was arrested in the pelvis and force exerted by the abdominal muscles seemed insufficient to cause the head to advance, his suggestion would be that operation should be performed when it was believed the moment had arrived when the reparable damage that might result from the operation was less than that which would result from allowing the labor to proceed normally. The gravest danger in the labor of any primipara was an overstretching of the recti muscles with resultant increased dystocia in subsequent labors. The causes of maternal death were most closely associated with two complications, infection and hemorrhage. In order to lessen the occurrence of these, three factors in labor deserved special consideration: (1) Rectal examination; (2) median episiotomy; and (3) absolute discontinuance of any medication after the delivery of the child. This included the discontinuance of purgation and the administration of ergot. Non-massage of the uterus allowed a more regular and uniform contraction than where it was held or massaged, and as a result the placenta separated more easily and there was no tendency, by forcing the organ with the membranes protruding from the cervix into the vagina, to smear organisms from the posterior fornix and vagina over the cervix when the placenta eventually separated. The placenta was allowed time to separate, the patient regaining consciousness and separating it by her own efforts. Where episiotomy was performed the sutures were then tied and the fundus watched. It was true that a certain amount of clot might form in the cavity, but at the end of a half hour this was expressed and by that time the formation of thrombi at the placental site had taken place and the patient was secured from further danger from this variety of concealed hemorrhage. Dr. Little advocated emptying the bladder as a matter of routine with the laying of the sutures, since this not only allowed of better contraction of the uterus, but the possibility of later catheterization was markedly minimized. They had been following Dr. Ross McPherson's plan of the non-administration of purgatives during the puerperium, and found that patients who did not have purgatives ran a much smoother clinical course. He advocated the method if for no other reason that the lessening of the amount of care required by the normal case and the resulting increased time of the nurses for the care of those patients who were seriously ill. In the last five years, in some thousands of cases passing through the Montreal Maternity, they had had not more than five breast abscesses and none of these was in the public service. For this, he believed, two factors were responsible: (1) The abolition of breast pumps, and (2) the discontinuance of any special treatment of the nipples other

than care for cleanliness. Occasionally there might be collections of fluid in the breast, which for the surgeon had all the earmarks of distinct abscess, but massage toward the nipple would almost invariably free the duct, and putting the breast at rest for twenty-four hours would effectively prevent the breaking of the capsule surrounding the gland tissue and the involvement of the fatty tissue of the breast. Not infrequently patients complained of pain in the breast, a fluctuating mass, and high temperature. In these cases a piece of white absorbent cotton was the indicator. Ordinary milk would not stain the cotton, but the content of the distended sac invariably showed a dirty greenish yellow. For further involution, hot vaginal douches of formalin were given on the ninth day. Intrauterine douches, he believed, did harm, and he never gave them immediately after labor, but he had used them not infrequently on the fourteenth day where there had been mild infection and rather profuse lochia and a boggy uterus at the examination for discharge. The treatment of the cord was emphatically to leave it alone. Results from the use of a plain dry dressing had been more than satisfactory, better than when alcohol was used.

Dr. JAMES CLIFTON EDGAR expressed the opinion that what had been said about pituitrin was very much to the point and very valuable. Broadly speaking, he was opposed to the use of any drug during labor, and while pituitrin was most valuable and he made it a point always to have it ready for use in private practice, he would hesitate to use it as a routine. His chief objection to its use as a routine procedure was that it caused so much after-pain. One almost always had to follow it with some sedative in order to control the terrific after-pains that would not permit the woman to sleep. Another objection was uncertainty as to its action. He had tried different preparations and had come to the conclusion that its action was to a considerable extent dependent upon the susceptibility of the patient. Some patients it did not act upon at all, and in others it acted out of all proportion to what one would have expected. Its excessive action was open to great objections. Dr. Edgar said he was accustomed to giving one drachm of ergot after the third stage. He was opposed to any medication during labor without pretty definite indications. If asked what he considered a positive indication, he would say what was indicated for the comfort and safety of the patient. He had given pituitrin at the end of the third stage and repeated it at the end of two hours, and that was all. He did not see why one should pitch on a certain time for the expulsion of the placenta; he did not see why one should fix on twenty minutes. He thought if necessary one should wait sixty minutes. Pituitrin offered a tremendous advantage in allowing the obstetrician to give more attention to the baby, but it took only a few minutes to care for the baby. He was quite in accord with the statement that the average nurse did not know how to hold the fundus. He thought it was the obstetrician's duty to watch the fundus. Dr. Little's paper was most interesting and he had touched upon some tremendously important questions. The speaker was not prepared to throw overboard lateral episiotomy, though he thought it looked as though Dr. Pomeroy's contention was correct that the median episiotomy was the proper one. He had seen patients come back in whom it was hard to find the incision, though that did not mean that the muscles beneath were not torn. The claim was made that with the lateral incision one cut into the belly of the levator and on one side. He felt that, on the other hand, there were many advantages connected with the lateral incision, especially the healing and the lessening of the danger of cutting into the rectum. He wished Dr. Little would speak of the extension of the incision into the gut, for there must have been some such accidents without question. He liked what was said about anticipating trouble and not doing anything unless there were positive indications. There was, however, something more than that. It was the duty of the obstetrician to anticipate emergencies and not to wait until a woman had lost a great deal of blood and had a pulse of 120 before preparing to do something. He was quite in accord with what had been said in regard to nausea and vomiting, but was not entirely in agreement about the mild kidney cases requiring emptying of the uterus. In a mild kidney case emptying of the uterus was not

always indicated, and one was often forced to carry these women along, particularly if they were Roman Catholics, and with care, proper diet, and keeping the skin active many could be carried through. Mild kidney lesions might sometimes improve later. He had known instances in which a woman had gone twice to the eighth month and lost her baby, and then in a third pregnancy had gone to full term. Broadly speaking, however, a kidney lesion demanded emptying of the uterus.

Dr. F. A. DORMAN said that Dr. Little in his paper had covered the whole range of obstetrics. Fortunately all women did not take the view of obstetrics Dr. Little had pictured. Many pregnant women were optimistic and did not think of childbirth as "going through the valley of the shadow." A certain proportion of women thought it was a normal process. Dr. Little stated that the pregnant woman could do pretty much as she liked, but the speaker did not think she could be allowed her usual activities. Some could go through their pregnancy safely, but the woman who played golf and tennis was apt to get herself into trouble, and then she would ask the doctor why he had not told her to avoid unusual exertion. As to the nausea and vomiting, many women understood that a little nibble between meals would avert vomiting, but women who had an extreme aversion to food, unless advised to eat frequently, neglected this precaution and suffered more severely. Pyelitis, Dr. Dorman said, he saw occasionally, but had not been flooded with these cases as Dr. Little said he had been. Very rarely did he see critical cases that demanded emptying of the uterus. Personally he felt that catheterization helped to find the stricture and that the patient responded to temporary drainage. He was a strong believer in the beneficial effects of posture, flooding the system with water, and antiseptics. In every borderline case, if the woman had not had the advantage of treatment, one might try careful diet and elimination, and, if the case was a borderline case, she might be carried through, but these were not the cases that were threatened with eclampsia. Dr. Dorman said he was a believer in rectal examinations and thought one could learn almost everything that way, but there were times when a vaginal examination was useful, and, with surgical care, he believed there need not be much morbidity. He asked Dr. Little how he determined the condition of resistance of the cervix. Rectal examination of the cervix was not of the prognostic value that it would be if one had the finger in the cervix. He also asked Dr. Little regarding the indications for episiotomy, whether one should assume that he was going to lose the perineum and, rather than have the possibility of sewing it up, do an episiotomy. It seemed to him that the tendency at present was to lose heart and do an increasing number of episiotomies. Where there were vaginal tears it was well to proceed to put in the sutures before the patient came out of the anesthetic. By prompt work one might avoid anesthesia in the third stage. Dr. Dorman asked Dr. Little if he did not hold the uterus in the third stage, how he knew that it was not ballooning and filling with blood. What was his rule when he discarded cathartics, and what was his rule in regard to enemas? He used catharsis systematically on the third day, not because he thought the patient could not empty the rectum by an enema, but because he thought the catharsis relieved the distention of the breast. He was heartily in sympathy with doing away with the breast pump. He thought it gave an artificial stimulation to the function of lactation. He also believed that an ordinary lump meant very little and was not a sign of future abscess or mastitis, unless it occurred in the second week and was accompanied by a rise in temperature. The intrauterine douches he had discarded, preferring to use postural treatment, elevating the head of the bed if there was faulty drainage.

Dr. W. E. STUDDIFORD said that it was most important that the pregnant woman should be kept constantly under supervision. The question of determining the measurements of the pelvis and the action of the kidneys and bowels was most important and made for the woman's good health and that of the baby. He also had received a copy of the report from the Metropolitan Life Insurance Company to which Dr. Little had referred. This report proved that there was an increase in puerperal sepsis and a very evident increase in the

toxemias of pregnancy. It was a question whether there was really an increase in the number of cases of puerperal sepsis or whether cases were being recorded more carefully than formerly. When it came to the toxemia of pregnancy there might be several things responsible. In his experience there had been an increase in the number of kidney cases, not eclampsia. It was a question whether the recent epidemic of influenza had not had some effect on these women. It was well known that influenza had affected most persons between the ages of twenty and thirty, and that many attacks of influenza were followed by cardiovascular or renal pathology later on. It was important that such conditions be recognized early so that the pregnant woman could be placed under treatment. Many of the mild types of kidney affections could be carried through, while in others there occurred placental changes and death in utero. As regarded pyelitis, his experience had not always been like that of Dr. Little. Most cases under proper diet, rest, and posture, where there was pressure on the uterus, would be relieved. He was not sure but that many of these cases were due to focal infections involving both the teeth and the tonsils. Contrary to the old idea that no dentistry should be performed during pregnancy, he considered that proper and conservative dentistry was necessary. The statement had been made that in performing episiotomy the levatores ani muscles were cut; that was incorrect. However, he felt that advocating episiotomy as a routine measure was not to be encouraged. Suturing the incision was not the simple thing described; it required a certain amount of skill in surgical technique. He did not believe any harm was done, and many times a great deal of good was done by the judicious use of a cathartic post-partum.

Dr. RYDER said that Dr. Caldwell stated that objection had been made to the use of pituitrin in the third stage of labor on the ground that it made management of adherent placenta more difficult. He did not see why this should be so. The action of the pituitrin lasted only twenty or thirty minutes and the attempt to express the placenta was rarely made before this. If the placenta was found to be adherent, then the action of the pituitrin had already worn off, so that it could have no effect on the condition or treatment. Dr. Caldwell also mentioned the possibility of relaxation of the uterus after pituitrin. A study of this series had not shown any such effect. In ninety-three of this series the uterus remained hard post-partum. In six it hardened and softened alternately, and on only one did it remain soft persistently until another dose of pituitrin or ergot was given. Dr. Lobenstein had said he believed holding of the fundus during the third stage was always necessary as a routine precaution against hemorrhage. He entirely agreed with him. He thought that if those who advocated leaving the fundus alone during the third stage could have the amount of blood lost actually measured in each case they would be surprised to see how much it was. Hour-glass contraction was not seen in any of this series. In one case there was difficulty in expressing the placenta. Three different attempts were made at intervals of twenty minutes, and then under ether it was expressed. In the non-pituitrin series, however, there were two such cases, and in these even the last attempt under ether proved unsuccessful, and the placenta had to be extracted manually. Dr. Edgar and Dr. Lobenstein spoke of pain after the use of pituitrin. He had not seen this, and he had been using pituitrin post-partum for years. Of course, many multiparae had after-pains whether given pituitrin or not, but he believed pituitrin and also ergot lessened this tendency by preventing the formation of intrauterine clots. At any rate, the action of the pituitrin was of such short duration that he did not see how many of the after-pains could be ascribed to its use. He entirely agreed with Dr. Edgar that ergot given post-partum added to the comfort and safety of the patient. Dr. Edgar said he did not like a specified time of twenty minutes for the expression of the placenta, and that he would wait sixty minutes or even two hours. He could see no advantage in waiting such a long time as this as a routine procedure. He believed it would add to the amount of hemorrhage and to the discomfort of the patient. The methods of managing the third stage of labor were not at present entirely

satisfactory. They caused the obstetrician much worry, they were not understood by the average nurse, and they allowed unnecessary hemorrhage. The administration of pituitrin at the beginning of the third stage of labor was an attempt at finding a more satisfactory method.

Dr. LITTLE, in closing the discussion, said he regretted that in his brief paper he had omitted a number of things which had been brought up in the discussion. In the nephritis cases he did not mean that all pregnancies should be terminated, but few nephritics with a history of one or eight months' premature delivery showed improvement in a future pregnancy or carried the child for a long time. In such patients one could never fix the time for the induction of labor. In the first pregnancy one should allow the woman to carry the child as long as she could and do everything to help her. While it was more or less hopeless, it was worth while trying. He had never been able to bring through to term a nephritic who had had two previous miscarriages. The blood pressure remained high and there were infarction and thrombosis of the placenta. In regard to golf, tennis, etc., he did not mean that the woman should take unusually violent exercise, simply that she might do the things that she was accustomed to doing. The average woman got down and scrubbed and did all kinds of housework. Why not play golf or tennis? It was impossible to prevent women from doing many of these things except by constant supervision, and he had seen no ill results from freedom. The teeth might bear some relation to the infection of the kidneys. The primary condition, however, was the hydronephrosis, often due to constriction of the ureter by torsion just outside its junction with the bladder. Dr. Little said he had tried both median and lateral episiotomy, particularly if forceps were applied. One heard older obstetricians say they never had had a perineal tear. The pelves of women today were different. They were narrower and there was a closer approximation of the tuberosities of the ischium and a shorter bi-ischial diameter; therefore, a smaller proportion of children could have spontaneous birth. He believed that, if one did an episiotomy and repaired it, the woman was better off in a future pregnancy than if the perineum had been much distended or irregularly lacerated. He had seen some patients go through a second labor after episiotomy without any damage to the perineum. Unless there was considerable bleeding he thought it better to leave the uterus alone, but he did not wait two hours, and how many men did so? Dr. Studdiford said that some of the speaker's patients were uncomfortable without cathartics. Many, he believed, thought they were not getting enough attention. On the whole, it had been pretty satisfactory, and a look at the charts would show that there were fewer rises in temperature in the patients who did not have cathartics. Dr. Dorman spoke of the cathartic being given when the milk was coming in. It used to be thought that the giving of castor oil prevented milk fever. No one today believed in milk fever, and, if the woman was not going to nurse the baby, the milk would go just as quickly if no cathartic was given.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, Held March 9, 1921.

THE PRESIDENT, DR. MORRIS PIERSOL, IN THE CHAIR.

Peritonitis.—Dr. JOHN B. DEEVER read this paper, in which he said that he was not aware that he could offer anything new on the subject of peritonitis, but he agreed with the committee which suggested the topic for the evening's discussion that it was one of such vast importance that it did not suffer from being repeated from time to time, even though its most salient features were probably familiar to all. Aside from the very rare cases of scalled chemical and idiopathic peritonitis which probably represented a hematogenous or lymphatic infection, the most important source of infection in peritonitis was directly from some intraabdominal organ, mainly the appendix, the intestines, the female internal genital organs, the stomach, and the gallbladder, the result either of trauma or disease or both. The first effect of the bacterial invasion was a

hyperemia together with exudation into the subperitoneal tissue of the part around the infected focus, soon followed by exudation of fluid into the peritoneal cavity. This fluid was at first protective and bactericidal in character, but, by impairment of its vitality, it was gradually converted into pus, the rate of conversion being dependent upon the degree of intraabdominal tension, the virulence of the infecting organism and the individual power of resistance. Early in the process, unless the exciting organism was one of great virulence, the resistance of the body and particularly the protective powers of lymph and of phagocytic leucocytes assisted in inducing more or less prompt absorption. But the protective properties of this early turbid peritoneal fluid were lost soon after the serous and seropurulent stages of exudation had passed, and the damaged peritoneal membrane responded by depositing a fibrinous material rich in leucocytes, and thick and tenacious. The effects of this deposit was the coffee-damming of the lymph and blood vessels and cementing the adjacent peritoneal structures together, thus shutting off and isolating areas which were so highly infected as to interfere with absorption and the bacterial action of the exuded fluid. Diffusion we knew was increased by general bodily activity and movements of the diaphragm, and that reduced respiratory force and peristaltic movements were nature's way of preventing diffusion. Practically we made use of this knowledge by putting the body at complete rest and by means of proper posture encouraging the gravitation of the noxious fluids to the lower and less dangerous portions of the peritoneal cavity. By far the most frequent avenue by which the peritoneum became infected was from perforation of some intraabdominal viscus—the most common, of course, being the appendix. But, whatever its origin, the symptoms of peritonitis had much in common. In the order of their occurrence these comprised pain, vomiting, fever, distension, rigidity. The pain, especially in the presence of perforation, was sudden and severe, its intensity varying somewhat according to the organ involved and its pathologic condition. In appendicitis, the most common source of peritonitis, for example, the initial pain was very severe owing to occlusion of the appendicular artery and beginning necrosis. But later when necrosis was complete, the pain lost its severity; indeed, it might subside altogether. This subsidence without doubt was the most serious of the many insidious features of nearly all types of peritonitis, more particularly, however, of appendicitis. The false sense of security aroused was responsible for many of the fatal cases of acute appendicitis. The initial pain was often accompanied by a chilly sensation or a distinct chill, and, in case of perforation, was soon followed by primary nausea and vomiting and the typical reflex rigidity and exquisite tenderness of the abdominal muscles, the latter being usually more marked over the seat of the trouble. The danger of purgation in acute abdominal conditions was one that could not be too frequently emphasized, while it was true that the practice was on the wane among physicians, it, nevertheless, was still entirely too common among the laity, and it was the manifest duty of a general body like the County Medical Society to spread effectual propaganda on this subject. There were, of course, some cases, fortunately few, in which the virulence of the infection was such that nothing that could be done was of avail. And at the other extreme there were mild cases in which the inflammation was transitory and subsided with or without treatment and with or without leaving any trace of its presence. But it was impossible to tell which of such cases would or would not subside, for so much depended on the degree and the type of infection. While the peritoneum could take care of a moderate number of virulent organisms, their presence in numbers beyond the limit of tolerance might result in a dangerous peritonitis, and, if eventually perforation and gangrene developed, the disaster was complete. In a diffuse appendical peritonitis with no definite point of localization and with peristalsis absent, the question of operation was at one time a difficult matter. But with the recognition by Ochsner, Murphy, Fowler and their followers of the value of complete rest and the institution of the now generally accepted treatment which bore their names,

the question as to when to operate was more easily decided. There was, he was aware, a certain class of surgeons who boasted of operating on every case of acute appendicitis no matter at what stage it might be. Dr. Deaver said he had expressed his opinion of this procedure on numerous occasions. He repeated that he who operated in a case of acute diffusing peritonitis after the first thirty-six or forty-eight hours of the onset of the peritoneal inflammation with no evidence of a localizing point was, in the majority of cases, not serving the best interests of his patient, nor his own best interest either, nor that of the profession. In the presence of a circumscribed peritonitis with a definite localizing point of exquisite tenderness, due to an acutely inflamed, perforating or gangrenous appendix, operation could be undertaken in the absence, of course, of constitutional or other contraindications, provided the proper technique was observed with respect to safeguarding the peritoneum from contamination by the proper disposition of gauze packings. Peritonitis the result of intestinal obstruction, gastric, duodenal, gallbladder, intestinal, or colonic perforation, should be immediately operated if the condition could be recognized, which it usually could be if the case was seen early. Too thorough operation in peritonitis too often spelled death. Peritonitis was dangerous directly in proportion to the absorption. It was not the inflammation of the peritoneum that was fatal, but the toxins which were absorbed from the products of the inflammation that caused death.

Dr. ROBERT G. LECONTE said that the surgeon should never forget that the peritoneum was a protecting membrane. It surrounded the viscera, which were subjected to all kinds of inflammation and to traumatism, and its first function, when an inflammation or a trauma damages the underlying viscus, was protective, whether the injury was simply a moderate bacterial invasion or something more severe. In operation the peritoneum should be treated gently, because it was Nature's means of walling off or protecting against the advance of the inflammation. The serum that was thrown out at the point where inflammation started was slightly bactericidal. It was toxin that killed, not what we saw in the peritoneal cavity. Therefore, if operation was undertaken for peritonitis the cause which had produced it must be removed with the least possible traumatism. The moment that was done the operation was over, with the exception of draining the dependent portion if pus was present. If the abscess in the peritoneal cavity was opened one did not have to swab or do anything else. Absolute diagnosis in abdominal catastrophe was not necessary. When the catastrophe occurred, if the surgeon was not in the abdomen within four to six hours every half or quarter hour after that counted against the patient, and if it was going to take a doctor ten or twelve hours to find out that some acute catastrophe had occurred before the patient came to the hospital, and maybe another two or three hours before he got the patient on the operating table, all his patients would die.

Dr. JOHN H. GIBSON said that thirty years ago we all had the belief that the peritoneum was one of the least resisting of the structures in the body. We knew today that the peritoneum was an extremely resisting structure to infection if it was only assisted and was not interfered with. There was no better example of this than the practice in regard to gunshot wounds of the abdomen during the late war, when, toward the end of the war, after enormous experience, the surgeons of all countries had reached the definite conclusion that gunshot wound of the abdomen should be absolutely closed without drainage, unless it was in the large intestines. Such a rule could never have been formulated if the abdomen had not possessed an enormous ability to resist infection. The peritoneum could take care of itself. It was not a question to determine that a patient had a peritonitis, but it was up to the physician and surgeon to say where this peritonitis originated, because the procedure was going to depend upon that. If it originated from a puerperal, from a gonococcal, or gallbladder infection, then operation should not be done. If from the appendix or gastric or duodenal ulcer, you could not operate too soon. When the exudation was swarming with

bacteria, drainage should be employed. Drainage in an early case of exudation of lymph would often mean an infected wound. What was good for peritonitis if you were not operating was good for peritonitis if you were operating. He did not think morphia in any way interfered with the patient's recovery.

Dr. CHARLES F. NASSAU said that there were a multitude of things that could be confounded with peritonitis, notably pneumonia, locomotor ataxia, or fecal infection.

Books Received.

The MEDICAL RECORD is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.

STUDIES FROM THE DEPARTMENT OF PATHOLOGY OF THE COLLEGE OF PHYSICIANS AND SURGEONS. Columbia University, N. Y. Volume XVII, 1920. Reprints. With Illustrations.

AN INTRODUCTION TO CHEMICAL PHARMACOLOGY. By HUGH MCGUGGAN, M. D. 418 pages with illustrations. Published by P. Blakiston's Son & Company, Philadelphia.

LABORATORY MANUAL FOR THE DETECTION OF POISONS AND POWERFUL DRUGS. By WILHELM AUTENREITH, M. D. 342 pages with 25 illustrations. Published by P. Blakiston's Son & Co., Philadelphia.

DISEASES OF THE LUNGS AND PLEURA. By Sir R. DOUGLAS POWELL and P. MORTON-SMITH HARTLY. 789 pages with illustrations. Published by P. Blakiston's Son & Co., Philadelphia.

SURGERY. Edited by WILLIAM WILLIAMS KEENE, M. D. Vol. VII. Supplementary Volume. 855 pages with illustrations. Published by W. B. Saunders Company, Philadelphia.

DIAGNOSTIC AND THERAPEUTIC TECHNIC. By ALBERT S. MORROW, M. D. 893 pages with 392 illustrations. Published by W. B. Saunders Company, Philadelphia.

THE JOHNS HOPKINS HOSPITAL REPORTS, Volumes XX and XXI. Fasciculus 1 and 2. 559 pages with illustrations. Published by the Johns Hopkins Press, Baltimore.

THE EFFECT OF CERTAIN AGENTS ON THE DEVELOPMENT OF SOME MOULDS. By K. G. BITTING. 176 pages with illustrations.

EYE, EAR, NOSE AND THROAT NURSING. By EDWARD DAVIS, M.D., and BEAMAN DOUGLASS, M.D. 342 pages with 32 illustrations. Published by F. A. Davis Company, Philadelphia.

SYPHILIS AND VENEREAL DISEASES. By C. F. MARSHALL, M.D., and E. G. FRENCH. 433 pages with illustrations. Published by William Wood and Company, New York.

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Miscellany.

MEDICAL KNIGHTHOOD.

By W. B. KONKLE, M.D.

MONTOURVILLE, PA.

"A knyght ther was and that a worthy man,
That fro the tyme that he first bigan
To ride out, he loved chivalrie,
Trouthe and honour, fredom and curteisie.

He was a verray parfit, gentil knyght."

Canterbury Tales.

"He, then, that is not furnished in this sort,
Doth but usurp the sacred name of knight."

Part First, Henry VI.

"Ach! es geschehen keine Wunder mehr," plaintively reflects Schiller. Carlyle earnestly exclaims, "The age of miracles is past! The age of miracles is forever here." Surveying with horror its end at the guillotine of the tragic career of Marie Antoinette, Edmund Burke voices this wail of woe—"The age of chivalry is gone. That of sophisters, economists, and calculators has succeeded; and the glory of Europe is extinguished forever." But, as in reply Sir James Mackintosh points out, if the beheading of a queen of France must mark the passing of chivalry, then it surely became extinct two centuries before, when another Mary went to the block—Mary Stuart, Queen of France and Scotland—at a time when it is deemed knighthood was in fullest flower. And so upon occasion does one or another of our patriarchs, some grand Elijah of medicine, disgusted and disheartened by certain conditions and certain doings and certain tendencies within the sphere of professional activity, retire to the wilderness, and sob himself to sleep under a juniper tree! Ah, well!—the angels will never forsake such a man. And when refreshed by the food and drink they bring him, let him repair to the cave on Mount Horeb, where he shall hear from God's own mouth, as did the first Elijah, that there are yet seven thousand who have not bowed the knee to Baal!

No; marvels do not cease. At the Marne the forces of Heaven, intangible, imponderable, in might and majesty were marshalled in the skies, turning against error and wrong the tide of battle, just as of old the stars in their courses fought against Sisera. And chivalry is not dead. Arthur does not idly rest in Avalon—to do so would be to not be Arthur. As of yore in flesh and blood he rode, so at this day in spirit up and down the haunts of men still he rides. The glint and flash and clang of Excalibur still glorify mortal combat wherever honor and heroism take the field. And medical knighthood, too, is yet prominently abroad in the land, its mold and mien worthy of the finest traditions of the Round Table, all nobly aglow with eagerness for lofty emprise, grandly daring, superbly doing.

Again, no; the medical knight is not "*rara avis in terris*." Chivalrous doctors are many—aye, are in the ascendancy. But in the frenzied hurly-burly of life of the times, the mad chase and race for gain and pleasure, one runs the risk of losing his landmarks. It is well to frequently orient. Par-

ticularly apposite is it to take cognizance of the insidious dangers of apostasy and decadency peculiar to the hour. A man should be his own sternest, most exacting, most inflexible critic and judge, not hesitating to dissect to the very core his propensities, his motives, his purposes, his acts. This the true knight of medicine will not fail to do.

Enticements, the lulling lures of Siren song, and snares and labyrinths in whose recesses lurk Minotaurs, and gulf, Charybdes relentless and insatiable, of the potential baleful effects of all these upon medical knighthood let us first note some involving more imminent hazard to the doctor as to his personal character. A risk immediately evident is that, in the cold, leaden atmosphere of stolid realism, he may lose his ideals. Sentiment is considerably out of vogue—if not *passé*, at least is not the wear. But sneer as you will, it is nevertheless sentiment principally that makes life worth while and the world beautiful. And sentiment is the substance of idealism. And ideals are the stars of life. Though we can not reach the stars, yet by them we should sail. Let the knight of medicine remain a sentimentalist and an idealist.

Another present peril to the doctor is that, in the mad rush and crush for emoluments, he may lapse into venality and servility—may renounce his liberty for a price—may sell his birthright for a mess of pottage. In anxiously, distractedly providing for and safeguarding our existence, we are prone to overlook and neglect our life. Would you maintain your self-trust, your self-poise, your self-peace, your self-respect, your self-approbation? Think as a freeman and act as the single and independent captain of your soul. And those elements of character are never failing sources of higher living, from which flow benefits and blessings manifold.

In the entangling web of fashion, of flattery, of false devotions, our medical knight finds it hard to keep his shield bright and his sword keen—hard to stand by conviction and to champion principle. The doctor is a brave man—cowardice, in the common sense of the term, is no vice of his. But the bravest of the brave were Themistocles, Coriolanus and Benedict Arnold. Ordinary bravery is on a level far below that of truest courage. Let the doctor aspire to the supreme courage which means self-mastery—which is the power to compel one's self to strike his mightiest blow for truth and right as he sees truth and right.

Seemingly all the world is in riotous pursuit of luxurious ease and prodigal pleasure; and, lest he beware, our knight will be caught in the surging throng. Let him remember that a castle of indolence is dear at any price—is a curse to its lord. Let him be assured that the fullest consciousness of dignity and worth can be gained only in the midst of toil and struggle—that his proudest heart-throbs will be felt as he plunges into the *mêlée*. What a real man finally will place the greatest value upon, and most exult in, is hardships endured and duty done.

How easy it is to be drawn into the whirl and swirl of to-day's vast maelstrom of corruption! Let the medical knight ever bear in mind that no bad man can be a good doctor—a criterion absolute. Forever a gem of utterance will be Hippocrates' reference to the true physician as "an upright man

skilled in the art of healing." Of the immortal Coan himself Renouard says "*Ce fut autant par ses vertus que par son génie q' Hippocrate mérita les suffrages universels.*"

In this age of polytechnics the trend of thought and activity is toward the exclusively mechanical. So there is a serious chance that the doctor may shrink into a mere technician. But, by reason of the nature of the material wrought upon, the symmetrically constituted physician of genuine type can not be essentially a craftsman. The worker on inorganic matter a mechanic, yes—the same even of him who deals with those organic forms not self-known nor self-ordered, insentient vegetable structures and instinct-subservient animal existences. But he who works on man operates in a domain beyond and above exact and rigid mechanics. Considering man's relative littleness as a part of the universe, Pascal exclaims "*Je ne vois que des infinités de toutes parts, qui m'enferment comme un atome, et comme une ombre qui ne dure qu'un instant sans retour.*" Again contemplating man in his majesty as a thinker, he more sanguinely says, "*L'homme n'est qu'un roseau, le plus faible de la nature, mais c'est un roseau pensant.*" And by that token, this little creature, man, standing on his diminutive home-planet, may shout out to the stately stars, Richelieu's shining sibyls, I am greater than you all! And this mind-endowed organism, at once insignificant and sublime, constitutes the doctor's problem. The whole of man is within his rightful realm—every part of this being he must touch, every chord of this nature he must try. The worker with the task thus implied only and straitly a technician? No; an *artist* is he ever, the artist paramount.

As to the medical knight's intercourse with his fellow-knight, it may be asserted that strong to-day is the temptation to lower in this regard the standards of chivalry. It must be confessed that not a few are recreant to our nobler traditions of intra-professional honor, generosity, courtesy. Transgression is the easier because duty in this direction is so difficult of definition—can not be adequately expressed in rules and precepts. Just what specifically to do in the varying shades of circumstance may not, indeed, be unexceptionally formulated; yet the proper spirit of conduct can be plainly indicated and more plainly felt. And after all, the spirit is the main thing. Upon this point the whole question principally pivots. Some of the most flagrant offenders against the knightly spirit are cautious that their actions be literally and technically correct—like the promoter of dubious enterprises who, when he was about to launch a new project, would anxiously ask his lawyer, "Can they put me in jail for it?" If we desire and aim to be chivalric we shall not far fail of gentle respect and consideration for each other, ethical code or no ethical code.

Charlatanry apparently pays so well in dollars that to the medical knight the tempter whispers, Assume the impostor's guise, and adopt his methods, to an extent that will not much wound dignity and honor, and yet will effect a successful rivalry. But let him pause to consider that to secure any advantage over the Hun with his own weapon of gas it was necessary to out-Hun the Hun. The very

thought of out-quacking the quack!—it is worse than tartar-emetic. And then this covertly suggested policy of balancing, vacillating, *wabbling* between professionalism and commercialism reminds one of the boy who, with the same spoon dipped alternately in a dish of apple-butter and another of smear-case, until he had them both so mixed that he could not tell which was apple-butter and which smear-case.

But, really, such discussion is irrelevant as concerns the true knight of medicine. He will not in any way compromise with charlatanry—"and that's the end on't." He knows that to sell himself at all would be to sell himself into bondage. Dearer than life to him are his manhood and knighthood—he would not give them up for the earth and the moon and the sun and, as good measure, the morning star. Any doctor that could be bought, were he a diagnostician like Apollo, and a therapist like Apollo's son Aesculapius, and a surgeon like Aesculapius' sons Machaon and Podalirius, still would he be a dastard and a renegade. And the medical knight need have no misgivings regarding the result of his adherence to principle. The able president of one of our gigantic life insurance companies a few years ago said that it is idle to think of conducting life insurance successfully without the cooperation of the best doctors of the country. So elsewhere and everywhere, to the doctor that rings true will not be lacking distinction and honorarium. Indeed, humanity could but very poorly get along without the old-fashioned, the classical, the Hippocratic doctor, the medical knight. His place and his fame are secure against the tooth of time.

That magic name Hippocrates!—it is one to conjure with. At its mention, as by enchantment how before us pass visions of all that is fine and precious and noble and glorious in the kingdom of medicine! Hippocrates, associate and peer of the lustrous intellects grouped around Pericles, alike insusceptible to theurgic charlatanry and Persian gold, prince and paragon of doctors, let him while run the sands of time be lawgiver of the healing art. And so will our banners be ever advanced, never set back. And so a follower in the footsteps of the Sage of Cos will blamelessly pursue his career, a white-plumed knight who will have no occasion to voice the lament of Shakespeare's young Henry—

"For my part, I speak it to my shame,
I have a truant been to chivalry."

To us doctors first of all has our own fair-famed John McCrae "from failing hands thrown the torch." Ours be it unflatteringly to "hold it high," and bear it on. And at the end may each have won clear title to the legend of the pure-hearted, the great-souled Bayard, "*Chevalier sans peur et sans reproche.*"

Priority of Italy in Animal Vaccination.—In one of the anniversary addresses given on the occasion of the centennial of the foundation of the French Academy of Medicine, it is stated that in 1864 Depaul by his condemnation of human vaccination was responsible for the introduction of calf lymph. It is admitted that the first calf used came

from Naples. Torraca in *La Riforma Medica* for January 22, 1921, xxxvii, 4, states that Depaul and Lanoix, to be mentioned later, are entitled to the full credit for introduction of animal lymph in France, but that Galbiati of Naples was the first to establish the superiority of this method. This innovation goes back to the year 1810, when the physician mentioned was attached to the Hospital for Incurables. He declared against arm-to-arm methods chiefly because of the danger of communicating syphilis.

In 1857 another Italian, Palasciano of Naples, attended an International Medical Congress at Lyons, and called the attention of the members to the frequency of vaccinal syphilis and to the preferable employment of animal lymph in vaccination which had been used in Naples for many years. His remarks were warmly received. It was then decided to send the young Frenchman, Lanoix, to Naples to learn the method of animal lymph vaccination from Negri, the successor of Galbiati. This method was spoken of at the time as the "Neapolitan method." Lenoix having returned to France with an inoculated heifer, Palasciano telegraphed his Lyons colleagues to that effect. Shortly after, the first inoculation with animal lymph was made in France.

Prosecutions for Bestiality in the XVI and XVII Centuries.—An article on this subject appears in the Bulletin of *Le Progrès Médical*, October 30, 1920, xlviii, 44. In antiquity Venus was believed to wreak vengeance on the perpetrators of this crime. On the other hand it was sometimes assumed that the gods visited mortals under the appearance of animals. The offense therefore differed with the sex of the culprit. The use of she-asses and she-goats also entered into religious rites which readily degenerated into orgies. This led among the Hebrews to the condemnation to death of man and animal at the same time. This law eventually became incorporated into both Roman and German statutes which were in full vigor up to the XVII century throughout Europe. Nevertheless offences were not uncommon and in a book by Hernandez entitled *Bibliothèque des Curieux*, forty prosecutions during the XVI and XVII centuries are narrated. The culprits comprised some feeble-minded individuals while others had been disappointed in love. But the evidence was often very weak and supplied by neglected women or envious neighbors. The culprit apparently was not detected in the act itself but was accused of merely suspicious behavior. If the evidence was defective the accused might at times be put to the torture.

No one once accused was ever allowed to escape death, which was usually by hanging or strangulation, the corpse together with the accused animal being thrown into the fire and the ashes scattered to the winds. Eventually there was a reaction against these prosecutions which perhaps culminated in the pardon by Frederic the Great of a subject convicted of bestiality. The memorandum of the king on the document, which doubtless still exists, refers to "liberty of conscience in free states." Such an extreme view never gained acceptance and the modern attitude is a compromise between the two views.

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Original Articles.

WHAT ABOUT A CURE OR PREVENTIVE OF TUBERCULOSIS?*

By STEPHEN J. MAHER, M.D.,

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As perhaps you all know, the members of the staffs of the various State Tuberculosis Sanatoria hold a medical conference once a month at one or other of the sanatoria. We held one on Monday last at the Norwich Sanatorium. The December meeting was at the Shelton Sanatorium. The Superintendent of Shelton, Dr. Lynch, and myself had just returned from a couple of tuberculosis meetings in Europe. At this Shelton conference, Dr. Lynch read a paper, comparing Connecticut sanatoria with the new English sanatoria, and I read the paper that I am about to inflict on you. I give this prefatory explanation in order that you may make allowance for whatever difficulties of slant or verbiage you may discover in my paper. Remember that it was written for a group of doctors who are doing research work in tuberculosis and who are hoping that they themselves, or some Connecticut physician or physicians, will forge the key to the great mystery of tuberculosis. I don't mean to insinuate that you may not be as enthusiastic and as hopeful as they. I know you would be if you lived among the tuberculous as they do, and had at your command the laboratory facilities that they have.

The leaders of medical thought in England and France are wide awake to the new situation created by the war, and there is everywhere evidence in European universities, hospitals and laboratories, and meetings, that a great medical inventory is going on, a great effort at separating the medical chaff from the medical wheat, a great desire to participate in the epochal discoveries that are apparently imminent at this time.

In no branch of medicine is the atmosphere more surcharged with this electricity of independence and expectation than in the branch in which we are especially interested, the branch of tuberculosis. In this branch there is an evident discarding of many textbook and propaganda theories, but there is a distinct clumping of research workers about the tubercle bacillus. This, of course, is a recognition of the wisdom of the advice that Koch, shortly before his death, gave to his collaborators in Berlin—the advice to concentrate their re-

searches on the tubercle bacillus. It is probable that the chief topic of discussion at the International Tuberculosis Conference, to be held next summer or fall in London, will be simply "The Tubercle Bacillus."

In order, therefore, that we in Connecticut may keep step with the leaders of the coming years and that we may be able, perhaps, to add something of value to the world's treasury of medical truth, and that I may give an intelligible answer to the question raised by the title of this paper, it would seem that today you ought to let me focus your attention on the tubercle bacillus.

You may tell me that we have all been doing some hard thinking about the tubercle bacillus for many years, and that the attention we have given to that malignant microscopic vegetable hasn't done us or anyone else much good. Well, perhaps so; but "dogged does it." Bear with me for a while. It is possible that I may be able to recall some phase of the subject that we had forgotten and that, if we had remembered it, would have given us a foundation for some of the brilliant research work for which the world is now so hungry.

Let us take first the avian form of the tubercle bacillus. What do we remember about it? Anything besides the facts that it looks like the human tubercle bacillus; that it kills fowl; and that it grows best at a slightly higher temperature than either the human or bovine forms? Did we know that it also kills pigeons, pheasants, peacocks, guinea hens, crows, turkeys, swans, canaries, sparrows, finches, parrots, and in zoological gardens such captives as vultures, ostriches, herons, seagulls, and eagles? Did we know that ducks and geese are almost immune to tuberculosis? Did we know that polar birds, like the Arctic swans, when they fly south and are captured in warmer climates, promptly die of avian tuberculosis? Did we remember that in birds, the lung, the pleura, the pericardium, and the kidneys are seldom attacked with tuberculosis, and that the most severe manifestations of the disease are in the abdominal viscera and on the skin, claws, and beaks? Did we know that of 154 parrots examined by the veterinarians of Berlin, 56 were found to be tuberculous?

Have we made a note of the fact that parrots and canaries are sometimes rendered tuberculous by the human type of the tubercle bacillus, and that other kinds of birds, especially the barnyard varieties, are practically immune to the human type of the tubercle bacillus? Do we remember the violent but interesting clashing of opinions as to whether human or bovine tubercle bacilli can be made, by prolonged or repeated passage through birds, to take on the characters of avian tubercle bacilli?

*A paper read before the New Haven Medical Association, January 5, 1921, and the New London County (Conn.) Medical Society, April 7, 1921.

Do we remember the beautiful affirmative experiments of Von Behring, Nocard, Bang, Wiener, and Bongert, and the negative results of some of the other disputants, notably Zwick and Zeller? You may have remembered all these things about the avian tubercle bacillus. I had forgotten some of them, and some that I can now see invite research. Let us peer a little further into the darkness that surrounds the avian tubercle bacillus.

Can the avian tubercle bacillus cause tuberculosis in man or other mammals? Until recently the answer to that question would have been in the negative. Now, however, we learn that bacilli of the avian type occasionally have been found in the spontaneous tuberculosis of white mice, rats, rabbits, hogs, monkeys, horses, and cattle, and by a very few investigators in the tuberculous glands, kidneys, and skin of human beings, usually children. One investigator, Lowenstein, who reports three cases of avian tuberculosis in children, furnishes an interesting argument in favor of hard-boiled eggs. He ascribes the infection of his little patients with avian tubercle bacilli to their eating of raw or almost raw hens' eggs.

Yet, strange as it may seem, it is very difficult to induce tuberculosis in the guinea pig with avian tubercle bacilli. The usual proof that a certain strain is avian, not human, is that it causes prompt general tuberculosis in an injected fowl and no tuberculosis or almost no tuberculosis in a guinea pig. An injection into a rabbit also would help in the diagnosis. The avian type causes immediate tuberculosis in the rabbit. If the injection into a rabbit be made intravenously, even of a very small dose of avian tubercle bacilli, the germs multiply in the most astonishing way in all the organs of the body and kill the animal with what is known as Yersin's septicemia. The horse injected intravenously with avian tubercle bacilli dies soon of general tuberculosis. While the cow, although not immune to repeated meals of avian tubercle bacilli, shows a much greater resistance than the horse.

Now, what ought we to bear in mind concerning tuberculins made from avian tubercle bacilli? They are a little weaker than human or bovine tuberculins. They may be used instead of the autogenous types in men and cows. They cause characteristic reactions in tuberculous men, cows, and birds. Positive reactions in fowl are positive proof of tuberculosis. They do not cause reactions in the last days of the tuberculous fowl. They have much less reactive power on fowls than human and bovine tuberculins have on men and cows. They must be injected in doses of two or three cubic centigrams to cause the death of a tuberculous fowl; that is, about 300 to 400 times as much as the dose of human tuberculins needed to kill a tuberculous guinea pig.

And as to the problem of the human and bovine types of the tubercle bacillus! Don't be frightened; I am not going into the philosophic question of whether there are two or more types of tubercle bacilli, or whether, as Calmette claims, there is but one type, and that that type takes on varying characteristics in varying environment. Personally, I reject the explanation of both the Koch and the Calmette schools. But that is another story.

For the practical purpose that we have in mind today, that is, the seeking of clues that may lead us to some important research work during the coming year or two, it is enough to recognize what everybody now admits, that the tubercle bacillus found in the ordinary tuberculous cow differs in many important ways from the tubercle bacillus found in the ordinary case of tuberculosis of the lungs of human beings.

The more important of the recently accepted differences between the bovine tubercle bacillus and the human tubercle bacillus may be stated as follows:

The first generations of human tubercle bacilli grow better on glycerinated egg media than on non-glycerinated egg media; the bovine tubercle bacillus, fresh from the animal, grows with difficulty or not at all on glycerinated egg media; but luxuriantly on non-glycerinated media. Both the human and the bovine types cause generalized tuberculosis in the guinea pig, but the human type has little or no power to infect the rabbit, while the bovine type, in the very smallest doses, causes a quickly generalized tuberculosis in the rabbit. In tubes of glycerin potato to which a little human bile has been added before sterilizing, human tubercle bacilli will grow quickly, and luxuriantly, while bovine tubercle bacilli will grow only very slowly and scantily; on the other hand, if beef bile be poured into glycerin potato tubes, the human tubercle bacilli will vegetate only with the greatest difficulty, while the bovine type will grow abundantly. White mice are quickly tubercularized by the bovine type and slowly or not at all by the human type. Rats, on the contrary, resist the bovine strains, but they are very susceptible to the human strains. If on the shaved skin of guinea pigs, tubercle bacilli or tuberculous material of the two types be rubbed, the bovine type will cause a quick development of general tuberculosis, whereas, the human type will produce a very slow and small infection or none at all. If into the milk ducts of various goats, in their milking time, the two types of tubercle bacilli be injected without hurting the mammary glands themselves, the bovine type will cause a general tuberculosis and kill the animal, whereas the human type will cause only a local abscess that will slowly contract and may swell up again at the next period of lactation, but will never cause general tuberculosis. If fifty milligrams of bovine tubercle bacilli be injected under the skin of the shoulder of a cow, the animal will become rapidly and fatally infected with tuberculosis; if fifty milligrams of human tubercle bacilli be injected under the skin of a cow, only a local abscess will develop.

Can the bovine type of the tubercle bacillus be transmuted into the human type, and can the human type be transmuted into the bovine type? This is one of the big problems of the day. At the great International Tuberculosis Congress in Paris in 1905 and in Washington in 1908, a loud "No" was the almost unanimous answer from the assembled savants. If today the question were put to the men who hold the torches in the great quest for the truth about tuberculosis, most of the answers would probably be "No," but the "Nos" would be comparatively feeble and hesitant, and there would be many a vociferous "Yes."

For instance, Von Behring, Romer and Ruffel and Damman, and Mussemeier and Jongh claim that strains of human tubercle bacilli isolated from human tuberculous sputum became, after six months' residence in a goat, capable of causing general tuberculosis in cows and even after being injected into a series of three guinea pigs, retained the characteristics of the bovine tubercle bacillus.

In the report of the British Commission is the record of a strain of tubercle bacilli from a human tuberculous knee, that was passed through a series of four calves. The pathogenic power of the strain was only that of the human tubercle bacillus in the first and second calves of the series, but in the third calf it produced tubercles in the liver and spleen and lungs; and in the fourth calf it produced general tuberculosis and caused the death of the animal. Guinea pigs injected with the organs of the first and second and third calves were found to be infected with tubercle bacilli of the human type and non-pathogenic for rabbits, but the guinea pig injected from the fourth calf was infected with tubercle bacilli of the bovine type which were very pathogenic for rabbits.

Eber of Leipzig reported in 1913 that with the tuberculous spleen of guinea pigs, containing proven human tubercle bacilli from sputum, he had infected intraperitoneally a series of calves and had recovered from the tuberculous abdominal glands of these calves strains of tubercle bacilli that possessed all the required characteristics of bovine tubercle bacilli. Park-Krumwiede and O. Malm have made somewhat similar reports.

It seems to me that this attempted résumé of mine would not be complete, at least it would not have the stimulating effect that I hope for, if I did not say a few words about some of the attempts that have been made to cure or prevent tuberculosis by using vaccines and sera and live tubercle bacilli.

As to tuberculins of all kinds, it is pretty generally agreed that, whereas they are of great value as diagnostic agents, they are practically of no value as curative or preventive agents. And this statement applies to tuberculins of all kinds. Of course tuberculin has taught us much about tuberculosis, and the reaction between the seed and the soil in this disease. And it still puzzles us somewhat, but it is no longer to be considered as possibly the specific that we seek for cure or prevention.

And the same cheerless verdict must be given on all the painstaking efforts in the laboratories of the world to produce a serum for tuberculosis analogous to Von Behring's diphtheria antitoxin. They have all failed, no matter whether horses, goats, dogs, sheep, or rabbits were injected with any kind of tuberculin or any kind of tubercle bacilli or any kind of combination of tuberculins and tubercle bacilli. The resulting sera contained antibodies enough and of enough kinds, but they had no appreciable effect on the course of tuberculosis in man or beast. As Calmette's recent book puts it: "Today, it appears that the treatment of tuberculosis by specific sera has not realized our expectations."

The same discouraging result has come from the use of tubercle bacilli, killed by heat or by various chemical agents; tubercle bacilli whose waxy coats had been dissolved by ether or other solvent;

tubercle bacilli bathed or macerated in iodine water, chlorine water, glycerin, urea, and galactose, ovolcithin, formaline or toluol; and tubercle bacilli modified or killed by light.

All these failures bring us to the last chapter, the chapter of the present hour, the chapter in which briefly we will consider the use of live tubercle bacilli as a vaccinating or curative agent. Of course such a discussion is dangerous, but we are accustomed to danger.

In 1907 Calmette and Guérin reported that their prolonged attempts at vaccinating cattle against tuberculosis had demonstrated beyond question that tuberculous animals, that is, those that gave a positive tuberculin reaction, were infinitely more resistant to an intravenous injection of bovine tubercle bacilli than were the healthy animals, that is, those that did not react to tuberculin.

This brought to the minds of these investigators and of all who knew of their work the famous phenomenon of Koch which he discovered and described in 1890 and which led him to devise tuberculin, but which in recent years had been thrown into the discard. According to Koch, this is the phenomenon of Koch:

"If we inject into a healthy guinea pig a pure culture of tubercle bacilli, the wound usually closes and seems cured in a few days. From ten to fifteen days later there appears at the point of inoculation a hard nodule which soon opens, and leaves an ulcer that persists until the death of the animal. Guinea pigs already tuberculous for from four to six weeks, react very differently when given a second inoculation of tubercle bacilli. In their cases, no nodule forms at the point of reinoculation, but one or two days later the injected spot becomes hard and then violet red and then black. Finally a tiny necrotic area develops, and sloughs off, leaving a superficial ulcer which heals quickly and thoroughly and without causing thickening of the neighboring glands.

"Therefore, it is plain that tubercle bacilli, when inoculated under the skin of guinea pigs, behave very differently in the healthy and the tuberculous guinea pig. This difference of behavior under these conditions is not confined to live tubercle bacilli. It is true also of tubercle bacilli killed by boiling, or by chemical agents."

Then somebody remembered the law that Marfan had enunciated in 1886, that children apparently cured of an attack of suppurating tuberculous glands of the neck were thereby safely vaccinated against getting any kind of tuberculosis in later life. The new discussions of this so-called law and of the phenomenon of Koch have laid the foundation of most of the new work in France and were in Von Behring's mind when he tried to vaccinate cattle against tuberculosis by injecting into them or feeding to them live human tubercle bacilli. He called his emulsion of human tubercle bacilli bovo-vaccin. Bovo-vaccin failed because: (1) although it conferred a marked power of immunity for several months against infection by doses of pure bovine tubercle bacilli, it gave little or no immunity against the infective power of the tuberculous barn; because (2) it was considered dangerous for human beings to have to do with an animal that was voiding human tubercle bacilli, and because

(3) it would be criminal to use the milk of a bovo-vaccinated cow, for, of course, such milk would contain live human tubercle bacilli.

Among the other interesting attempts to use live tubercle bacilli was the much exploited one of Heyman of Belgium. He used human tubercle bacilli in a permeable capsule. These he inserted under the skin of the cow. The Belgian Government investigated this matter and pronounced the Heyman method a failure.

All the attempts to vaccinate or cure with the tubercle bacilli of cold blooded animals, or with live avian tubercle bacilli, or with sensitized tubercle bacilli, or with tubercle bacilli kept for varying periods in various refractory animals have failed.

Theobald Smith's scheme of vaccinating cattle by injecting intravenously one dose of bovine tubercle bacilli, whose virulence had been somewhat attenuated by age, is not in use because of the necessity of quarantining the animal for months after the treatment, and the fact that the strain was still capable of causing tuberculosis in guinea pigs.

The scheme of Webb and Williams of this country, ingenious as it was, of injecting with one virulent tubercle bacillus and then gradually increasing the size of the dose, has failed. Proof of benefits were wanting and the danger to the patient and the community were evident.

Of course you know that Calmette has for years been the leader of all who scoff at the theory that tuberculosis of the lungs is an air-borne infection. His contention is that it is practically impossible to infect lungs by inhalation. He insists that infection is usually through the food tract, and that the tubercle bacilli reach the lungs through the blood stream. In considering ways of administering live virus vaccines to animals, he naturally had recourse to the food tract. He and his friends and followers have done much interesting work along this line. They have concluded (a) that the immunity conferred by the administering of live tubercle bacilli lasts only while these vaccinating germs remain alive in the animal, and that (b) in order to succeed in thoroughly vaccinating against tuberculosis, there must be secured, instead of the virulent human or bovine tubercle bacillus, capable of forming tubercles, a tubercle bacillus which will be virulent but will not have the power of forming tubercles, a tubercle bacillus that will be tolerated by the lymphatic system and that will, for a long time at least, be able to resist the destructive power of the phagocytes; (c) calves and young cows and oxen are easily immunized, even against the infective power of tuberculous barns, by the administration by the mouth of certain live bovine tubercle bacilli of weakened virulence.

Two weeks ago there appeared in some of the more important papers of the country a despatch from Paris to the effect that Calmette and the other workers of the Pasteur Institute had not only announced that they had perfected an antituberculosis vaccine for cattle, but that concerning human tuberculosis, Calmette had said: "We've got results, but to realize a cure for man still demands long experiment. But, at least, we are certain that our living bovine bacilli are harmless to man, even when inoculated in his veins in a dose of 44,000 bacilli."

What did Calmette mean by this? The explana-

tion appears in the last pages of his new book. He has found, he thinks a means of securing the long-sought virulent, but non-tubercle-producing tubercle bacillus. He grows virulent tubercle bacilli on glycerin bile potato instead of on glycerin broth potato, and after seventy subcultures on this medium, he obtains a strain that has lost its power to produce tubercles, but has retained its power to resist phagocytosis. This strain, before it was subjected to the detoxicating effect of the cultivation in glycerinized bile, caused a fatal tuberculosis in a cow in four weeks with an intravenous dose of three milligrams; whereas, after treatment with bile, the enormous intravenous dose of 100 milligrams of the culture caused in a cow only a sickness resembling typhoid fever, from which the animal recovered in fifteen days. At autopsy, these animals showed no signs of tuberculosis. When the vaccinating dose of three to five milligrams of the bile-treated bacilli was injected intravenously twice, at a month interval, into cows, and when later three milligrams of the virulent untreated bacilli was injected intravenously into these same cows, the cows remained perfectly well; and when autopsied eighteen months later, showed no signs whatever of tuberculosis in any organ of the body. Nevertheless, when the apparently healthy mediastinal glands and the tracheal glands of these cows were ground up and injected into guinea pigs there was a development of tuberculosis in a few of the guinea pigs. Not at all dismayed by this finding, Calmette says that is what he hoped to find as proof of the value of his bile-treated bovine tubercle bacilli.

"See," he says, "these virulent tubercle bacilli that caused tuberculosis in the guinea pigs after eighteen months in the cows, would have caused tuberculosis in the cows if the cows had not received the immunity conferred by the bile-treated tubercle bacilli."

I have purposely not considered the so-called fourth class of tubercle bacilli, the tubercle bacilli of fish or cold-blooded animals. Nor have I included here a discussion of the non-pathogenic acid-fast bacilli, the so-called pseudo-tubercle bacilli. Both of these classes are to me of great interest and on my studies of them I have written considerably; but I do not think it fair to try to impress my heretical views on this conference. At this conference, I would merely report as the result of my recent discussions of the subject with many of the English and French leaders, and as the result of my reading of much of the recent English and French literature; (1) that there is a spreading conviction that we will not make much further progress in the fight against tuberculosis until we have obtained a specific treatment for its cure or prevention, or both; (2) that in all probability, this specific, when found, will be some live relation or modification of the tubercle bacillus; (3) that the reason this specific has not been found before this late day is that we have not known and do not now know the tubercle bacillus; and (4) that it behooves all the capable and ambitious who are engaged in tuberculosis work to study the tubercle bacillus, and to keep themselves informed of the studies of the tubercle bacillus made by their fellow workers in this and other lands.

A CLINICAL STUDY OF TUBERCULOSIS IN CHILDREN.*

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THE present study was made at the Children's Tuberculosis clinic of the Michael Reese Dispensary, Chicago. The purpose of the clinic was to follow-up the children of tuberculous parents. There were many cases, however, that had no contact history but were referred to the clinic because they showed symptoms suspicious of tuberculosis. Altogether 300 children varying between the ages of 2 to 16 years were observed. Of these 141 cases were diagnosed as positive, 83 as negative tuberculosis, and 76 cases are still pending a diagnosis.

The diagnosis of tuberculosis was made both upon the clinical manifestations, subjective as well as objective, and upon the tuberculin tests. No matter how few the clinical manifestations, a patient was considered tuberculous if he reacted positively to one of the tuberculin tests. On the other hand, a patient that gave no tuberculin reaction was considered negative or only suspicious even if he presented some suspicious findings.

As a basis of classification for the positive cases, I took the following: Acute miliary tuberculosis; Acute or chronic active tuberculosis; Latent tuberculosis. All cases presenting symptoms of tuberculous meningitis or miliary tubercles on x-ray examination are classed as miliary tuberculosis.

Cases that present pulmonary tuberculosis in acute or chronic form, pleurisy, caseous cervical adenitis with or without a discharging sinus, tuberculous glands anywhere else in the body, tuberculous peritonitis, tuberculous kidney, or psoas abscess are classed as active tuberculosis.

Children who give no symptoms enumerated above but show a positive tuberculin test are grouped under latent tuberculosis. The question arose where to class bronchial gland tuberculosis, that is: Children who show dullness over the hilus, a positive D'Espine sign, and a hilus shadow on x-ray examination. I have decided arbitrarily to class this type of cases as latent tuberculosis, for, as will be seen later, these children show very few, if any subjective symptoms.

sented symptoms and signs of active tuberculosis, and 128 were grouped under latent tuberculosis. It was natural not to have had any cases of miliary tuberculosis, as the work was done in the dispensary and patients with miliary tuberculosis either go to a hospital or stay home.

Of those who were classed as actively tuberculous, 3 had acute pulmonary tuberculosis; of these three, one patient was 10 years old, one 11 years, and one, 12 years of age. All three of them coughed, lost in weight, and ran an afternoon elevation of temperature; the lungs showed apical dullness and crackling rales; the x-ray showed a mottling over both apices.

Six cases had broken down cervical adenitis. In all of them, the adenitis was rather chronic, lasting several months, the skin presented a bluish red appearance, was not tender, nor was it as tense as in the acute adenitis caused by ordinary pus organism. Three of the cases resulted in sinus formation. I should like to emphasize that I classified only caseous cervical adenitis under active tuberculosis. Mere palpable cervical glands, although present in many children that have a tuberculous infection spoken of by some French authors as micropolyadenopathy, should not be classified as active tuberculosis as they are not necessarily tuberculous in origin. It is a well known fact that children with decayed teeth or repeatedly infected tonsils gave rise to palpable cervical glands.

One patient had a tuberculous gland in the pectoral region. This case presented a great deal of difficulty in diagnosis as the patient also had an enlargement of the cervical glands and was very anemic. Syphilis and Hodgkins' disease came up for consideration. The Wassermann test, however, was negative and the blood showed no findings characteristic of Hodgkins' disease. The final diagnosis was made by dissecting the gland in the pectoral region and finding a caseous tubercle in it. One patient had a psoas abscess which conformed to the classical description of this condition.

The patient who presented tuberculosis of the kidney, showed tubercle bacilli in the urine and had previously been operated upon for an epididymitis.

Phlyctenular conjunctivitis was hard to classify as there is a great diversity of opinion in the literature regarding the nature of this condition. I have, however, classified the two cases as active tuberculosis, because of the positive von Pirquet, the

Table 1, Distribution of 300 cases studied at the Michael Reese Dispensary, Children's Tuberculosis clinic.

MILIARY		ACTIVE				LATENT	NEG. ^{von} PIRQUET	PENDING DIAGNOSIS
	Pulmonary	Caseous Cervical Adenitis	Pectoral Adenitis	Psoas Abscess	Phlyctenular Conjunctivitis	Kidney	(including bronchial gland tuberculosis)	
0	3	6	1	1	2	21	128	76

Distribution of Cases.—Out of the 141 positive cases that came under my observation, none presented symptoms of miliary tuberculosis, 13 pre-

active eye symptoms, and the family history.

*Part of symposium on Tuberculosis in Children, read before a joint meeting of the Chicago Medical Society and the Chicago Pediatric Society, November 17, 1920.

With the exception of the 14 cases described above, the patients at the clinic were classified as latent tuberculosis. This gave a total of 128 latent cases compared to 83 cases that gave a negative von Pirquet. It should be stated that no case

which had come in contact with a tuberculous person was considered negative until 3 Pirquet tests were done at an interval of 2 or 3 months.

Latent Tuberculosis.—In studying the cases classified as latent tuberculosis I wanted to determine how many children with a positive tuberculin test came into contact with an open or closed case of tuberculosis, and whether it was the father, mother, or some other member of the family that had the disease. I was also interested in finding out whether any weight could be attached to minor objective symptoms such as long eyelashes, visible veins of the chest, shape of the thorax, and curvature of the spine. Among the physical signs, I was interested in determining what weight one could place on the D'Espine sign (whispered bronchophony), Eustace-Smith sign (hum over aortic region), the presence of hilus dullness, and in the comparison of the percussion and auscultation findings with the x-ray. In order to keep a record of these observations, I used the following printed outline in my clinic.

MICHAEL REESE DISPENSARY
EMANUEL MANDEL MEMORIAL

No. 5A Date
Name Dept. Children's T. B.
Address Age
Dr.
Occupation
Interested Agencies Nationality Referred by

Date, Diagnosis and Doctor

Family History

Previous History

Birth
Feeding
Previous Diseases
Whooping Cough Date
Measles Date
Pneumonia Date
Influenza Date
Other Diseases Date
Operations Date

Present Complaint

PHYSICAL EXAMINATION

Inspection

General Appearance
Height { Above Normal
 { Normal
 { Below Weight { Above Normal
 { Normal
 { Below
Temperature
Skin Dry
Visible Veins over Chest

Eyelashes
Teeth
Cervical Adenitis
Tonsils and Adenoids
Thyroid
Contour of Chest
Visible Apex beat

Palpation

Percussion

Decreased Resonance

Hilus
Apices
Heart Boundaries

Auscultation

Breath Sounds
Rales
D'Espine
Eustace Smith
Heart Tones
Heart Murmurs

Abdomen

Spine
X-Ray (Date)
Pirquet (Date)
Sputum (Date)
Blood (Date)
Urine
Treatment

the mother too was frequently the source of infection. (Table 2.) This is in variance with the claim so frequently made in foreign literature that the infection is most frequently conveyed to children through milk from tuberculous cows. Of course, in this country the testing of cows for tuberculin and the practice of boiling the milk have done a great deal to minimize the importance of milk as a factor in tuberculosis of childhood.

Table 2, Status of health of other members in family in the 141 positive and 183 negative cases studied.

	POSITIVE		
	OPEN	CLOSED	NON-TUBERCULOUS
FATHER	46	47	48
MOTHER	10	46	72
OTHERS IN FAMILY	0	5	61
	NEGATIVE		
FATHER	21	19	41
MOTHER	6	33	44
OTHERS IN FAMILY	0	1	44

An inquiry into the previous diseases of our patients showed that most of the children had had measles and whooping cough. About 50 per cent. of them had had epidemic influenza. Whether or not the latter had any influence upon the enlargement of the bronchial glands or upon the tuberculin test is a matter of conjecture. I am inclined to think that influenza played no rôle whatsoever.

Ninety-eight per cent. of our patients had no subjective symptoms; they did not cough, nor sneeze, nor did they run an elevated temperature. Two per cent. of our patients complained of weakness and tired feeling. Sweating was present in 8 per cent. I do not believe, however, that the sweating had any connection with the tuberculous infection.

The children as a whole were anemic and over 90 per cent. were from 4 to 8 per cent. underweight (we followed the table of weights and heights prepared by Boas, Burk, Bowditch, and Smedley); 3 per cent. were above weight.

Eighty per cent. of the children presented visible veins over the chest, most of them over the upper part of the chest; some of them also over the lower portion of the chest, and occasionally one showed enlarged veins also over the upper part of the abdomen. Two cases presented what were suspected as tuberculides. Ten cases showed keloid vaccination scars; otherwise the skin presented no peculiarities.

Ninety-five per cent. of the children that gave a positive tuberculin test had long eyelashes. I did not, however, count the eyelashes as a tuberculous trait, as most of them were brunettes and as such possess long eyelashes as a constitutional feature.

The teeth in most of our children showed some defects, although as the clinic grew the children's teeth improved because of the cooperation of the dentist, nurses, and the patients' parents.

The tonsils were enlarged in most cases. I see, however, no special connection between the tonsils and tuberculous infection. I believe with most people that the primary tuberculous focus is usually located somewhere in the lungs and produces as one of the results enlarged bronchial glands.

Results.—The results of the study were interesting from several points of view. I found that the majority of the children who reacted to tuberculin had come into contact with an open or closed case of tuberculosis at some time or other. In most cases the offending party was the father, although

Although of no special significance in the study of tuberculosis it is interesting to note that 60 per cent of our female children and 30 per cent. of our male children presented a large thyroid. There is possibly a connection between the early maturity of the average child in my clinic and the frequency of enlarged thyroid.

The shape of the chest in most of the children at the clinic was significant. As a rule it was flattened but occasionally it was barrel shaped, especially in the cases that had frequent attacks of asthmatic bronchitis.

Palpation of the chest was negative in all of our patients. Percussion and auscultation, however, showed interesting changes. I have been able to make out decreased resonance over the hilus in 75 per cent. of our cases. Of course the percussion has to be very light, but I believe that one does not have to stretch his imagination to detect decreased resonance in many cases of bronchial gland tuberculosis. Most of the decreased resonance was located in the right prevertebral region corresponding to the lower third of the right scapula. The change in resonance was usually found over an area of two to three inches in length and one to two inches in width. This change in resonance was seldom if ever found in the series of control cases who gave a negative tuberculin test. As will be seen later the x-ray usually confirmed the percussion findings. I therefore believe that hilus dullness is an important finding and together with a positive tuberculin test points to the presence of bronchial gland tuberculosis. No apical dullness was found in any of the cases of latent tuberculosis.

Percussion showed no change in the heart boundaries unless there was an accompanying endocarditis.

The auscultatory change that was rather constant in the cases that presented dullness over the hilus was whispered bronchophony over the vertebral region. I found that all control cases had whispered bronchophony down to the fourth dorsal vertebra. I therefore consider that as the normal limit. The cases of positive tuberculin tests and positive x-ray findings usually had whispered bronchophony down to the sixth or the seventh dorsal vertebra. I therefore consider this sign, described by D'Espine, as corroborative evidence of the existence of enlarged bronchial glands. I have noticed that the whispering must not be too low; otherwise the bronchophony cannot be made out.

I found the Eustace-Smith sign (hum over the aortic region) present in only 5 per cent. of our cases. Besides that, I experienced a great deal of difficulty in deciding as to what is positive and what is negative in regard to this sign.

There were no alterations in the heart tones nor were there any murmurs in our cases except when there was an accompaniment of an endocarditis.

The abdomen showed no peculiarities, no retraction nor tympany, nor were there any palpable glands either deep or superficial.

Most of the children had a slight lordosis; some also had scoliosis. Whether or not the presence of curvature of the spine had any connection with the latent tuberculous process I am not prepared to say. I am inclined to think, however, that the curvature of the spine was more a result of the

faulty position at school and had nothing to do with the tuberculous infection.

The x-ray examination usually confirmed the percussion findings in that a large shadow was shown at the hilus. As a rule there were also striations running from the hilus toward the apex and base. It must be admitted, however, that it is often hard to decide as to what constitutes a pathological shadow, as many x-ray examinations of the chest show some enlargement of bronchial glands. Furthermore, even when bronchial glands are greatly enlarged, there is still a question as to whether they are tuberculous in origin. All one can say is that a marked shadow over the hilus and a positive tuberculin test strongly suggest that the enlarged glands are tuberculous in origin.

In about 10 per cent. of the cases, I thought I was able to identify by x-ray one calcified spot at the base of the lung which I believed to be the oldest lesion, most likely the primary lesion. Whether this is a far-fetched imagination or not, further study might tell. I found a stereopticon plate of greater value than a single plate. The latter, however, also gives valuable information.

The fluoroscope showed enlarged glands in a number of cases. It also gave an indication to the mobility of the diaphragm. As a rule, however, I did not find the fluoroscopic examination of as much value as the radiograph.

The tuberculin tests mentioned in the beginning of the paper have assisted me in establishing a diagnosis of latent tuberculosis. It is unfortunate that the value of tuberculin tests has been minimized to such an extent that physicians have frequently been heard to say, "it doesn't mean anything." I believe it means a great deal in establishing the diagnosis of a tuberculous infection somewhere in the body at one time or another. The assertion that 90 per cent. of the population reacts positively to tuberculin does not hold good universally. In the first place, it does not apply to American people, especially to American children. The statistics of Hamburger and von Pirquet in which 80 to 90 per cent. of older children reacted to tuberculin, could not be duplicated in this country by various observers. In my own clinic eighty-three children who were sent to me because of some suspicion of tuberculosis, reacted negatively to tuberculin. In the second place, were it even true that 90 per cent. of the population does react to tuberculin, it would not minimize the importance of the tuberculin tests. It would simply mean that the greater number of the population has been infected, but that the process has been arrested.

My method of using tuberculin has been the Pirquet. I have used this as a standard because it is simple and because the reaction when positive is quite sharp. Every once in a while, when the Pirquet was negative and there was circumstantial evidence that the child was tuberculous, I used the intracutaneous test. As a rule, I found that the two tests checked quite well. The only advantage I see in the intracutaneous method is that it gives a more or less quantitative result with the various dilutions. To a certain degree, however, even the Pirquet test gives an idea of the severity of the reaction; for example, a very marked induration and angry redness would speak for a more severe

infection than a slight induration and erythema. I have not been troubled very much with pseudo-reactions, mainly because I read the Pirquet results after 48 hours, so that if there are any pseudo-reactions, they will have disappeared by that time.

I have studied 40 cases of latent tuberculosis with a view of determining whether or not the blood pressure was diminished in those cases. However, the difficulty in obtaining a normal standard for children of various ages, and, above all, the negative findings in the positive cases as compared with normal children, made it useless to continue the study.

Treatment of Tuberculosis in Children.—For acute miliary tuberculosis there is no treatment. It is always fatal. There are eight or nine cases on record where miliary tuberculosis has ended in recovery. Of these there is one case that seems to be undoubted; that is a specimen of tubercles of the meninges in a brain preserved at the pathological museum of Vienna. In that case the child had a tuberculous meningitis and recovered from it, but years later died from some other disease. The various methods of treatment suggested for acute miliary tuberculosis seem to have no logical foundation. The best thing one can do for a case of miliary tuberculosis is to make the patient as comfortable as possible during the few weeks of his illness, for it hardly lasts any longer than a few weeks, by giving supportive treatment.

Active tuberculosis should be treated by fresh air, general hygiene, and, whenever feasible, treatment should be directed to the affected organ. Tuberculosis of the kidney, for instance, requires operative procedure; tuberculous pleurisy requires repeated thoracentesis; pulmonary tuberculosis has to be treated by general hygienic measures.

Latent tuberculosis requires no treatment if the patient is doing well. I believe that if the child lives in good hygienic surroundings, nothing more should be done for it. The prophylaxis of latent tuberculosis, however, is very important. Every child that has come in contact with a case of tuberculosis should be under the care of a physician, should be examined repeatedly, the teeth cared for, the tonsils removed if diseased, and the living conditions regulated. Unless we do something for children of tuberculous parents we are going to have a new generation of tuberculous people. Clinics for children who have tuberculous parents should be held in every city. If there is an open case in the family, that case should be removed from the house and if that is impossible, the child should be removed from the house. I am not in favor of sending children to tuberculosis sanatoria, for I believe it makes mental invalids of them. It is much better to remove the offending party from the house. However, when the open case cannot be removed from home or if living conditions at home are such that the child does not get the proper care, the child with latent tuberculosis should be sent to a sanatorium.

In my clinic I used the following routine for my patients:

1. Routine Examination for New Patients.
2. Previous history.
3. Weight and height.

4. Physical examination.
5. von Pirquet.
6. x-Ray of chest.

Routine Examination for Old Patients.

1. Weight every time patient comes in.
2. Height once in three months.
3. Physical examination.

Routine Treatment of Latent Tuberculosis.

1. Patient referred to Nutrition clinic.
2. General instructions as to food and sleeping.
3. Re-examination every 3 mos. unless otherwise specified.

4. Investigation of home conditions.
5. All other members of the family to be examined.

6. All contact cases with negative von Pirquet should be retained at clinic and examined once in three months. All cases with negative von Pirquet with no history of tuberculosis in the family should be referred back to Pediatric Department.

Summary.—1. In a study of 300 children most of whom came in contact with tuberculous people, 141 cases reacted positively to the von Pirquet test and 83 negatively; 76 cases are still pending a diagnosis.

2. Of the 141 cases that reacted positively to establish a diagnosis of the presence of a tuberculous symptoms of active tuberculosis. In ninety per cent. the infection was only latent. Of the 14 cases of active tuberculosis, only 3 or approximately 3 per cent. of the total had active pulmonary tuberculosis.

3. In most positive cases, the source of infection was the father, although the mother was infected in a good number of cases.

4. Ninety-eight per cent. of the cases with latent tuberculosis showed no subjective symptoms.

5. Ninety per cent. of the cases were underweight, most of them averaging from 4 to 8 per cent. below the standard.

6. Long eyelashes and visible veins over the chest were present in the greatest number of children with latent tuberculosis.

7. Seventy-five per cent. of the positive cases showed hilus dullness and whispered bronchophony to the seventh dorsal vertebra. I believe that these two signs are strongly indicative of bronchial gland tuberculosis.

8. The x-ray plates usually confirmed the hilus dullness by showing a shadow over the hilus and often also one or more calcified spots in the substance of the lungs and radiations toward the apex. Although one is not justified in making a diagnosis of tuberculous glands from the x-ray examination alone, the latter should constitute corroborative evidence of the presence of tuberculous glands.

9. The Eustace-Smith sign was very infrequent in the cases of latent tuberculosis in this series.

10. Tuberculin tests when positive should establish a diagnosis of the presence of the tuberculous infection in children. The classification of the type of infection must be made by the subjective and objective symptoms and by the x-ray findings.

11. Latent tuberculosis requires no active treatment. The patient, however, should be given the benefit of general hygienic measures.

12. All children who have come in contact with

a tuberculous individual should be under observation so as to establish the diagnosis and institute treatment if necessary.

If the home conditions are good, children with latent tuberculosis should be left at home. If the home conditions are poor or if there is an open case of tuberculosis in the family, the children should be sent to a sanatorium.

30 NORTH MICHIGAN BOULEVARD.

THE EXTERMINATION OF MAMMALS.

THEIR ECONOMIC VALUE; AND THEIR GREAT IMPORTANCE TO MAN THROUGH THE STUDY OF THEIR COMPARATIVE ANATOMY

By R. W. SHUFELDT, M.D., C.M.Z.S., Etc.,

WASHINGTON, D. C.

ALL over the world the larger mammalia are now rapidly disappearing, and to this statement those of this country form no exception. Hunters of every imaginable caste, whether inspired by the desire for sport, or whether incited by the greed of gain, or whether killing for the sole purpose of effecting a riddance, are now, with marked dispatch, destroying the elephants, the rhinoceroses and other pachydermata, the whales and their allies, the deer, the giraffes, the *Bovidae*, and all the rest. With the passing of these, a great host of the smaller-sized mammalia are likewise disappearing, such as beavers, sea otters, seals, and many others.

Confining ourselves, however, to this subject as it presents itself to us in the United States, it is quite within the recollection of the present generation what the fate of the American bison has been. Fifty years ago they roamed in untold numbers over the plains of the West, and doubtless there was a time when their range extended to the shores of the Atlantic ocean. To-day there are but a few hundred left, and the majority of those, either in captivity or in the wild state, are more or less under man's dominion. The history of the near extermination of the fur seals and other species is equally familiar to us; and, comparatively speaking, the day is not far distant when they, too, will be practically eliminated. Annihilation of the wapiti is proceeding speedily along similar lines, and it is very probable that in another century there will not be a living representative of the grizzly bear on the face of the globe. Our antelope are sure to go soon, for everything is against them, as they die out very rapidly in captivity. Indeed, there is not a single exception to the rule; and the time will eventually arrive when every mammal, save man, of every description and size in this country—or in the world for the matter of that—will have disappeared.

Of course, among the last to go will be the very smallest and most active rodentia and insectivora—such as the mice and shrews—and such species of bats as are very small in size and more or less nocturnal in habit. But these, too, will eventually disappear, as man reduces the *entire* world to meet his needs, and the surface of the globe becomes densely populated and under the complete dominion of our descendants of the far off future ages to come, whatever form the genus *Homo* may, in that dim, distant time, assume. It is likewise quite within the range of the possible that all the mammals now living in the domestic state may disappear and die out. That

will be a much later chapter in mammalian history, however, and will be greatly influenced by marked improvement and universal application of certain motors, machines, food-stuffs, and materials. Small mammals kept for pets will remain the longest of all, and the cat and its descendants will stand one of the best chances here.

In the extermination of the wild forms of the existing mammalia, man will be, and man always has been, the principal agent above all others and all others combined. Among the main factors in operation at the present time effecting this universal destruction is the rapid increase of the population; the enormous extension that is going on everywhere in the way of roads, and the building of railroads and canals and other public ways throughout the country for passage or for travel. And, above everything else, the increase in use of the automobile. These render the abodes of the larger mammalia—the fastnesses of the mountains and forests and the more remote areas of the plains—more and more accessible to man. Next, we have the marvellous growth of the cities, towns, villages and isolated homesteads and the constant founding of new ones. All this menaces the very existence of ferine animals anywhere; moreover, as the wild mammals—especially the wild fur-bearing and game mammals—fall off in number, the ranks of those who annually destroy them are vastly increased, being recruited through the immense growth of the population of our own species. Not only this, but the marvellous improvement in firearms and other skilled devices employed to destroy wild animals of this class, is having a very telling effect, to say nothing of the increase of the skill on the part of those who use them. The destruction of our forests are having another powerful influence, and this will surely go on notwithstanding all the laws enacted to prevent it. The preserved forests of the very distant future in this country will be the properties of the extremely wealthy. These will secure comparative safety to certain species of mammals—especially those of the chase—for a long time; but the age will eventually come, however, when these, too, will be broken up and eliminated, with a consequent disappearance of the animal life they harbor.

Another factor that is exerting a powerful influence in the matter of the destruction of our game mammals—and one that seems to have been largely overlooked by writers on this subject—is the ever increasing facility to those who hunt and kill them for finding out the places inhabited by them. This is accomplished by telephones and telegraphs, also through men telling each other; but principally through the columns of the mass of publications devoted to outdoor life and sporting news in this and other countries. Any thoughtful person will appreciate the importance of this factor the moment the matter is given a thought. Again, field collectors, who pay especial attention to the collecting of the mammalia, are getting away with their quota, and doing their share toward the extermination of the entire class below man. As the specimens become rarer and rarer, this goes on with greater and greater rapidity and avidity, especially as the number of collectors in the field increase, and the scientific and market value of the specimens is enhanced by their rarity and the demand for them.

Museums all over the world likewise have their influence, and it is remarkable what a number of mammals are required to supply their demands to fill out their collections. Thousands of species are captured to this end; and, as museums and money and means are all on the rapid increase, this factor in the extermination of mammals of all kinds, not including man, is not to be ignored.

Many mammals are continually destroyed in order to meet the demands of the food markets; but this, in the main, takes place only during certain seasons. Nevertheless, its operation is destructive—laws to the contrary. We likewise kill mammals all the time to supply anatomical laboratories and anatomical museums as well as osteological cabinets, all over the civilized world,—various countries often exchanging with, or purchasing from each other. This comparatively small factor likewise jeopardizes their perpetuation and existence. Thousands upon thousands of wild mammals have been slain for their pelts; for their heads (and horns or antlers); for ornaments and trophies, and for similar purposes. As the species become rarer and rarer and their money value increases *pari passu*, this kind of sport and trade is entered into with an ever increasing avidity. How keen it may become can easily be appreciated, when one thinks for a moment what unscrupulous men will do when a buffalo's head has a value of from two hundred to five hundred dollars, and it will not be long before the head of a wapiti and moose will fetch a like sum. The enactment and rigid enforcement of wise laws can, and will, mitigate this source of destruction for a long time to come; but the day will surely arrive, when such laws will become utterly powerless, not to say unnecessary; for, through the operation of other destructive factors already enumerated above, the game mammals will all be within the confines of the game preserves of the immensely wealthy, and all the others will long ago have been exterminated as having been inimical to man's interests.

Many mammals feed on each other, and this reduces in number the species thus consumed; while others are destroyed when forests and prairies burn, or the regions inhabited by them are laid waste through the operations of other natural phenomena, as floods, droughts, and tornadoes.

Enough has been set forth now I think to demonstrate that the fate of all mammals below man in time is sealed. The causes that are producing this certain result are in operation every instant of time that passes, and are continuously increasing in force with astounding rapidity. The complete fulfilment of the end may not be for many centuries yet to come; but the tendency is powerfully along the lines indicated, and it is not at all within the realm of the probable that it will be averted. Four or five thousand years—or even double that number—is as but a day in the past history of the Earth; and it may mean very much less than that, when we come to think how many ages it will require to fill out the term of its existence in the ages to come. Any one who has any conception of what geology teaches us along these lines can appreciate this much.

With man's careless destruction of game and other mammals, there seems, nevertheless, a growing desire in him to study more attentively and closely the life-histories of the various species. In

this list many of the game mammals are included, and with the others they come in for their share of being studied and investigated. Many of these studies are undertaken in the field; the habits of the mammals are observed directly in their native haunts and wilds, and in many biological laboratories researches into their morphology are made. Naturalist-photographers are nowadays vying with each other the world over in their attempts to secure photographic pictures of wild animals in nature, and many of these results are most admirable. They are also photographed under a great many other circumstances, and with marked success, as in galleries erected for the purpose in connection with zoölogical gardens, and in others having no such connection. These pictures have great value; their numbers are now rapidly on the increase and with continued improvement in many particulars, as they are produced by those evincing special skill in their production. A large proportion of these, as has just been intimated, have been secured in zoölogical gardens, so that the obtaining of such animal pictures has come to be one of the most important uses to which a zoölogical garden can be put. In England not a few of such photographs have been taken where game and other animals have been kept on private estates and similar places. Others have been secured in various menageries, and still others by those who have kept animals as pets and for the purposes of private study. In fact, these are the several ways in which mammals are studied in captivity,—that is, in public and private zoölogical gardens; in parks and on private estates; in either permanent or traveling menageries, and as pets by individuals all over the world. To supply these several concerns and parties, many collectors of living animals are constantly in the field, and many animal stores and other emporiums are found in towns and cities.

From a zoölogical point of view, a great deal can be learned about mammals kept in a state of captivity, and to this statement our game mammals form no exception.

Apart from all other sources, the best places to study mammals in captivity are in the case of those species kept in private preserves, or as pets, or in the various zoölogical gardens. In the last-named institutions, we often meet with a great many game mammals living with comparative comfort in a state of captivity, such as the bison; various species of deer, and a great many others belonging to the several orders of the class. It goes without saying that the behavior of these animals in confinement does not agree in all particulars with what these same animals exhibit in a state of nature; yet, at the same time, it does in many respects. The differences presented are very much the same as those seen on the part of a man in and out of jail. The more freedom they have and the greater the latitude, the nearer will their habits agree with those they have in a state of complete freedom. Among the best zoölogical gardens wherein to study game mammals under these circumstances is the one in London at Regent's Park; the gardens in Amsterdam; the Philadelphia zoölogical garden, and the National Zoölogical Park at Washington, D. C.

Game mammals of many species from all parts of the world have, from time to time, been kept—and

kept in excellent condition—in all of these places. In some of them, for many, many years past, they have been studied by hundreds of thoughtful people including naturalists from every quarter of the globe. Innumerable drawings and photographs have been made of them; a library of books have been written about them, often illustrated with the best class of colored figures; and, where specimens have died, our most capable anatomists have studied their anatomy and published admirable memoirs and other works upon their morphology.

Among the habits of mammals which can be studied with distinct advantage in large zoölogical gardens, none has a greater interest for us than their breeding habits, mating, and reproduction. It is the rare exception to be able to make observations upon these when the species are living in the wild state; for, under the most favorable of circumstances, but few mammals in nature will pursue their courtships if they suspect for an instant that their arch-enemy man lies concealed anywhere in the neighborhood.

Within the confines of a large and properly conducted zoölogical garden, however, it is an entirely different matter. Here all the stages, processes, and functions of reproduction may be investigated and studied,—often in the most complete and satisfactory manner; that is, in cases of all such as are there kept confined and will breed. Often, too, opportunities are afforded to observe cases of hybridization, and to study the development and growth of the hybrids produced. This is interesting and frequently important. We may note with great detail any such sexual characters as may make their appearance in either sex during the season of the rut, and in other cases where they are permanently assumed throughout life. Again, occasion presents itself over and over to note the wooing of the males, and the due submission of the females, and this is a subject about which nothing like enough has been written. As a matter of fact, it would be a great advantage to naturalists and scientists generally were the behavior of *all* mammals during the breeding season—including the various modes of the copulation of the sexes—studied as closely and recorded as fully as Henry W. Elliott has done for us in the cases of the seals and walruses in his valuable report on the "Seal Islands of Alaska" (1882). Frequently it is a miserable prudism on the part of many or the fear of criticism, or, what is far worse, the dread of the operation of some baneful and asinine laws that have been enacted in this country, that deters naturalists and others from publishing such observations,—all of which is to be most sincerely deplored and deprecated.

Many are under the impression that it is the male among the mammals that invariably makes the approaches, when he discovers the female to be in heat. This, however, is by no means the case; for, as Elliott has shown, it not infrequently happens on the seal rookeries that the female is obliged to tease her would-be lord and master for a greater or less time before she can induce him to perform his duty toward her. The same holds true with other carnivorous animals, and instances are not far to seek where similar behavior may be noted in the case of our own species. It is important to know of those forms among mammals wherein the male serves two or

more females during the mating season, as distinguished from those wherein he confines his attention to a single spouse, as I believe the case is among certain of the *Felidae*. Some male lions, it is said, are faithful to the lioness they select; while in the case of the bull of the fur-seal he may serve, during the breeding season, a hundred or more females in the course of a month.

Record, or rather comparative records, of the duration of the period of gestation among various mammals are also of great value. As is well known, some species bear but one youngling at a birth,—twins or triplets being with them the exception; while other species may normally have a litter ranging from four to ten or more. Some breed two or three times during the course of a twelvemonth, having a number of young at each birth, while others carry a single fetus in utero for a full year. In captivity we may be able to study closely the nature of various species of marsupials; ascertain the times when their young are born; how long they remain in the marsupium of the mother, and a vast deal of most valuable data. The behavior of the parents toward their young is another phase of mammalian life, which may be advantageously investigated in the case of captive and breeding species. In some species the greatest amount of solicitude is exhibited on the part of both parents for their progeny; while in the case of others the male may menace or even destroy them as soon as they are born,—instances of which frequently occur among rabbits and possibly other mammals.

In some groups the young more or less resemble their parents when they are born; in the case of others they are strikingly different either in color or in markings, and to a greater or less degree in form. With respect to their pelage, the young are often much lighter in color than the mother, in other cases so much darker as to be considered black; while among still others they are spotted or otherwise marked, as with various species of the *Cervidae*. It is interesting to know exactly at what times such spots and markings disappear, and to observe, in the gradual development of any species, when the young come to be fully adult and look like the old ones. Kids of the American Prongbuck Antelope are marked almost exactly like the old ones; but the fawns of the mule deer and other species are spotted, which spots disappear as the specimens become adult.

The exact times for the shedding of the coat in various species can also be observed in the case of mammals kept in a state of captivity; but in this, as in other observations, we must always remember that the animals may or may not, in such periodical changes and habits, be influenced by the effects attending domestication or partial domestication. This likewise applies to the shedding of horns, antlers, and other appendages. Captivity often exerts a peculiar influence on the organs of reproduction, rendering the confined species more or less sterile. This may or may not be accompanied by a loss or partial loss of desire on the part of the sexes; and Caton tells us that in the case of the Prongbuck there "is certainly no want of ardor on the part of the male, and the female is not without inclination to breed, but from some unknown cause the union is not fertile."

The dispositions, mental attributes, and other characteristics of mammals, as exhibited in a state of captivity, may likewise be studied and recorded. Some species are vicious and sullen, and never become friendly with their keepers, nor satisfied with their abnormal surroundings and conditions; others, again, are entirely different, and not only become very deeply attached to those who have them in charge, but decidedly decline to avail themselves of their liberty when it is given to them. Even such a species as the common Harbor seal will become so profoundly attached to its owner that no amount of harshness or attempts to force it to resume its liberty will ever avail, and it will return to its master at all hazards.

Some mammals are largely nocturnal in habit, and in large zoölogical gardens can only be properly studied, in many particulars, by the naturalist during the hours of night. Flying-squirrels, skunks, and other musteline species, as well as bats, are all examples of these. Sometimes such mammals, of the kind mentioned, will remain all day curled up half asleep in some nook or corner, ill disposed to bestir themselves at all during the day; whereas, as soon as twilight approaches and the hours of darkness overshadow the world, when other species betake themselves to rest and repose, they evince a surprising activity and an interest in everything going on about them. Other animals seem to require but very little sleep, or else avail themselves of "cat-naps" during the entire twenty-four hours. Racoons appear to be of this nature, in so far as I have been able to judge from specimens I have had, at various times, in captivity.

Some mammals are teachable to a surprising degree, and are possessed of a high grade of intelligence; others, again, are stupid, vicious, and morose, and no amount of the kindest of handling and instruction will avail anything, even getting them to perform the simplest of acts beyond the habits they normally exhibit. So far as I am aware, no one has ever seen such a thing as a performing sloth or armadillo; yet we frequently are compelled to wonder at the remarkable achievements of other mammals in such directions, especially those that have received instruction at the hands of skilled trainers. Menageries are great places in which to observe such feats in some animals, as for example dogs, cats, lions, elephants, and many others; but for some reason these exhibitions have no attraction for me. Others have, however,—particularly where the teaching has been undertaken by a person of scientific training, and the object has been to demonstrate certain phases in the developmental evolution of the instincts, also of reason and intelligence throughout the animal series including our own species. Many species are available for such purposes, including all the simians, and down through the animal kingdom, even to include such invertebrates as ants and spiders.

There is another class of knowledge that mammals in captivity can furnish us, and that is gained through a careful study of the diseases to which they are subject. A very considerable amount of information has been obtained along such lines already, and no insignificant part of this has proved to be of decided benefit to the science of comparative pathology. Many of the diseases to which animals

are subject are similar in most respects to those which afflict our own species, and so such studies are useful and important, even from a utilitarian point of view. But, in addition to this, we should study them for their own sake,—not only with the view of maintaining the mammalian specimens in confinement in as high a state of health as possible, but it is our duty likewise; for these creatures are in a sense our wards and we their guardians, and, being in our power and keeping, everything should be done that conduces to their comfort and daily welfare. So there is the double incentive, their cost to us on the one hand, and our duty as humanitarians on the other.

Of recent years, zoölogy has been an enormous gainer in another respect from studies of mammals kept in confinement, and this has been through obtaining, by means of photography, an elegant class of illustrations of rare and common forms, wherewith to illustrate zoölogical literature, to be used in all kinds of lectures and educational institutions; to assist naturalists and others in their studies, and for other purposes. There are individuals, and even companies, in various parts of the civilized world at the present time, entirely devoted to the pursuit of this class of work, and it is a source of great satisfaction to know that some of the accomplishments along these lines are truly remarkable and have proved to be of the very greatest utility. Entire works devoted to the life-histories of mammals have now been published with the illustrations obtained in this way, while others have been secured by photographing the species described in their native haunts.

Photography also comes into play when we undertake to study the anatomy and structure of mammals in the prosectorial department of a scientifically organized zoölogical garden, and this is one of the objects to be obtained by such an institution of an importance quite coequal with the one it has in view of instructing the visiting public in the science of animals.

As a matter of fact, any extensive zoölogical garden at all worthy of the name should have upon its grounds one large and commodious building, at least, to be given over to those members of the staff of the institution who are devoted to all the various fields of animal research that have been outlined in several of the foregoing paragraphs of the present article. In such a building as I have in mind, there should be one large room set aside for the use of the staff photographer and his assistants. It should be constructed and equipped in such a manner that animals of any size could be properly photographed in it, and that with the view of having the natural surroundings appear in the pictures thus obtained. Provision should also be made for photography in various other directions, as of the bodies of the animals that have died, and cadavers during different stages of dissection as suggested by the staff prosector. Of course birds, fish, eggs, reptiles, and all else of the kind will come in here, but reference is now being made only to mammals.

Still other rooms in this building should be set aside for the prosectorial department consisting of a thoroughly equipped biological laboratory in every particular. With this in good running order, no material should be allowed to go to waste whatever.

No matter how common the animal that chances to die in the gardens, some good use should be made of it, and the skeleton at least always roughed out, saved, and donated to the osteological collections of some museum or other. In the case of rarer animals, they should be injected, carefully dissected by competent morphologists, and the results, with plates and illustrations prepared by the photographer and artists, published by the institution in its reports and proceedings. Special skeletal and other preparations should be properly preserved and constitute a series for the use and comparison of the anatomist and his staff in his work, and a room or rooms should be devoted to the convenient storage of this class of material. There should also be a section where casts of the grosser parts of dissecting could be made and colored. A few of these could be retained in the collection; but, as they accumulated, a number should be disposed of to educational institutions of various kinds in the country and to medical colleges, and the proceeds applied to defraying some of the expenses of the department now under consideration. The same plan could be adopted in the case of photographs of living animals, and it is really surprising what a revenue they would bring at the present time, so universal is the demand on the part of illustrators for such pictures. Finally, a good working scientific library should be found in this building, especially fitted out for convenient reference on all subjects pertaining to the life-histories of animals of all classes, their structure, geographical distribution, and general biology. When in complete operation, this part of a zoological garden could, if judiciously managed, be made self-sustaining in a great degree, and the amount of information it would be capable of furnishing to biological science would, on account of its amount and value, be quite difficult to estimate. This department of the Regent's Park, under the management of the Zoological Society of London, in London, has, in times past, accomplished wonders along the lines here indicated, and is now doing even more. In fact, when we come to consider the publications they have put forth; the men who have studied there or drawn their inspirations from its very existence, examples and aid, and the enormous amount of material it has furnished in a variety of ways, it is safe to say that it constitutes one of the strongest bulwarks and promulgators of the biological sciences in the entire civilized world. We possess nothing like it yet in this country; but the time is fast approaching when we will, and undoubtedly must, if we have any ambition to keep abreast with other nations in this, one of the real test indices of a nation's true greatness.

Apart from what the study of mammals affords us, both in nature and in confinement, as simply enhancing human knowledge and progress, they may be viewed from still another standpoint, and this is their economic value as a whole. As first conceived, it was my intention to present here some extended statistics on this subject that would prove to be of more or less interest to naturalists, sportsmen, game wardens, legislators, furriers, and dealers in game for the large markets; but upon considering the matter more fully, the idea was, to a greater or less extent, abandoned.

In so far as the mammalia are concerned, there

was a time far back in the earliest periods of the career of the human race, at the very dawn of its history, when the economic value of mammals possessed simply an enormous importance. Men, in those pristine days, when they dressed at all, used the roughly tanned pelts of mammals as their sole raiment. It was long before the era when the prototypes of the race thought of rearing animals in domesticity as a source of food-supply, and they depended wholly upon the chase to furnish their demands for sustenance. Their weapons and crude tools were very often fashioned out of the bones of mammals, and upon the bones of mammals they rudely drew such meager records as they were wont to make of their history. From the claws and teeth of mammals they manufactured their ornaments, and from other parts they made their bow-strings, when such weapons came into use. Indeed, it was an age when men relied almost wholly upon what they secured in the chase to provide themselves with the few and simple things they required to meet the common necessities of life, and fulfil the ends of their barbarous existence. As the centuries rolled by, the dependence on the chase became less and less evident, although the number of animals slain, and the number of pelts used for all purposes, came to be vastly increased. This was due to a variety of causes, as the increase of population and the increase of skill in capturing the animals hunted. But game was abundant and was taken without thought and without stint. No one ever dreamed of such a thing as the extinction of any species of mammal.

Thus things went on for many, many generations, and thus things went on in the early history of this country. When the white man first settled here, who among them ever for a moment gave the extermination of big game a single thought? It was considered unlimited and inexhaustible. So also thought the thousands of Indians distributed in great tribes all over the country from ocean to ocean. In the early provincial towns the markets teemed with big game in plenty, and there seemed to be no end of squirrels and rabbits. The consumption of game was general, and the furs and pelts of animals used in abundance everywhere. Great areas of the country supported no end of game which, from one year's end to the other, was never disturbed or hunted. Fur companies, such as the Hudson's Bay Company and others, were the great moneyed corporations. Almost countless thousands of skins of all the various fur-bearing animals were exported, and they ran into the millions in time.

Furs were comparatively very cheap, and robes, rugs, coats, headgear, and other articles of apparel were made of them for every one, save those in the most moderate circumstances. No one thought anything of a buffalo robe, and the pelt of nearly every other mammal was held in the same estimation. Millions of fur seals were upon the rookeries; sea otters were abundant, and beaver and mink as common as rats and mice.

There came a time, no one can fix the exact date, when all this came to its maximum stage of abundance; a time when the statistics showed the very greatest number of furs and pelts imported or exported; a season when the game markets and personal captures exceeded the bags of any other single

day in history. It may have been along somewhere in the seventeen hundreds,—no one exactly knowing when; but such a day came, and since that day a decline set in and set in steadily toward what was, at first, but a gradual decrease.

Within the last quarter of a century in the United States, this decrease has been extremely rapid. Less and less game was furnished the markets, and, as a matter of fact, the fur trade, as a big industry, no longer existed and many people went entirely out of it. Buffalo robes and sea otter skins came to be almost things of the past and fetched truly fabulous prices in the market, leading to the extermination of the animals. And so it is going on; the rarer American furs are only the luxury for the rich and the very wealthy; it is they, too, who eat of venison and other wild game. The laws are fast tending toward forbidding game to be sold any longer in the market-places, and the time will come when even the eating of wild squirrels and rabbits will be a matter worthy of gossip and a fact to be talked about. The few buffalo robes left will be in the museums, and the existing game on the close-kept preserves of the millionaires.

A CONCEPT OF X-RAY PATHOLOGY.

XIII. ENTEROPATHY.

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DISEASES of the intestine may be classified as follows (Barker):

I. *Inflammations of the intestine, or, inflammatory enteropathies*, including acute and chronic intestinal catarrh, ulcers, appendicitis, colitis and pericolicitis, diverticulitis, proctitis, and certain specific inflammations of the intestine (typhoid fever, dysentery, tuberculosis, cholera, etc.).

II. *Circulatory disturbances, or the circulatory enteropathies*, including intestinal hemorrhage, hemorroids, infarction of the intestine from embolism or thrombosis of the mesenteric vessels.

III. *Enteropathies due to alterations of the lumen, or of the position, of the intestine*, including the stenoses (ileus), dilatations (diffuse and circumscribed), invaginations, axis rotations (volvulus), hernias (external and internal), and enteroptosis.

IV. *Intestinal parasitism, or the parasitic enteropathies*, including teniasis, ascariasis, etc.

V. *Intestinal tumors, or the neoplastic enteropathies*, including intestinal polyposis, cancer, etc.

VI. *Developmental errors, or the congenital enteropathies*, including atresia ani, atresia recti; Hirschsprung's disease (megacolon congenitum); malpositions of the intestines; and Meckel's diverticulum.

VII. *The nervous enteropathies*, including nervous diarrhea, etc.

They are studied for morphology and motility. To elicit the motility it is perhaps best that the patient be allowed regular diet and that neither purge nor enema be administered. A barium meal is fed as for the examination of the stomach and the examination with the x-ray made six hours after the meal and again at twelve, eighteen, twenty-four, thirty-six, and forty-eight hours. The posture is both vertical and horizontal. The exposure is dorsoventral; ventrodorsal for the cecum, sigmoid, and rectum; left lateral for the study of cecal mobility. The intestine is studied as to size, shape, position, and peristalsis.

When the morphology of the intestine is being elicited the colonic tract is first cleansed by the use of an enema and the following barium clysma administered:

Barium sulphate, 4 ounces;
Mucilage of acacia, 2 ounces;
Warm water, 3 pints.

As the clysma is introduced, the colon is studied fluoroscopically and examined especially for spasms, tumors, and kinks due to bands and adhesions.

Inflammatory Enteropathies.—The intestine may become involved in inflammation either in local stretches or in its entirety; or the inflammation may affect only the small or the large bowel. According to the site of inflammatory reaction the condition may be described as a duodenitis, jejunitis, ileitis, colitis, sigmoiditis, or proctitis.

The inflammatory etiology may be primary as the result of (1) dietetic errors; (2) ingestion of indigestible or tainted foods, or very cold beverages; (3) chemical irritants; (4) mechanical irritants. There may be a secondary form of enteropathy due to (1) infections of various sorts; or (2), extensions from adjacent inflammations. On x-ray examination inflamed portions of the colon may be revealed by marked spasticity following a barium clysma which show as a narrowing of the smooth edged shadow of the affected bowel portion; but the x-ray is much more helpful in the diagnosis of chronic inflammation of the intestine than acute.

Chronic enteritis may also manifest as a spastic area in the part of the bowel involved. In mucous colitis, after the barium clysma has been expelled, the mucous shreds that remain infiltrated with the barium suspension may be revealed as ribbon-like strings. There are specific forms of indirect inflammation including tuberculosis, syphilis, actinomycosis, amebic dysentery, and bacillary dysentery. Often the patient is referred for x-ray investigation of the colonic tract by reason of the existence of an unexplained pain in the terminal colon and rectum which radiates down into the thighs. In the absence of x-ray findings the possibility of sacroiliac subluxation, or a neurosis, or uterine or adnexal diseases, or prostatitis, should be considered.

Ulceration of the intestine has been divided (Nothnagel) into the following groups:

Group I.—*Ulcers due to necrosis*: (1) Simple duodenal ulcer; (2) Peptic ulcer of the jejunum; (3) Ulcer following burns of the skin; (4) Embolic and thrombotic ulcer (including the ulcer in polyneuritis); and (5) Amyloid ulcer.

Group II.—*Ulcers due to inflammation*: (1) Catarrhal ulcer; (2) Follicular ulcer; (3) Stercoral or decubital ulcer.

Group III.—*Ulcer due to specific acute infections*: (1) Typhoid ulcer; (2) Dysenteric ulcer; (3) Septic ulcer, etc.

Group IV.—*Ulcer due to specific chronic infections*: (1) Tuberculous ulcer (2) Luetic ulcer, etc.

Group V.—*Ulcer in constitutional diseases*: (1) Scorbatic ulcer; (2) Leukemic ulcer, etc.

Group IV.—*Ulcer in intoxications*: (1) Uremic ulcer; (2) Mercurial ulcer.

Of these, chronic ulcerative colitis requires mention. It consists of a chronic inflammatory condition of the colon of obscure etiology in which the colon shows redness, thickening and infiltration of the mucosa, resulting later in granulation tissue,

polyps, pedunculated papillomas and chronic ulceration and perforation. The x-ray pathology centers on demonstrating the extent of involvement and points of constriction. The most noted x-ray findings are (1) rapid filling of the colon upon introduction of clysmas; (2) narrow and ribbon-like morphology of the large bowel; and (3), absence of haustral markings. Usually in all forms of chronic colitis there is an incompetency of the ileocecal valve; but it is not diagnostically important for it may occur in a large percentage of normal cases. It is often possible actually to demonstrate the papillomatous projections into the lumen of the intestine, especially if these are loose textured and remain saturated or coated with opaque suspension after the clysmas has escaped.

Diverticulitis of the colon is not of too rare occurrence in x-ray experience. The diverticulous sacs become filled with opaque substance and may be visualized as bud-like projections extending outward from the smooth periphery of the bowel; but their most characteristic x-ray pathology rests with the persistence of opaque areas due to prolonged retention of opaque salt four or five days after the meal has passed through. In a case examined recently at a camp about two hundred diverticulous sacs remained filled with opaque retention sixty-four days following a barium feeding.

Chronic Duodenal Ulcer.—Duodenal ulcer occurs most commonly between the ages of twenty-five and forty-five and affects men more frequently than women. Many cases of duodenal ulcer have been diagnosed erroneously as gastric ulcer. Chronic ulcers may either be indurated or non-indurated. The edge is oftentimes terraced with a variable depth to the crater. More usually the ulcer presents a circular punched-out appearance which may become oval or oblong on long standing. The peritoneum over the ulcer assumes a whitish hue and presents the appearance of a radiating scar. It may sometimes become adherent to the intestine. The most common site for the ulcer is the anterior wall about one centimeter distal from the pylorus. There may be a cicatrization which leads to duodenal stenosis followed by secondary dilatation of the stomach. It is rarer for duodenal ulcer to undergo malignant change than for gastric ulcer. The x-ray signs of duodenal ulcer may be direct or indirect. A direct sign includes the demonstration of deformity of the duodenal contour (L. G. Cole). The important x-ray criterion is that the deformity be real and not an artefact. To elicit the deformity the barium-water sediment test, the opaque suspension, morphology test, and motility studies of the stomach and duodenum should be repeated often enough to convince beyond doubt that the duodenal irregularity persists. The deformity may sometimes be characteristic and has been described by Carman as presenting various types as follows:

(1) The *pine-tree* or *branched-coral* type of distortion, (2) the *niche* type, varying in size from that of a wheat-grain to that of a pea, (3) the *incisura* type, single or bilateral, and (4) the *contracted-bulb* type. In addition, he values (1) *duodenal diverticula*, (2) *gastric hypertonus, hyperperistalsis and hypermotility*, (3) *six-hour gastric residue*, (4) *antral dilatation*, and (5) *gastrospasm*, as signs of ulcer of the duodenum when critically interpreted.

If the presence of a deformity is conclusively

demonstrated and its persistence established after the most careful palpation under the fluorescent screen and on repeated plate study, in practically every case constant bulbar deformity is the x-ray sign pathognomonic of duodenal ulcer.

The indirect signs include (1) altered tonus of the stomach; (2) altered gastric peristalsis; (3) altered gastric motility; (4) gastrospasm; and, (5) tenderness over the duodenal deformity elicited on pressure under fluoroscopic examination.

In stomachs of types other than hypertonic the most common change in the presence of duodenal ulcer is that to hypertonicity. It is one of the triad of "hypers" already referred to as strongly indicative of duodenal ulcer.

Hyperperistalsis may vary from a moderate increase of wave depth and frequency to an exaggerated energy of contraction amounting often to gastrospasm.

The hypermotility observed in the shortened emptying time of the stomach has been emphasized especially by Baetjer and Friedenwald, as contributive to the diagnosis of duodenal ulcer.

Appendicitis.—X-ray pathology of the appendix may be revealed as primary or secondary; primary, when actual defects in structure may be visualized from the general morphology of the appendix; and, secondary, when the diseased appendix induces, by reflex, perversions and spastic manifestations in other parts of the gastrointestinal tract with which the appendix is in nervous association.

The appendix fills when there is barium in its vicinity; and as the opaque mass moves along the colonic tract the appendix again empties. If it is desired particularly to study the appendix it would seem best that the patient be examined in the upright position and that a barium feeding be used instead of the opaque clysmas. When the mass reaches the cecum, by the use of the Holzknicht spoon, or the Case modification of the Holzknicht spoon, the opaque material is palpated and pressed with the view to inducing its entrance into the appendix. If, after repeated palpation, the appendix remains unrevealed it argues for obliterative lesion, which, if accompanied by clinical symptoms would point to obliterative appendicitis (described by Morris as harmful involution in the appendix).

There was a time in the early studies of the x-ray findings of the appendix when to visualize a barium filled appendix was interpreted as a sign of pathology; but it now seems certain that pathology is more likely indicated when the appendix fails to fill after diligent palpatory application.

When the lumen of the appendix is patent the opaque mixture enters and may faithfully reveal the length and diameter of the appendiceal canal. In stereoscopic vision the exact location of the appendix may be determined and its anatomical position described to the surgeon as retrocecal, procecal, or however else it may appear. Anywhere in the lumen there may be lodged an obstructive mass which can prevent the entire lumen from becoming completely filled; so that one cannot feel certain that the barium shadow actually represents the entire length of the appendix. After noting the size and the length of the lumen attention is directed to the presence or absence of constrictions or kinks. Constrictions are readily revealed as

marked narrowings anywhere in the course of the appendical canal, which narrowings must persist under vigorous palpation. A kink is inferred when the appendix presents an angulation that refuses to straighten out under diligent manipulation. Adhesions are presumed when the appendix is seen to remain in abnormal and constant relation to any part of the intestine also outlined by the barium meal.

An important x-ray sign rests with the determination of the emptying time or drainage of the appendix. When the barium persists in the appendical lumen after the main barium mass has passed beyond the cecal region, it points to a deficiency in drainage. There are cases recorded (Pirie, quoted by Case) in which the appendical shadow was observed to persist for forty-three days. Another point of importance in connection with the elicitation of appendical pathology rests with the determination under the fluorescent screen of a tender spot located in the region of the appendix.

At most, the direct x-ray signs of appendical disturbances must be reduced to revealing anatomical variations; so that there may be reported the patency of the appendical lumen, its size and length, its straightness or angulation, the presence or absence of constrictions, its free course, or adhesions that bind it to adjoining bowel structures, its emptying time and whether it stands in anatomical relation to a tender point clinically palpated.

The indirect x-ray pathology that results from appendical abnormality is referred usually to the stomach and duodenum. It is in many instances accompanied by contemporaneous changes affecting the gall-bladder. The most frequent manifestation is an impaired gastric motility which affects the emptying time of the stomach so that a small residue, amounting usually to less than twenty-five per cent of the total opaque meal area, persists in the gastric region six hours after administration of the barium meal. In the absence of other x-ray signs of pathology in the stomach or duodenum, six-hour retention with moderate amount should suggest a suspicion of appendical disorder reflected to the stomach (ileopyloric reflex of Barclay). Other signs of pathology centered about the appendix may be those of ideal adhesions or stasis. In this connection the topic of ileocecal incompetency seems to have attracted much discussion.

Insufficiency of Bauhin's valve, permitting a regurgitation of cecal contents into the terminal ileum, may be demonstrated in about twenty per cent of all patients who are examined with the barium clysm. Case considered ileocecal incompetency to be a significant abnormality contributory to ileal stasis. It would seem probable that the question of ileocecal incompetency resolves itself as does the question of water trap stomach. That is, if an ileocecal valve permits regurgitation of the barium clysm into the terminal ileum, the x-ray sign *per se* does not mean anything more than an anatomical register of the fact; and to diagnose ileocecal incompetency as responsible for certain clinical syndromata, not only must the x-ray reveal the incompetency, but the clinician must show by exclusion that the incompetency is the source of disorder.

Changes in Lumen or Position.—A most import-

ant change in intestinal lumen is that incident to acute intestinal obstruction. Acute intestinal obstruction implies a certain stoppage of the passage of intestinal contents. It may be due to mechanical occlusion or due to a paralysis in the motive power of the gut.

Mechanical ileus may be a simple occlusion or may be due to strangulation. Simple occlusion implies an obstruction to the lumen without essential injury to the intestinal wall. It may be due to obduration, tumors, compression from without or spasticity. Under fluoroscopic examination the portion of the intestine proximal to the occlusion becomes gas-distended and is revealed without additional preparation of the patient. In all cases of intestinal obstruction a fluoroscopic survey is much to be recommended as it may oftentimes reveal the exact site of luminal obturation. When the obstruction is due to spastic ileus, which may occur spontaneously or following an abdominal surgical expulsion, the spasm yields to belladonna administered in full therapeutic doses.

Intestinal obstruction may also be the result of strangulation owing to the incarceration of an external hernia. In this condition the possibility of umbilical, obturator, lumbar, and gluteal herniae must be considered in addition to the more frequent inguinal and femoral herniae. The intestine may become incarcerated by reason of an internal hernia (in the duodenjejunal fossa of Treitz, in the foramen epiploicum of Winslow, in the ileoappendicular recess, in the retrocecal recess, or, in the case of a diaphragmatic hernia, in the thorax). In these cases the x-ray examination is decisive, the diagnosis being often arrived at by simple fluoroscopic examination without previous preparation of the patient. Strangulation may result from adhesions after previous operations for appendicitis, cholecystitis, or gynecologic operative inference. It may result as a rotation of the intestinal axis in elderly persons, producing the condition known as valvulus; or in younger patients, particularly in infancy and early childhood, the bowel may invaginate to produce intussusception.

Dynamic or paralytic ileus may be inflammatory, toxic, or reflex.

In general, x-ray study should be undertaken if acute intestinal obstruction is suspected; but a contrast meal should not be fed, neither should a barium clysm be administered until after a fluoroscopic survey has first been made without preparation, and assurance surmised that the meal or clysm is not contraindicated.

The x-ray will differentiate between obstruction of the small intestine and that of the large intestine. The differentiation is effected by a study of the meteoric locus.

Chronic Intestinal Obstructions.—The diagnosis of Chronic intestinal obstruction is elicited by the x-ray through the joint observation of intestinal dilatation accompanied by hypertrophy of the bowel wall. In chronic obstruction the stenosis may be due either to (1) a concentric narrowing; or, (2) a pressure from outside the bowel. Concentric narrowing may be due to carcinoma, tuberculosis, lues, or the scar of a non-specific ulcer. Tuberculosis occurs at any age and affects more particularly the small intestine or the cecum. Enteric tuberculosis

usually assumes one of three types; nodular, ulcerative or fibrous. In the nodular type the lesion consists of conglomerative tubercles, generally extraluminal. This type barely permits of identification by the x-ray. With it there is usually associated the ulcerative type which is revealed on the plate by an irregularity of the bowel contour, which irregularity increases to the point where, in the terminal stages, it produces obstructions. The fibrous type induces a proliferation of connective tissue which stiffens the bowel wall and leads to an irregularity in the contour and, therefore, affords practically an identical picture to the ulcerative type.

The major x-ray signs of tuberculous colitis are; filling-defects, spastic phenomena and obstruction (Carman). To these hypermotility has been added (Brown and Sampson). Hypermotility is apparently due to the accompanying achylia or to diarrhea and is not in itself diagnostic of tuberculous colitis, though its association with the condition is frequent and deserving of emphasis. Spasm manifests in practically all gastric intestinal lesions and is, therefore, only of contributory value in the diagnosis from the x-ray plate.

Carcinoma generally affects the large intestine, after the age of thirty years, and seems to favor the rectum, sigmoid, cecum or right or left flexure of the colon. Luetic stricture, when it occurs, most usually involves the rectum.

Chronic stenosis may be due to pressure from without as direct compression from a retroflexed gravid uterus, carcinoma of the uterus or ovary, or kidney, or sarcoma. It may be due to a fixation of the bowel by adhesions or bands due to inflammation or to an infiltration of the intestinal wall such as pericolicitis, Jackson's membrane, Iscovesco's membrane, Treve's band and allied conditions. The x-ray study is of the greatest help in the differential diagnosis of these conditions.

Dilatations of the Intestine.—Dilatations of the intestine may be diffuse or circumscribed. The diffuse form may occur as a proximal dilatation to intestinal obstruction of whatever sort, or it may be a congenital malformation. Circumscribed dilatations may be found in any part of the large intestine. When acquired they are usually diverticular and are most common in the sigmoid and descending colons.

Dilatation of the ileum reveals as a diffuse widening of the lumen of the lower part of the ileum. It is accompanied by an undue delay in the passage of intestinal contents through it. It may arise as the result of organic obstruction in the ileocecal region due to tuberculosis, cancer and actinomycotic lesions; but aside from these there appear to be three principal causes for ileal dilatation and ileal stasis. According to Barker these are:

1. Adhesions in the region of the terminal ileum causing compression or kinking of the bowel and thus obstructing its lumen; these adhesions may be the result of the regular embryological peritonitis that occurs in all mammalian embryos (A. Keith), or of a peritonitis occurring after birth; in the bibliography, much has been made of Lane's kink, as a cause of ileal stasis.

2. Spasm of the terminal four inches of the ileum, known as the ileocecal sphincter mechanism

(Keith, Hertz, Case); normally, this sphincter is responsible for a certain delay of the chyme in the lower ileum; in certain pathological states, especially in acute and chronic appendicitis, this ileal delay is pathologically lengthened owing to spasm of the sphincter; dilatation of the ileum proximal to the sphincter and ileal stasis result.

3. Incompetency of the valvula coli (or ileocecal valve); according to J. T. Case, this reflux of colonic contents into the ileum is the commonest cause of diffuse dilatation of the ileum, and of ileal stasis. Normally, the valvula coli is competent, but in about one out of every six patients presenting gastrointestinal symptoms examined by x-ray methods, the valvula coli has been found incompetent (Case). Incompetency may be due to congenital defect in the valve, or, more often to colonic stasis due to bands, adhesions, etc.; most patients with incompetency are constipated.

Intestinal Stasis.—It would appear that intestinal stasis may be considered as a chronic disease due to the retention for too long a time of the intestinal contents. In many instances there are certain bands to which Lane has directed much attention and attributes the etiologic ancestry of these bands as the result of the effects of upright posture. As the upright posture is assumed the dropping of the viscera exert a drag upon the mesentery which results in the formation of thickened bands (compensatory perhaps). These bands become so thick and strong in certain parts as to form supplementary mesenteries tending to support the bowel. If these adhesions (says Jordan) were equally strong in all parts, the force incident to supporting the structures in their new posture would be equally distributed. But the bands may be strong in some places and weak or absent in others; and consequently the bowel may be supported at certain points where the bands are strong and kinked with varying degrees of mechanical obstruction at those places where the bands are weak or absent. It would seem that there are certain points at which these kinks are especially liable to occur. Following along the digestive canal from the stomach the first point is said to be at the third part of the duodenum near the commencement of the jejunum. Jordan goes on to describe other points in the tract including the lower end of the ileum, the appendix, the hepatic flexure, the splenic flexure, the sigmoid loop, and the rectum. With accurate time study of intestinal motility a relative delay or stasis of food in any part of the intestine may be determined by the x-ray; and if the delay occurs at a region where evident abnormal morphology can be shown, an x-ray diagnosis of anatomical intestinal stasis is permissible. It remains for the clinician to decide whether the stasis is responsible for the clinical condition revealed by the patient.

(To be continued.)

The Klippel-Feil Syndrome.—Lance showed a child of 12 years treated during several years for suboccipital Pott's. He found the syndrome described by Klippel and Feil, to wit: Short neck, low implantation of hair, limitation of movements of head. The author also showed a radiograph of a child of 6 years with spina bifida of the entire cervical spine and uppermost dorsal vertebrae, in which an unsuccessful operation had been performed for torticollis.—*Le Bulletin Médical.*

TETANUS, WITH RECOVERY, SHOWING SOME UNUSUAL FEATURES.

BY B. L. SULZBEACHER, M.D.,

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A CASE of tetanus with recovery, which presented some interesting phenomena, was recently under observation. Tetanus developed on the fifteenth day following an injury even though a prophylactic dose of antitetanic serum was given at the time the injury was received, and in which the wound was open in its entirety after the tenth day.

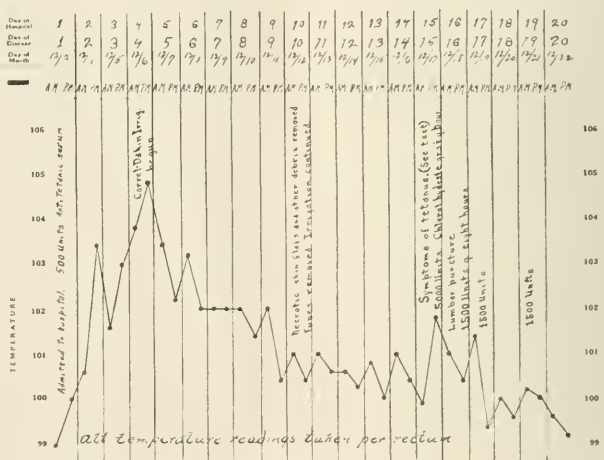
The case in question emphasizes the necessity of a large dose of antitoxin, as an absolute prophylactic, and the advisability of immediate cultures, aerobic and anaerobic.

A child, M. B., *et.* 21 months, was run over by a motor truck. On admission to the hospital and under ether anesthesia, the injury was found as follows: The skin of the right leg presented a very jagged, torn appearance, running from a point three inches above the knee on the inner aspect of the thigh around the leg,

the temperature rose to 104.8°, and the flaps had become somewhat gangrenous looking. Carrel tubes were inserted after removal of several stitches and intermittent irrigation with Dakin's solution was instituted. The temperature immediately fell approximately three degrees and in five days had decreased 4.4°. The flaps were hopeless on the tenth day. They were completely removed and disclosed underneath quantities of evil smelling pus and detritus, which previous culture had shown to be *Streptococcus hemolyticus* and *Staphylococcus albus*. Anaerobic cultures were not made at this time.

At this point it is rather remarkable to note that the muscles were found to be united in spite of the nature and seeming virulence of the infection. The patient's general condition improved daily, likewise the local condition, the wound showed healthy granulation tissue throughout.

On the afternoon of the fifteenth day it was noticed that the child's pupils were widely dilated and accommodation relaxed, giving the eyes a peculiar staring appearance. Later in the evening close observation revealed beginning rigidity of the extensor muscle of the neck and the masseter muscles. Slight tonic convulsions of the upper extremities accompanied by stertorous breathing occurred at intervals of twenty to thirty minutes. The arms were flexed and rigid. Lum-



through the popliteal space to a point three inches below the head of the fibula, thence across the front, and ended on the inner side of the leg at the junction of its middle and lower thirds. The lower flap was everted much as a stocking would be pulled over the leg and carried on its inner surface portions of the tibialis anticus anteriorly, and the gastrocnemius and soleus muscles posteriorly. The popliteal artery was clearly visualized to the point of its bifurcation, likewise the deep veins.

Both the upper and lower flaps in places were torn loose from the fascia. The tibia was fractured in a diagonal line in its upper third, but the fragments were in good position. The joint capsule was opened posteriorly for a distance of about two centimeters. Hemorrhage was very free, coming from the superficial veins. The wound was thoroughly cleansed with physiological saline solution and later drenched with McDonald's solution. Repair of the torn muscles was attempted, drainage tubes being inserted in the depths of the wound and the skin closed with interrupted silkworm gut sutures, care being taken to allow space for drainage between each stitch. The little patient, though badly shocked, was placed in bed, stimulated, and immediately given 500 units of tetanus antitoxin.

Progress was not unusual until the fourth day, when

bar puncture was done, and the negative findings excluded possible meningeal irritation from the dehydration of hyperpyrexia or infective diarrhea. On these findings and symptoms the diagnosis of tetanus was established.

Owing to the fact that a prophylactic dose of antitoxin had been given fear was held lest anaphylaxis might develop on its subsequent use. The patient was thoroughly tested with a small dose given subcutaneously and observed for one hour. No reaction having developed, a full dose of 5,000 units every eight hours. Chloral hydrate, grs. ii, was given at hourly intervals to control convulsions. The injections for the greater part were given subcutaneously and in the deep tissues of the wound. In all 14,000 units were used.

Convulsions ceased within twelve hours and rigidity entirely disappeared in thirty-six hours. A portion of the bedside chart, with report of medication and temperature, is herewith given.

Later attempt to gain confirmation of tetanus by anaerobic cultures proved negative, which, however, in the light of the development of the case, its history and conduct, would only be of academic interest.

Considerable difficulty was encountered in feeding

the child, and tube feedings were resorted to on various occasions.

Further progress has been uneventful, and at the present writing the second skin grafting operation has been completed successfully.

The valuable experience gained may be summarized: (a) as to the need of large prophylactic doses of serum; (b) the early recognition of symptoms; (c) the persistent and regular serum therapy; (d) importance of anaerobic cultures in all accident cases. This case illustrated rather unusual features in the retarded development of its symptoms and in their short duration; these lasting only thirty-six hours.

I am indebted to Drs. L. S. Milne, D. Walthall and S. McCutcheon for assistance in the above case.

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REPORT OF TWO CASES OF ACHOLURIC JAUNDICE, FAMILIAL TYPE, WITH SPLENOMEGALY.

By DAVID H. HALLOCK, A.M., M.D.,

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CASES for diagnosis presenting chronic enlargement of the spleen are interesting because of their relative rarity, and also occasionally because of difficulty in arriving at a definite diagnosis in a given case. After a tentative diagnosis has been reached, lack of agreement in nomenclature renders the conveyance of our conception of the case to others by a single term difficult. Consequently we try to name the disease and hasten immediately to qualify the diagnosis with as many of the prominent symptoms or physical signs as are present. Hence the heading of this article.

The following more common causes of splenomegaly may be mentioned: Infants: Syphilis, rachitis, tuberculosis, anemia (especially von Jaksch's), acute infections (especially malaria). Adults: Above, as well as amyloid, leucemia, Banti's (splenic anemia), Gaucher's, and Hodgkin's, anemias (especially pernicious), acholuric jaundice, acquired or familial.

It is the purpose of this article to report two cases of the last named, first recognized by Minowski as an entity.

CASE I.—A. F., male, 16, single, clerk, admitted July 22, 1920, Hosp. No. 3848. Mother is living and well. Father died of "liver trouble"; was of a yellowish tinge of skin for many years. Paternal grandfather also died of "liver trouble"; was yellow like patient for a long time. Had measles and diphtheria without complications. Enlarged tonsils and adenoids removed. Denies lues by sign and symptom.

The present illness began at three years of age with a symptomless jaundice. The entire skin took on a faint yellow tinge which fluctuated in intensity from time to time. At five years lassitude first appeared with dyspnea on slight exertion. At no time except during the two intercurrent infections mentioned above was the patient acutely ill; nor has the patient ever felt in as good health as others appear to be. During school he failed in two classes, having neither the desire nor the energy to study. He left school as early as the law permitted and engaged in business, but with the same lack of interest and want of energy.

Symptoms.—The sclerae are jaundiced continually with varying intensity. There is occasional epistaxis, some dyspnea on exertion, no cough nor expectoration nor loss of weight; occasional attacks of palpitation

*From the Medical Service, Southampton Hospital.

of the heart. There are no gastrointestinal symptoms except constipation; some pain in right upper quadrant on exertion is complained of. No genito-urinary symptoms, except that the urine is usually very dark. The skin has been yellow in color constantly, varying in intensity. No night-sweats, itching, or furunculosis.

Physical Examination.—Fairly well nourished and developed boy, rather pale. Skin and sclerae have a faint yellowish tinge as of jaundice. The pupils react to light and in accommodation. The cervical nodes on right side are enlarged, but there is no general enlargement of lymph nodes. Examination of the lungs is negative. The apex beat is one cm. outside the nipple line; it is forceful and sounds of good quality. The abdomen is soft. Kidneys and liver not felt. The spleen is definitely felt descending 15 cm. below the costal margin in the nipple line. No notch is felt. Stomach tympany is displaced to the right and upward. The mass descends with inspiration. Examination of the extremities is negative. The reflexes are all slightly exaggerated. The skin is of a slight yellowish tinge throughout and pale; acne pustules are on face.

Special Examinations.—The x-ray of the liver is negative for stone or enlargement. Urinalysis is negative except for a considerable amount of indican and a few white blood cells. Bile and urobilin absent. Blood examination, Hgb., 74 per cent.; R. B. C., 4,800,000; W. B. C., 6,900; polymorphonuclears, 60 per cent., lymphocytes, 30 per cent., large mononuclears, 2 per cent.; transitionals, 2 per cent.

Stool examination shows a very faint trace of occult blood; bilirubin and hydrobilirubin present; no ova nor parasites. The Wassermann is negative (two laboratories). The Wassermann of the mother is also negative (two laboratories). McLean Index: 61 per cent. Acidosis coefficient, 6.8. Fragility test for R. B. cells: Hemolysis in this case began in 0.52 per cent. sol. NaCl. (In a normal blood it begins in 0.42 per cent. sol. of NaCl.) Hemolysis in this case was complete in 0.444 per cent. sol. NaCl. (In a normal blood it is complete in 0.35 per cent. sol. NaCl.)

From the above findings and investigations a diagnosis of acholuric jaundice of familial type with splenomegaly, was made.

Treatment consisted of an alkaline tonic, sodium cacodylate hypodermically, and thereafter Donovan's solution by mouth. Splenectomy was advised but refused.

When last heard from, January 2, 1921, the patient was deriving much benefit from the climate of California, enjoying the best health yet.

CASE II.—S. S., 61, female, married, first seen February 7, 1915. Her sister died of biliousness, being pale and jaundiced. The patient has had measles, typhoid fever, malaria, mumps, scarlet fever, diphtheria, double pneumonia, tonsillitis, and grippe without complications. She was yellow when a baby, and since then has been occasionally jaundiced without pain but usually with indigestion. The attacks of jaundice last from two to seven days. During the intervals the appetite and digestion are good, and bowels regular.

The present trouble began five years ago with pain in the pit of the stomach followed the next day by jaundice. She has been worse during the past year. The pain radiates to the umbilicus and is accompanied by distention. The last attack occurred twelve days ago and was brought on by hard work. The urine passed during an attack of jaundice is dark.

Physical Examination.—Fairly well nourished and developed woman lying quietly in bed, in no acute pain, skin jaundiced. The pupils react to light and in accommodation. The sclerae have a light yellow tinge. The nose gives evidence of recent epistaxis. The tonsils are enlarged. The apex beat is in the fourth interspace, 14½ cm. from the midsternal line. Relative cardiac dullness in the second interspace extends 16½ cm. to the left and 3½ cm. to the right of the midsternal line. There is a systolic shock with thrill over the precordium and a loud mitral systolic murmur transmitted outward. There is also an aortic systolic murmur. The pulmonary second sound is accentuated. Pulse 70 to 80. Blood pressure, 120/65. The wall of the abdomen is thin with diastasis recti. The liver edge is felt 8 cm. below the costal margin in the mid-

clavicular line. The surface is smooth. At the lower edge there is a small rounded mass (gall-bladder). The left side of the abdomen is full. The spleen is palpable in the pelvis $7\frac{1}{2}$ cm. below the costal margin, firm, freely movable, tender. No notches are felt. Extremities, negative.

Special Examinations.—Red blood cells, 4,000,000; white cells, 8,000; Hgb., 75 per cent. Polymorphonuclears, 60 per cent.; Mononuclears, 35 per cent.; slight anisocytosis of the red cells. Fragility test: Hemolysis began in 0.54 per cent. and was complete in 0.42 per cent. saline solution in three hours with washed corpuscles. Vital Stain: 13 per cent. took the vital stain, 1 per cent. granular and 12 per cent. diffuse. Urinalysis negative except for a considerable trace of albumin and the presence of urobilin and urobilinogen. Wassermann negative with blood serum. Blood serum showed the presence of bile pigments. Bile present in the feces.

Diagnosis: Acholuric jaundice, familial type, with splenomegaly cholelithiasis, and chronic cholecystitis; chronic cardiovascular disease.

The conclusions we may draw from these two cases are that this disease may last over a period of years and be compatible with fair or even good health. In diagnosis the main points are: (1) familial occurrence, (2) splenomegaly, (3) slight persistent jaundice, (4) acholuria and normal stools, (5) increased fragility of the red blood cells, (6) associated anemia, (7) increased vital staining of the red blood cells.

FOREIGN BODIES IN THE ABDOMEN.

REPORT OF A CASE OF EIGHT YEARS' DURATION.*

By HARRY J. HARTZ, M.D.,

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By the term foreign body in the abdomen it is generally understood that such body has been introduced in the abdominal cavity from without or from adjacent viscera. In the majority of instances these bodies are left in the abdomen accidentally during some operative procedure and are generally sponges or instruments, but may be suture material, rubber tubing, or wicks of gauze.

The symptoms that a foreign body produces in the abdomen depend primarily upon whether such body is septic or aseptic. If septic, it at once produces acute disturbances such as abscess or a generalized peritonitis with the consequent clinical syndromes, frequently terminating the life of the individual. If the body is aseptic, the tendency for it is to become encapsulated and manifest no symptoms for months or years. The isolation may still further be strengthened by adhesions between loops of intestines, the omentum, some organ, or the abdominal parietes.

In recent cases, sponges tend to escape spontaneously through the abdominal wound. If encapsulated they sooner or later cause symptoms by mechanical irritation or pressure on surrounding organs. Secondary infection or necrosis ensues and the foreign body is extruded into the lumen of the bowel or bladder, if adjacent to these hollow viscera.

The symptoms at first are obscure abdominal pains with a tendency to intestinal obstruction. The patient does not recuperate from the operation as rapidly as one would expect. There is generally

a slight recurrent fever which yields to rest and diet and manifests itself again as soon as the patient is up and about. At variable periods the symptoms become intensified and point to an acute intraabdominal disturbance which may demand a secondary operation with disclosure of the cause of trouble.

The symptoms generally subside spontaneously with the escape of the sponge through a broken-down scar or through a necrosed area in the small or large intestine which had become isolated by previous adhesions.

In cases of long standing, when the gauze has become encapsulated, there may be no symptoms, or these may be limited to a localized tumor with slight tenderness.

Neugebauer¹ in 1907 reported a total of 236 foreign bodies found in the abdomen. This probably represents but a small number, since many such cases are not reported.

Findley² reviewed a large number of cases and refers to several interesting occurrences.

Van Marter and Carsen in 1904, in an operation for full term ectopic pregnancy, left a gauze sponge measuring 36 x 18 inches in the abdomen; this was expelled through the rectum seventy-five days after the operation. The patient made a full recovery.

Dillard³ reports a similar case of sponge being passed by the bowel several weeks after the operation for removal of ovarian cyst.

Gruzdew⁴ recorded the case of a woman fifty-eight years, who presented herself in his clinic with a foreign metallic body protruding through the abdominal wall. On vaginal examination the handle of the instrument was felt in the cul-de-sac of Douglas, and was removed per vaginam. Recovery was rapid. The instrument was a clamp twenty cm. in length.

Stewart Ferguson⁵ reported a case in which ten and a half years after an ovariectomy a forceps was found in the left iliac fossa which had caused local pain and bladder disturbances. It had ulcerated into the bowel. The forceps was removed and an intestinal anastomosis performed and recovery followed.

Schachner⁶ in a report of 155 cases in 1901 gives a mortality of 50 per cent. in the cases where foreign bodies were accidentally left in the abdominal cavity. In 70 per cent. the foreign body was a sponge or sponges; in 25 per cent. artery clamps and in the remaining 5 per cent. drainage tubes, finger rings, and miscellaneous articles.

Monro⁷ is not cognizant of any system for preventing this accident that is infallible. As a rule coolness and alertness in trying emergencies, uniform methods in assistance and operative technique, avoidance of the use of small sponges or instruments within the cavity, some form of checking the packs or wicks used in which the surgeon and his corps of assistants are trained, an intelligent sponge count before and after operation, and the elimination of outside distractions, will materially lessen the chances of these unfortunate accidents.

The following is a report of a case from the service of Professor E. E. Montgomery through whose kind permission I have the privilege of reporting this history.

The patient, Mrs. P. T., age 57, was admitted to St. Joseph's Hospital, August 25, 1911. She was a well

*Report presented with specimens, at a meeting of the St. Joseph's Hospital Clinical Conference Society, October 19, 1920.

nourished, somewhat flabby, medium statured woman. Abdomen showed relaxation and umbilical hernia. Her chief complaint was inability to walk well, nervousness, umbilical hernia. She had had the usual diseases of childhood. A fibroid tumor was removed eight years ago in Buffalo, N. Y. She has been a widow for four years, was married for twenty-six years, no pregnancies; puberty at 16, menses regular, menopause at fifty-two years. She had umbilical hernia for eight years, following immediately the operation mentioned. For several months she has complained of weakness and inability to walk.

The operation was performed by Dr. E. E. Montgomery through a ventral abdominal incision. The uterus, one tube and ovary, and a piece of omentum containing a mass were removed. The patient remained in the hospital five weeks and made a good recovery.

Laboratory Report No. 5,613.—The gross specimen is in three parts, one is the uterus with one tube and ovary. The uterus is 10 by 6.5 by 4 cms. On the surface and in the wall are several hard nodules. The anterior surface is smooth and shows several strands of wire suture material. The posterior surface is roughened at the site of the tumor which was removed. The latter, egg shaped, is 8 x 5 x 5 cms. and calcareous throughout. The largest piece of omentum is 22 x 4 x 2 cms. At one end is an enlargement five cm. in diameter, that is moderately firm. Incision shows it to contain a sponge, which was left in the abdomen at a previous operation eight years ago.

The interesting features in this case are: (a) the sponge enclosed in its entirety by the omentum and freely movable in the abdominal cavity; (b) the heavy silver wire used as suture material in the previous operation for ventrofixation of the uterus; (c) the dense calcareous fibroid attached to posterior surface of uterus and firmly adherent to Douglas' cul-de-sac.

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2144 SOUTH BROAD STREET.

Medicolegal Notes.

Alabama Legislature Within Its Power in Making State Medical Association the State Board of Health.—In a suit by taxpayers to enjoin the payment of funds appropriated for use by the Alabama State Board of Health, the complainants contended, not that the State Legislature is without authority to create a State board of health and empower it to administer the public health laws, but that such a board must be a State board, which is an arm of the State government, and whose members must be State officials, chosen as such and amenable to public control and supervision; and that it is beyond the power of the Legislature to confer upon a private corporation composed of private individuals any part of the sovereign power of the State in that behalf. The theory of the bill was that the State Board of Health, as constituted by the statutes of Alabama since 1875, is an illegal body, because it is in fact a private corporation and because the Legislature cannot make such a private corporation a repository of governmental powers, even for purely administrative purposes. By the act of February 19, 1875, it was provided that the Medical Association of the State of Alabama, incorporated by statute in 1850, as organized by its constitution adopted in 1873, should be the board of health of the State of Alabama. This provision has been reenacted in every code of the

State down to the act of September 29, 1919, which recognizes the health laws of the State. The membership of the medical association is, under its constitution, made up of four classes: (1) Members of county medical associations holding a charter from the State association, who cannot vote or hold office; (2) two delegates from each county association; (3) 100 counselors selected from the permanent members of the State association; and (4) correspondents, who are distinguished nonresident physicians or ex-counselors of ten years' service as such. The chief point of attack in the structure of the State Board of Health was in the mode of selecting its members, the objection being that in effect they were selected by the vote of members of medical association of the State, who, with respect to such action, were acting in a private capacity, in accordance with the rules of their association, and without responsibility to the State or to the people. Conceding this as true, and admitting the moral force of the objection, the Alabama Supreme Court is of opinion that no constitutional inhibition is thereby violated. The power of private corporate selection here complained of is indirect and not immediate, for, after all, the Legislature designates the board of health, though it selects therefor a corporate organization whose individual membership is predetermined by the rules of that corporation. But even so there is a legislative adoption of those rules as the appropriate mode of selection, and it is clearly within the power of the Legislature to direct and formulate those rules and to change them at its pleasure. But, those considerations aside, the court cited authorities strongly supporting the authority of the Legislature to vest in private associations of this sort the power to select or appoint the members of State boards constituted for the administration of public affairs. In *Overshiner v. State*, 156 Ind. 187, it was held that the appointment of members of the State Board of Dental Examiners may be vested in the State Dental Association. In *Scholle v. State*, 90 Md. 729, it was held that a private corporation may be legally authorized to appoint a board of medical examiners. In *Exparte Gerino*, 143 Cal. 412, it was held that the Legislature could authorize certain medical societies (not public corporations) to name or appoint the members of the State board of health. These decisions were rendered under the influence of constitutional provisions regulating the organization of the State government not materially different from those of Alabama. Moreover, the court was of opinion, having regard to the organization, aims and activities of the medical association, and its relation to the State Board of Health and to the public welfare in general, that it is a quasi public corporation, charged with duties and responsibilities which it cannot evade, and is therefore, even under a much narrower construction of legislative power than the court accorded, an appropriate agency for service in the administration of the health laws of the State. Judgment sustaining demurrer to the bill was therefore affirmed.—*Parke v. Bradley*, Alabama Supreme Court, 86 So. 28.

Statute Authorizing Removal of Mobile Medical College Not Unconstitutional.—The Alabama Supreme Court holds that section 267 of the State Constitution, prohibiting the removal of the University of Alabama and other institutions there named, except upon a vote of two-thirds of the Legislature, when considered in connection with section 264, applies to the removal of the university, as located at Tuscaloosa when the Constitution was adopted, and not to the Mobile Medical College, a mere subsidiary located in another Congressional district. Under Alabama Acts 1907, p. 357, dissolving the charter of the Medical College and placing the ownership of its property in the board of trustees of the university, the court holds that the Medical College became a State agency, entitling the State to move it from Mobile notwithstanding provisions of the act that it should remain in Mobile for all time. The direction in Acts 1915, p. 133, to the State University trustees to remove the university medical department from Mobile whenever the Council on Medical Education of the American Medical Association informs them that it proposes to lower the classification of such medical department is held to be constitutional and not to be a delegation of legislative power.—*Stevens v. Thames*, Alabama Supreme Court, 86 So. 77.

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PYELITIS IN INFANCY AND CHILDHOOD.

ANYONE anxious to see rational conceptions applied to etiology, or more especially to therapy, will find ample room for endeavor in the pyelitis of infancy and childhood. Too many things are being taken for granted. And some of the therapeutic measures sanctioned by the best medical opinion today are being employed with little or no knowledge of how or why they are of value.

That the disease is twice as common in babies under two, that it is about three times as common in girl babies, that the infecting organism is the *Bacillus coli* in the great majority of cases, these are well attested, readily demonstrable facts. How the infection reaches the kidney pelvis, however, is a matter which will bear much clarification. Too many assume that the great predilection of the disease for girl babies must indicate that the infection is ascending—from the vagina, soiled with feces, up the short urethra to the bladder, thence up the ureter to the kidney pelvis. Granting normal ureteral sphincters, the difficulty of sufficient colon bacilli making their way upstream to produce pyelitis, must be apparent. Sedgwick and Huene-kens failed to produce pyelitis in guinea-pigs by injecting colon bacilli through ureteral catheters. Sweet and Stewart tried cutting the ureters and sewing the ends into the intestine. No infection of the kidney-pelves resulted except through the lymphatics.

Colon bacilli have been found in greatest numbers in the region of the ileocecal valve. A direct connection between the lymphatics of the kidneys (particularly the right kidney) and those of the large intestine, has been demonstrated (Franke). There is thus a strong probability that the infection starts by the lymphatic route. The work of Crabtree and Cabot, Richard M. Smith, and others, furnishes strong evidence that the disease may be hematogenous in origin.

It is often by no means easy to make a diagnosis of pyelitis. Symptoms range all the way from none at all to those of extreme severity in "fulminating" cases. The frequency of symptoms simulating those of central nervous disease is receiving more and more recognition. Even microscopic examination of the urine often leaves one in doubt as to

whether or not pyelitis is present. What shall be called pyuria? Six or eight white cells per field in an uncentrifuged specimen? Must there be clumping? No absolute answer can be given. It must often be left to individual judgment and experience, or to the "therapeutic test."

The rational treatment of pyelitis requires an accurate knowledge of the habits of the *Bacillus coli*. Inasmuch as this organism produces acid by the fermentation of sugars, it has commonly been thought that acid is required for its proper growth, and that this accounts for the good results of alkali therapy. The work of Shohl proves that the colon bacillus will grow in media of widely varying hydrogen-ion-concentration. In fact, cultures of *B. coli* tend to make acid media alkaline, and alkaline media acid, until a level of hydrogen-ion-concentration of 8 is reached. Clearly, neither acid therapy with urotropin nor alkali therapy with sodium bicarbonate or citrate can accomplish much against an organism which survives a pH of from 4.7 to 9. Even maximum doses cannot render the urine sufficiently acid or alkaline at the level of the kidney pelvis, especially as there is so little time for "disinfecting" drugs to act at this level. The fact is, most of us force liquids in this disease—a measure known to be of great value, though one which theoretically allows our drugs less time to act.

Alkali therapy is certainly more popular, and deservedly so. As suggested by Marriott, it probably works in two ways: (1) It bathes the inflamed kidney pelvis with non-irritating instead of irritating (acid) liquid. (Compare the effect of high acidity upon gastric ulcer.) (2) It in some way increases tissue-immunity.

Concerning vaccine therapy in this condition, Crabtree and Cabot have found that vaccines help systemic symptoms without curing the disease; a fact which is readily understood when we consider that antibodies in the blood do not necessarily mean antibodies in the urine, owing to the changes which take place in the processes of secretion and excretion.

Recent researches upon pyelitis, of which the above are examples, should remind pediatricians that rational conceptions of etiology and therapy, in this disease as in all others, deserve to prevail, and ultimately accomplish most. Certainly, it does not pay to take too much for granted.

THE SYMPTOMS OF TUBERCULOUS MENINGITIS IN ADULTS.

THE classical symptomatology of tuberculous meningitis met with in children is occasionally realized in adults, but this is rare. It must be admitted that when it does occur it is obscure, while in advanced phthisis it is often overlooked. The majority of cases in adults give rise to purely motor accidents, such as hemiplegia, with or without Jacksonian epilepsy and radial paralysis. In other instances the hemiplegia may be either right or left brachial or crural monoplegia, chorea, athetosis, or finally

a comatose state. Some patients begin with aphasia or verbal deafness, or the process at the outset may assume the clinical aspect of cerebrospinal meningitis. From this enumeration it is evident that the onset of tuberculous meningitis in adults is far from being like that met with in children. Perhaps, as Chantemesse has pointed out, there may be an early premonitory phrase during which an attentive examination might have detected disturbances of the intellect or affectivity, but this is not common, although a few instances have been recorded by Vivant in particular. It is evident that the kind of onset will considerably influence the evolution of the process. A patient suddenly develops coma and dies in a few days without regaining consciousness, but aside from such tragic circumstances there are a number of varieties and forms, intermediary, so to speak, which have a duration of five or six months from the onset to the time of death. For example, a patient may be seized with a right hemiplegia, preceded by an attack of epilepsy, and remain without any change for five months, when coma develops and death occurs some days later. Nothing can be found in the general condition of the patient or the hemiplegia that throws any light on the true cause of the condition.

In most instances the hemiplegia is of the limp variety without increase of the reflexes and with Babinski's sign present, while the frequent association of convulsive and paralytic phenomena is hardly sufficient to enlighten the clinician as to the real nature of the affection. Occasionally cases are met with where the paralytic phenomena of the onset are followed by significant symptoms, such as persistent headache, unequal pupils, vasomotor or sphincteric disturbances, stupor, etc., testifying to a tuberculous implication of the meninges. What is striking is the absence, at least at first, of meningeal phenomena. Hemiplegia, monoplegia, chorea, aphasia, etc., are the various conditions presented by the patients. The situation may improve for a while, but after a certain lapse of time the patient dies in coma, or, on the other hand, the affection becomes confirmed by the appearance of meningeal symptoms. Then the symptomatic picture becomes clear and vasomotor disturbances, typical cerebral vomiting, unequal pupils, Kernig's sign, and finally coma successively complete the clinical picture. The temperature chart has nothing characteristic. At times there is hardly any rise until toward the end of the process; at others there is a temperature oscillating around 102° , with remissions to normal; then the mercury rises to between 102° and 104° , and there remains. Occasionally a curious phenomenon occurs: the temperature, which was high, insensibly drops and death takes place in hypothermia.

No indications can, therefore, be deduced from the temperature, but what is really interesting and implants a special stamp upon these cases of meningitis is their manner of onset, so that in this respect, aside from the classical form rare in adults, a series of forms may be described based principally on the kind of onset offered: The first is the

latent form, which does not declare itself for a long time, then suddenly breaks out in an apoplectiform, epileptiform, or delirious attack, rapidly followed by fatal coma. The *delirious* form in which for months there is no other manifestation than perversions of the intellect or affectivity, or a variable degree of delirium, often ending in acute mania. The *spinal* form, which is most commonly encountered in tuberculous subjects and presents the clinical aspects of ascending myelitis. And finally, the *hemiplegic* form characterized by the localization of a patch of meningitis over the psychomotor zones. Jaccoud describes a *slow and remittent* type in which a phthisical patient is seized with headache, vomiting, and weakness which last for several days and then remit, only to recur five to eight days later. After several similar attacks the meningeal symptoms appear. In Jaccoud's *sudden delirious* form a tuberculous subject is taken with intense headache lasting for twenty-four hours, then coma for one or two days, followed by violent delirium, and after a few hours coma and death supervene. This observer also describes a form the initial phenomenon of which is either an epileptiform or an aphasic attack, and still another that he calls *latent*, with two modalities: one with headache, aggravation of the general condition, but no fever; the second with gastric disturbances and headache, also apyretic. The patient weakens and finally is carried off by some cerebral symptom.

Such are the various clinical types of tuberculous meningitis in adults, the latent forms especially characterizing the process in subjects at this time of life.

THE UNDETERMINED POISONS OF THE DIPHThERIA BACILLUS.

It is at present difficult to say just what part the various poisons of the bacillus of diphtheria play in this disease. In spite of the immense strides made since the discovery of diphtheritic toxin, it appears that this toxin cannot by itself produce all the morbid phenomena developing in diphtheria and that accidents occur whose real pathogenesis escapes us. In this group should be especially included the late accidents, such as diphtheritic paralysis and the fatal syncope of convalescence. Evidently there are factors which still escape us and it is difficult to understand why paralyses occur one or two months after diphtheritic infection when the patient is in full convalescence, since the accidents do not appear to be in any way related to the gravity of the primary localization of the disease.

An attempt has been made to compare experimental diphtheria in the guinea-pig, rabbit, and dog with spontaneous diphtheria in man, and still there is nothing less comparable. A guinea-pig inoculated with diphtheria dies in one to two days, and autopsy reveals constant lesions which are never found in man. The evolution and lesions likewise differ in rabbits and dogs. This is because diphtheria in man—exception being made of the laryngeal type and malignant form which are rare—is

usually a benign process. Normal human diphtheria, a benign infection with attenuated intoxication, is dangerous because of the late accidents which may ensue.

Now, what is the pathogenesis of these late complications? It is an unquestioned fact that up to the present they have never been produced in animals. Loeffler, Roux, and Yersin have shown that with the soluble toxin early paralyses may be produced, but not late paralyses, the typical diphtheritic form, and Loeffler so well understood the distance separating clinical facts from experimental ones that he hesitated to admit the paralytic nature of the accidents he observed. It is nevertheless true that the soluble toxin is capable of producing nervous accidents and it is more logical to regard it as a cause of later paralysis. By what mechanism? It would seem that the action of the fixed toxin should be made to intervene. Without prejudice to the intimate reason of the phenomenon, one fact appears certain, namely, that in animals a small quantity of active toxin or a larger amount of attenuated toxin is capable of causing late accidents and that in man an attenuated injection may give rise to late complications. Another certain fact is that in animals a sufficient quantity of the same active toxin will kill quickly and in man a serious infection will give rise to early accidents of variable gravity.

The first order of phenomena is in contradiction to our present ideas of acquired immunity, if it be admitted that there is only a simple diffusion of the toxin without previous fixation. On the other hand, the theory admitting that the tardy accidents are the result of a progressive accumulation of the toxin in the nervous centers produced by pathogenic organisms cannot be accepted, since the same phenomena follow a single injection of soluble toxin only. Therefore, it is more logical to admit that the soluble toxin becomes in the first place fixed on certain bodies and later on it differs secondarily, being freed by the dissociation of these bodies. In all infections, the toxin produced should also in the first place saturate these bodies for which it has an affinity. Saturation having been completed, the toxin then diffuses through the organism causing immediate symptoms, while the fixed toxin becomes freed much later, acting after all evidence of infection and local intoxication have disappeared.

In favor of this hypothesis may be invoked the appearance of the late complications of diphtheria in man and the late accidents observed in animals after injections of attenuated toxin or minute quantities of virulent toxin (Roux, Yersin). The same phenomena are provoked by lipoids and even various tissues that have been in contact with the soluble toxin, and then there is the well-known notion of the power of absorption of the soluble toxin to lipoids in general. It is probable that the accidents observed by Ménard (Thesis, Paris, 1913), following injection of diphtheritic lipoids was due to the persistency of a fixed but attenuated soluble toxin in these lipoids.

It is likewise probable that the phenomena observed by Rist, have the same origin, because he killed the bacilli with chloroform which only attenuates the virulence of the toxin without destroying it, while the preventive injection of antitoxic serum was insufficient to neutralize all the toxin adherent to the lipoids.

The part played by the fixation of the soluble toxin requires further research. The actions belonging to the constitutive poisons are, on the other hand, well established, so that it can be said that the increasing action of the lipoids of the diphtheria bacillus is constant and intense. No matter how they are introduced into the body they set up a rapid necrosis of the parts in which they sojourn, with a fibrinous exudate, while their influence in the production of local diphtheritic lesions has been amply demonstrated.

DIPHTHERIA ANTISERUM IN MUMPS.

THAT preventive vaccines occasionally appear to prevent or cure diseases quite unlike the specific affection aimed at has long been known but usually regarded as a case of *propter hoc*. In the Surgeon General's Catalogue may be found numerous reports of cure of whooping cough and various other maladies as a result of vaccination against smallpox. Diphtheria antiserum has often seemed to influence favorably various acute infectious diseases, but so far as known the first prophylactic action to be taken seriously is the alleged action of diphtheria antiserum in preventing the orchitic metastasis of ordinary epidemic parotitis. The subject goes back to 1917 when in the midst of an epidemic of mumps an Italian physician, Salvaneschi, chanced to inject this serum in a case of incipient metastasis in both testicles. A favorable reaction having promptly set in the doctor began to use the serum as a preventive. The fact that of 26 patients not one developed orchitis was with some reason regarded as more than a coincidence.

In *La Presse Médicale* for December 22, 1920, xxviii, 94, Bonnamour and Bardin give a considerable history of our recent and older knowledge of the frequency of orchitis in mumps. This ratio has varied in the past century or more from 10 to 25 per cent. A liberal estimate of the average would be 20 per cent. and of this number half are followed by atrophy of the testicles involved. The authors during 1918 had the opportunity of testing the new resource in an epidemic of mumps in young men of about the age period 19-21. There were 65 typical cases in each of which the antiserum was injected. The dose injected was 20 c.c. But in five of the patients the complication was under way on the first visit, and of the remaining sixty, three of the patients developed orchitis despite the injections. Seven cases seen since developed no orchitis after injection, which raises the ratio to 64:3, or less than 5 per cent. Further reports will be awaited with interest.

PROPHYLAXIS OF EPIDEMIC ENCEPHALITIS.

It is apparently time to agitate the question of the prophylaxis of this affection, which must persist in latent, sporadic form among germ carriers until the time is ripe for new outbreaks. The limited incidence should not blind us to the possibility of a much wider spread, which will be comparable to the maximum epidemic incidence of epidemic meningitis and acute poliomyelitis; the high mortality of which is alone a sufficient stimulus to devise a prophylaxis. At a recent session of the Paris Academy of Medicine (*Le Bulletin Médical*, March 9-12, 1921, xxxv, 11) Netter brought up the subject of the etiology and prophylaxis of this affection. It can occur anywhere in the world and probably has always existed, and without giving his data the author states that it probably was known in antiquity and the Middle Ages, even although the first authentic epidemic goes back only to 1712. The present outbreak should be about due to disappear as it has been with us for several years. The infection, however, will not become extinct, for now and then there will doubtless occur a sporadic case without any tendency to contagion or cumulation. That it spreads entirely from man to man during the epidemic phase the author is convinced—there is in fact no other method of propagation. The diffusion passes through some individuals who act as immune carriers. With such low diffusibility any question of wholesale prophylaxis seems out of the question. In any suspicious case, sporadic or epidemic, whether of a victim or of an alleged carrier, we should isolate the patient until the nasal fossæ can be sterilized. The period of quarantine must necessarily be purely arbitrary for we do not know when the subject becomes harmless to his entourage. Neither do we know just how strict must be the degree of isolation nor the part in contagion played by such possible fomites as the bedding, curtains, etc., though probably the latter source is negligible.

EXPERIMENTAL YELLOW FEVER.

Dr. M. G. LEBREDO, Chief of the Epidemiological Division of the Health Department at Havana obtained last April, through the courtesy of Dr. Noguchi, two cultures of the spirillum found by the latter at Merida in a subject with yellow fever. He began to experiment along several lines, including animal inoculation and mosquito transmission (*Revista de medicina y cirugía de la Habana*, February 25, 1921, xxvi, 4). The present article deals only with the author's exhaustive experiments in transmitting the disease to guinea pigs. He found no natural immunity—not an animal of the large number inoculated proved entirely refractory; but the animals could be made refractory by immunization. Relative resistance was in proportion to size and age. Every inoculated animal developed fever and jaundice and all exhibited icterus and focal hemorrhages in the large viscera. There were no free hemorrhages into the digestive tract and no macroscopic evidence of fatty degeneration. Virulence of the germ was clearly enhanced by passage from animal to animal. The *Leptospira icteroides* was cultivated in a semi-solid agar-Ringer medium of a known alkalinity, using the serum of man, the guinea pig, or the rabbit. One culture retained its

virulence for 7 months and 3 days. The author found that a lead foil covering sufficed for protection. The microorganisms were found in the blood in nearly 80 per cent. of all cases examined. In emulsions of liver and kidney from infected animals, they were found in 82 per cent. of all cases, but even in the remainder the disease was readily transmissible.

News of the Week.

New York Scores Low Infant Mortality Rate.—The records of the New York Health Department shows that for the first fourteen weeks of 1921 the infant mortality rate was 80 per 1,000 children born as against 112 for the corresponding period of last year. This represents a saving of 1,132 infant lives. In commenting upon this reduction the Health Department can assign no definite cause, but suggests the possibility that the mild winter which resulted in better ventilation of premises and in children being out of doors a greater part of the time may have been a factor, and also that better food, better clothing, and the more general dissemination of educational propaganda in regard to hygiene may be responsible.

Florida Physicians Want Composite Medical Examining Board.—The Florida Midland Medical Society, at its meeting in St. Petersburg, April 13, passed resolutions calling attention to the deplorable situation arising from the existence of five separate medical examining boards and putting itself on record as opposing the present system of medical licensing in that State. The resolutions endorsed Governor Hardee's utterances in his message to the Legislature for a more effective method of licensing physicians in the State by passing a composite medical examining act which will include the now various boards, and which will prevent irregularities in the issuing of licenses such as are alleged to have occurred under the present system.

The Right to Prescribe Alcohol.—The following resolutions were presented by Dr. John P. Davin and seconded by Dr. Bert B. Diamond at the meeting of the Medical Society of the County of New York April 25, 1921, and referred to the Comitia Minora for action by the Society at the meeting of May 23. *Whereas*, Under the Eighteenth amendment to the Constitution of the United States and under the National Prohibition Act, the use of alcohol as a medicinal agent by the Medical Profession is distinctly recognized and allowed. *And Whereas* in accordance with the demand of the Board of Temperance, Prohibition and Public Morals of the Methodist Church, the Anti-Saloon League, and the Political Promoters of Prohibition Propaganda at Washington, the Amendment to the Volstead Act is about to be proposed to prevent the manufacture, sale, and prescribing of malt alcoholic beverages long used medicinally by physicians, thus nullifying the right of the physician under existing law to prescribe alcohol by denying its use in this form. *And Whereas*, up to this time, there has not been presented to Congress, while making these Laws, any scientific or authoritative exposition of the principles underlying the use of alcohol in medicine upon which to base these measures. *Therefore, be it resolved* that the Medical Society of the

County of New York respectfully petition the Congress to defer action on the Amendment now demanded by the religious, lay, and political bodies mentioned above until the medical profession has had an opportunity to pass upon this measure in a scientific session at the meeting of the American Medical Association soon to be held at Boston.

Missouri Amends Medical College Bill.—Governor Hyde has signed the Ralph bill amending the present law affecting medical colleges in that State in the face of the determined opposition of the Missouri State Medical Society. The bill amends the present State law by striking out the word "reputable" and substituting therefor "regularly chartered" preceding medical colleges. The bill was introduced and supported by medical colleges not now recognized by the State Board of Examiners. In signing the bill Governor Hyde issued a statement expressing the opinion that the bill safeguarded the interests of the people of the State through the State Board of Medical Examiners.

General Ireland Entertains British Physicians.—Surgeon-General Ireland gave a luncheon, on April 23, at the Army and Navy Club in Washington, in honor of Major-General Sir Wilmot Harrington, physician in ordinary to his majesty the king, consulting physician to St. Bartholomew's Hospital, and vice-chancellor of the University of London, and Sir Walter Fletcher, secretary of the Medical Research Council, and senior demonstrator in physiology of Cambridge University. They are making a tour of inspection and study of various medical and scientific institutions in the United States and Canada. Among the guests were Admiral Stitt, General Hugh Cumming, General W. D. McCaw, General C. E. Sawyer, Dr. Haven Emerson, Colonel James D. Glenan, Colonel M. A. DeLaney, and Colonel Joseph F. Siler.

Grip Epidemic in France Decreasing.—A despatch from Paris under date of April 29 states that the epidemic of gripe in French camps that has threatened to assume serious proportions for some time seems to be subsiding.

Alcoholic Cases increase in Kings County.—An increase of nearly 120 per cent. in the number of alcoholic cases admitted to the Kings County Hospital within the last nine months has been reported by Dr. Mortimer D. Jones, medical superintendent, to Bird S. Coler, Commissioner of the Department of Public Welfare. The report states that 650 persons were admitted to the alcoholic wards during the nine months ending April 1, as against 299 for the corresponding period in 1919-1920. The cases have become much more acute in character.

Merger of Medical Societies.—The Northwestern Medical and Surgical Society and the Lenox Medical Society of this city have united and the new society will henceforth be known as the Northwestern-Lenox Medical and Surgical Society.

Beth David Hospital Needs Funds.—The eighth annual meeting of the Board of Directors of Beth David Hospital, New York, was held April 26, when it was announced that the new building at 113th Street and Lexington Avenue is nearing completion. The building fund is still lacking

about \$140,000. The annual report of the hospital shows that during the past year 561 charity patients were cared for at a cost of \$31,742. The number of patients admitted was 1,569, while 12,166 received treatment in the dispensary.

American Surgeons Honored.—The Council of the Royal College of Surgeons of Ireland, on April 26, resolved to confer Honorary Fellowship on the following American Surgeons: Drs. William and Charles Mayo of Rochester, Minn.; Dr. George Emerson Brewer of New York; Dr. George W. Crile of Cleveland; Drs. Richard H. Hartz and W. W. Keen of Philadelphia, and Dr. A. J. Oschner of Chicago. The ceremony of conferring the honors will take place in the autumn.

Honored on 99th Birthday.—A dinner in celebration of the ninety-ninth birthday of Dr. Stephen Smith of New York City was given by the One Hundred Year Club at the Cooper Carleton Club, Chicago, on the evening of April 29. Dr. Smith was not present but sent his greetings by telegraph.

Charitable Bequests.—Among the legacies provided for by the will of the late Mrs. Julia Seligman of New York are the following: Mount Sinai Hospital, New York, \$10,000; Hebrew Orphan Asylum, United Hebrew Charities, and Tribune Fresh Air Fund, each \$5,000; St. John's Guild, \$3,000; Hospital for Deformities and Joint Diseases, New York Society for the Relief of Ruptured and Crippled, Manhattan Eye, Ear and Throat Hospital, Bellevue Hospital, and the Montefiore Home to be used in its sanitarium at Bedford, each \$2,500; Henry Street Settlement and the Monmouth Memorial Hospital, Long Branch, N. J., each \$2,000. The Post-Graduate Medical School and Hospital receives a bequest of \$25,000 to be used in the department of diseases of the eye, and Mt. Sinai Hospital receives an equal sum for the establishment of beds, both bequests being in memory of the testator's mother, Carrie Wormser.

The American Association for Promoting Hygiene and Public Baths will hold its annual meeting in Brookline, Mass., on May 10 and 11, instead of in Philadelphia on October 8 and 9, as was previously announced.

Dr. George L. Behrens of Eldridge, has been appointed health officer of Winfield township, Iowa.

The Texas State Board of Medical Examiners, appointed by the Governor, April 16, 1921, is as follows: Dr. W. L. Crosthwait, Waco; Dr. S. L. Mayo, Belton; Dr. John T. Moore, Houston; Dr. H. C. Morrow, Austin; Dr. T. J. Crowe, Dallas; Dr. M. E. Daniel, Honey Grove; Dr. O. R. Morgan, Fort Worth; Dr. J. M. Watkin, Luling; Dr. J. F. Bailey, Waco; Dr. R. R. Norwood, Mineral Wells; Dr. George H. Sandifer, Austin.

Medical Society Elections.—THE TEXAS STATE BOARD OF HEALTH, recently appointed by the Governor, is composed of the following: Dr. F. M. Bledsoe, Port Arthur; Dr. M. P. Smart, Manor; Dr. Dickson G. Thompson, Waxahachie; Dr. Thomas S. Fisher, Dallas; Dr. M. M. Brown, Mexia; Dr. Nettie Klein, Texarkana.

THE HOMOEOPATHIC MEDICAL SOCIETY OF THE STATE OF NEW YORK, at its annual meeting held in Rochester, April 13, elected the following officers

for the ensuing year: *President*, Dr. Sprague Carlton, New York; *First Vice-President*, Dr. B. E. Kinne, Albany; *Second Vice-President*, Dr. J. H. Fobes, New York; *Third Vice-President*, Dr. W. W. Winans, Rochester; *Secretary*, Dr. Grace M. Kahrs, New York; *Treasurer*, Dr. Gertrude G. Mack, New York.

THE NEW YORK SURGICAL SOCIETY, at a meeting held in the New York Academy of Medicine, April 27, elected the following officers for the ensuing year: *President*, Dr. John A. Hartwell; *Vice-President*, Dr. Eugene H. Pool; *Secretary and Treasurer*, Dr. Seward Erdman.

THE WINDHAM COUNTY (CONN.) MEDICAL SOCIETY, at its annual meeting held in Putnam, April 21, elected the following officers for the ensuing year: *President*, Dr. F. E. Smith, Willimantic; *Vice-President*, Dr. G. T. LaMarche; *Secretary-Treasurer*, Dr. R. C. Paine, Thompson.

THE MERCER COUNTY (ILL.) MEDICAL SOCIETY, at its annual meeting in Aledo, April 12, elected the following officers for the ensuing year: *President*, Dr. L. R. Louis, North Henderson; *Vice-President*, Dr. Samuel Haley, Joy; *Secretary*, Dr. V. A. McClanahan, Viola.

THE ROCK ISLAND COUNTY (ILL.) MEDICAL SOCIETY, at its annual meeting held in Rock Island, April 12, 1921, elected the following officers for the ensuing year: *President*, Dr. B. J. Lachner, Rock Island; *First Vice-President*, Dr. F. J. Otis, Moline; *Second Vice-President*, Dr. A. E. Williams, Rock Island; *Secretary*, Dr. G. D. Hauberg, Moline; *Treasurer*, Dr. A. T. Leipold, Moline.

THE HARRISON COUNTY (MO.) MEDICAL ASSOCIATION, at its annual meeting held in Bethany, Mo., April 13, 1921, elected the following officers for the ensuing year: *President*, Dr. W. J. Harned; *Secretary*, Dr. W. W. Vandivert.

Obituary Notes.—Dr. HORACE C. MILLER of Rensselaer, N. Y., a graduate of Albany Medical College, in 1874, died following an operation in a local hospital, on April 11.

Dr. THOMAS P. CAMELON of Detroit, Mich., a graduate of Trinity Medical College, Toronto, in 1890, died of pneumonia, on April 7, at the age of fifty-seven years. During the late war he was a Major in the Medical Corps of the Army and served overseas.

Dr. CHARLES A. KODER, a graduate of Jefferson Medical College, Philadelphia, in 1882, died, following a stroke of apoplexy, on April 9, at the age of sixty years.

Dr. GEORGE B. GILBERT, a graduate of the University of Louisville Medical College, in 1901, died at his home in Louisville, Ky., on April 14, at the age of forty-five years.

Dr. JOHN G. JAY, a graduate of the University of Maryland School of Medicine, Baltimore, in 1871, and later associate professor of clinical surgery in this institution, died at his home in Baltimore, on April 1.

Dr. GEORGE LOREN MCCOY, a specialist in nervous and mental diseases, and founder of the Highlands Sanitarium, near Philadelphia, died at his home there, on April 6, at the age of forty-eight years. He was graduated from the Medical School of the University of Pennsylvania in 1896.

Dr. JOSEPH MILFORD MERCHANT of Warren, R. I.,

died on April 15 at the age of eighty-seven years. He was one of the oldest surviving graduates of Bowdoin College, having graduated from the Medical Department in 1858. During the Civil War he was Medical Officer at Fortress Monroe.

Dr. JOHN GALVIN MORRIS, a graduate of Harvard Medical School, in 1882, died at his home in South Boston, on April 14, at the age of sixty-five years. He was visiting physician to St. Elizabeth's Hospital, and a member of the American Medical Association.

Dr. LOUIS BRADFORD COUCH of Nyack, N. Y., a graduate of the New York Homeopathic Medical College, in 1874, died on April 20, at the age of sixty-nine years.

Dr. THOMAS ALEXANDER BUYS of Brooklyn, N. Y., a graduate of the New York Homeopathic Medical College, in 1897, died on April 19, at the age of fifty-one years.

Dr. MURRAY WISNER SEAGEARS of St. Augustine, Fla., died on April 19, at the age of forty-nine years. He was graduated from the College of Physicians and Surgeons, New York, in 1905, and was chief surgeon of the Florida East Coast Railway.

LIEUTENANT-COLONEL JOSEPH MORA MOSS, senior surgeon of the United States Public Health Service and assistant chief medical officer of the Federal Board of Vocational Education, died on April 23, at the age of fifty-four years. He was graduated from the University of California in 1894.

Dr. J. E. T. WELCH, a practitioner of Bushnell, N. C., and a Civil War veteran, died of heart failure, on April 12, at the age of seventy-four years.

Dr. SAMUEL L. KURTZ of Reading, Pa., died suddenly, on April 21, at the age of eighty-eight years. He was a graduate of Jefferson Medical College, in 1854, and served as a surgeon in the Civil War, being honorably discharged with the rank of Major. He was president of the Medical Society of the State of Pennsylvania in 1891.

Dr. B. HOWARD LAWSON, a graduate of the Cleveland (Ohio) University of Medicine and Surgery, in 1871, died suddenly at his home in Detroit, on April 15, at the age of ninety years. He was a member of the staff of Grace Hospital.

Dr. GEORGE GLANVILLE RUSK, a graduate of the University of Maryland School of Medicine, Baltimore, died from pneumonia on April 14, at the age of seventy-four years.

Dr. CORNELIUS S. ELDRIDGE, a graduate of the New York Homeopathic Medical College, in 1868, died at his home in Chicago, on April 19, at the age of eighty years.

Dr. SAMUEL L. DREINELIS, a graduate of the Hahnemann Medical College, Philadelphia, in 1906, died at his home in Reading, Pa., on April 13, at the age of seventy-three years.

Dr. RILLA GRAFTON HAY of Los Angeles, the first woman granted a license to practice medicine in California, died after a lingering illness, on April 7, at the age of seventy-one years. She was graduated from the University of Iowa College of Medicine in 1873.

Dr. S. M. GLADNEY, a graduate of the University of Louisville Medical Department, in 1877, died, after a lingering illness, at his home in Terrell, Tex., on April 13, at the age of sixty-seven years.

Dr. J. M. DALY, formerly of Nashville and Ark-

adelphia, and more recently of Little Rock, Ark., died suddenly of apoplexy on April 17 at the age of fifty-four years. He was graduated from the Medical Department of the University of Arkansas in 1895.

DR. A. P. DICKSON, a graduate of New York University Medical College, in 1878, died at his home in Raeford, at the age of seventy-one years.

DR. WILLIAM M. BARRON of Latrobe, Pa., a graduate of the University of Pittsburgh Medical School, in 1892, died on April 15, at the age of fifty-nine years.

DR. JACOB LONDONER of Brooklyn, a graduate of the University of Dorpat, in 1890, died suddenly of apoplexy at his home on April 27 at the age of fifty-eight years.

DR. WILLIAM E. LANDERS, formerly of New York City, died in a private sanitarium in Washington, D. C., on April 24, at the age of thirty-seven years. During the war he was a major in the army, serving a part of the time in the Fox Hills Hospital.

DR. CALIBORNE H. MANNAR of Rockville, Md., a graduate of Bellevue Hospital Medical College, in 1898, died suddenly at his home, on April 13, at the age of fifty-nine years.

DR. RICHARD S. KEELER, a graduate of the College of Physicians and Surgeons, Baltimore, in 1885, died of heart disease at his home in Butler, Pa., on April 17, at the age of fifty-seven years.

FRANCIS D. WRIGHT of St. Louis, Mo., a graduate of Rush Medical College, Chicago, died on April 18 at the age of sixty-five years.

DR. DAVID S. RAY of Cuba, Ill., a graduate of the College of Physicians, Keokuk, Iowa, in 1892, died suddenly, on April 16, at the age of sixty years.

a recognized school or be vouched for by three reputable physicians as to fitness and training and two citizens as to moral character. The applicant must also have been earning his or her living by the practice of massage for five years prior to the application; this is to prevent injustice to any who may have been trained by private instruction, either under any other good teacher or in institutions, when they had been deprived of the privilege of studying in a recognized school.

This law is good, except it makes no provision for the future, as there is not in New York City today a school or college that gives a full training to fit anyone to be a competent professional. How is the law to be respected and fulfilled unless Columbia University furnishes such a training or backs a properly conducted and equipped private enterprise? The answer will be, "We have no money and there is no demand by the medical profession." Both objections can be easily overcome, first by educating the people and the profession by lectures; there are capable men and women who will explain what massage and mechanical treatments are, when and why they may be more beneficial than medicine or the knife, and also what is equally important, when such treatments may be positively injurious.

Then the public and profession will demand a proper training for all those who dare to undertake the delicate and divine science of healing of suffering humanity.

There are already people ready and willing to cooperate with Columbia when that institution is ready to act and form a standardization for massotherapeutics.

MAUDE RAWLINS.

BROOKLYN, NEW YORK.

Correspondence.

THE TEACHING OF MASSAGE.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—For the last few years the subject of massage has been buffeted about, some condemning it wholesale, others acknowledging it has been efficacious in some instances; a few of these people realize that there are really some scientific reasons for good results, others feel that the benefits are psychological, and some believe that rubbing at the right time has oiled nature's machinery; others again, and I am sorry to say a very large number, look upon the whole matter as sheer charlatanism.

Are there not enough men in New York who are broad enough and reasonable enough to realize that anything that has stood the test and has survived longer than Christianity, must have a foundation of good? Does not the very fact that the term massage is used as generally as it is to-day, prove that there must be some reason why it has survived and also explain why it is used for illegitimate purposes.

As massotherapy so far has not been protected here by legislation or training, it is often hard to prove who is and who is not a scientifically trained massotherapist. At last a step has been taken in the right direction, for it is now necessary to be licensed in massage to practise in New York City, and the applicant must hold a diploma from

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, April 14, 1921.

Milk for Mothers.—The Ministry of Health have revoked the Milk Order, 1919, and the Local Authorities Milk Order, 1919. Local authorities in the future must obtain the sanction of the Minister to schemes for the supply of milk to expectant and nursing mothers and children. This step has been taken because it was found that many local authorities had incurred expenditure very greatly exceeding what was either necessary or desirable. Sanction will now only be given on conditions of which the following are examples: (1) Milk may be supplied at less than cost price in necessitous cases only to nursing mothers, expectant mothers in the last three months of pregnancy, and children up to three years of age, or, exceptionally, between three and five years of age. (2) The quantity must not ordinarily exceed one pint per day per person. In certain instances 1½ pints may be given. (3) The medical officer of health or the medical officer of a center must certify necessity. When the milk order of 1919 was brought into force it was stipulated that the distribution of milk below cost price, or gratuitously, should be restricted to necessitous cases. This restriction was revoked in deference to that section of opinion which considers that

maintenance should be provided by the State without reference to the recipient's actual needs, with the result that many persons obtained a supply who were neither necessitous nor deserving. Under the revised legislation the distribution of milk is now to be confined, to schemes approved by the Ministry of Health, so that the Government will regain control of this form of subsidy.

The Retirement of Dr. Addison From the Ministry of Health.—Dr. Addison has resigned the post of Minister of Health and has accepted a cabinet portfolio without office. When the Ministry of Health was established in this country it seemed that Dr. Addison was the logical first minister. He was a medical man but more of a politician, he therefore presumably understood both aspects of the situation. However, at the time when the Ministry of Health came into being the difficulties in the way of carrying out expensive schemes for the benefit of the health of the nation were immense. It was obvious that the health of the population was not so good as it might be. Even before the war this fact was patent and the war, of course, accentuated this condition of affairs. At the same time it was equally plain that a people already overburdened with taxes would be somewhat intolerant of schemes the execution of which involved the expenditure of very large sums of money. Perhaps it was the plans put forward by the Ministry of Health for the building of hygienic and sanitary houses in all parts of the country that prejudiced the public against the general policy of the Ministry. These plans were of a far-reaching character, almost grandiose in conception, and when it was recognized by the hard hit taxpayer, that owing to the cost of material and labor, a good deal of the expense would fall on him, like the proverbial worm, he turned. But there was another cause over and above the mistakes made by the Ministry, which brought about the fall, or rather, the resignation of its chief, and this was the criticisms leveled against the Ministry's policy, frequently unfair criticisms, by a section of the press. Dr. Addison as minister was made the chief target of these attacks, and while it must be confessed that sometimes he played into the hands of his opponents, many of the charges brought against the Ministry were colored and exaggerated, if not wholly unjustified. According to his critics nothing that Dr. Addison did was right nor could he do anything that was right. In the face of the innumerable difficulties that confronted Dr. Addison when he took office, his term has by no means been devoid of action calculated to advance the progress of preventive medicine, the object of the ministry. At least, a beginning has been made, a good deal of spade digging has been done. Although some of the schemes formulated appeared utopian, at any rate, it gave people furiously to think and this in itself was a good thing. On the whole, it is better to soar among the clouds than grovel in the earth, without imagination one never gets far.

It must also be borne in mind that the organizing, administrative brain of the ministry was lost when Sir Robert Morant died. Indeed, in many respects he was the main support of the

Ministry, and when this prop was taken away the structure was never again so firm. The new Minister of Health, Sir Alfred Mond, is not a medical man, but one of the most acute business men in this country, and it remains to be seen whether his acumen will succeed in reducing the Ministry of Health to a business basis, and in carrying into execution a few of the most pending schemes evolved from the brains of Dr. Addison and his colleagues.

A German Manifesto on Vitamines.—The following is in a recent issue of the official German Health Publications and is published in the *Lancet*, April 9, 1921: "The coming months threaten us with grave food difficulties, similar to those of the winter and spring of 1917. Lengthy research has established the fact that the ill consequences of insufficient diet depend not only on the lack of total quantity, but, in much higher degree than was once thought, on the lack of certain accessory substances, vitamins, essential alike in adults and children to the well-being of the body, but distributed very unevenly in the usual foodstuffs. Added in sufficient amount these substances can, to a certain extent, compensate for insufficient total quantity of food. Conversely in their absence, even the most abundant diet is not able to ward off English disease (rickets), bone softening, watery swellings (edema), nutritional changes in the blood and nerves, loss of resistance to tubercle and other diseases. Unfortunately, a great part of the foodstuffs which contain in high degree these important accessory substances—e.g. fresh milk, best dried milk, butter, whole-milk cheese, cream, fresh meat, liver, kidneys, heart, brain of animals, fat fish, eggs, dripping, and lard are hard to obtain and very costly. Their lack, however, can be made good by cheaper material. Emphasis should, therefore, be laid on such foodstuffs of which the most important are: codliver oil, wheat (whole meal, including the bran, as in Graham bread); the germ of grain especially of wheat, germinating grain, as in the production of malt; peas, beans, lentils, soya beans, also in dry form; all forms of fresh green leaves, all kinds of cabbage and spinach, provided that they are only steamed and not brought to the boil. According to recent research the stinging nettle provides a tasty dish rich in vitamins. Any kind of salad, varieties of lettuce at the head—fruits, nuts, dessert fruits, lemons and lemon juice. As vitamin-rich fruits apples are specially to be noted. Oranges are rich in vitamin. Fresh yeast and its preparations and malt extract in certain forms has been found to contain vitamin. The substances in question pass from the expectant mother to the fetus, and from the nursing mother into her milk. When these substances are lacking the bodies of mother and child suffer even with abundant food." For detailed information ask your doctor. The signatories to the manifesto are Professors V. Bergmann, Ellingen Embden, v. Noorden, Quincke, and Strasburger, members of the Faculty of Medicine at Frankfurt University, and Hr. Schlosser, president of the City Health Department.

Reference is made to this quotation, be-

cause it shows how great attention is paid nowadays to the importance of the presence of a sufficiency of the vitamin element in the diet. The great cost of food renders it necessary that the mass of the population should be taught to choose cheap food which contains enough of the accessory food factors to adequately nourish. In this country few people know anything as to the best kinds of food to eat. For example, in London restaurants it is difficult to procure brown or Graham bread, the majority greatly prefer white bread made from highly milled flour. It is the same with several articles of diet. Educational propaganda here is required to teach the people what to eat. Dr. Harry Campbell preaches the doctrine of diet in and out of season, and gives advice with regard to the most nourishing forms of cheap food. More teachers of his authority are needed if the Englishman is ever to learn that there are not a few inexpensive foods, which he despises, but which contain the essential vitamin element and are palatable.

British Venereal Disease Commission to the Far East.—At a joint meeting of the Sheffield Medico-Chirurgical Society and British Medical Association, held on March 24 in Sheffield, the venereal disease commission to the Far East was discussed. Dr. Rupert Hallam gave a short account of his journey round the world as the medical member of a commission which was dispatched to the Far East by the National Council for Combating Venereal Diseases. The commission first visited New York, arriving there early in November, 1920, where Dr. Hallam had the opportunity of seeing several of the well-known skin and venereal clinics. He pointed out that the majority of patients in New York pay for their treatment, although necessitous patients are able to obtain free treatment. Compulsory notification and treatment of venereal disease has been in force in New York for more than a year, and according to Dr. Hallam the consensus of opinion is that this has not acted as a deterrent to patients to seek treatment.

The commissioner next visited the New York State Laboratory at Albany and was considerably impressed with all that he saw there. The commission then journeyed across Canada, making brief stays at Toronto, Winnipeg, Regina, and Victoria, where meetings were held under the auspices of the Canadian Council for Combating Venereal Disease. In Japan useful information was obtained from the officials of the Government Health Department. At the invitation of the Shanghai Municipal Council the commission conducted a campaign of public enlightenment in that city, and Dr. Hallam gave a series of lectures and demonstrations to the medical practitioners in the diagnosis and treatment of venereal disease. The incidence of both syphilis and gonorrhea among the Chinese in the seaport towns is very high, and before the visit of the commission there was no treatment by modern methods available for them. The commission conducted a similar campaign at Hong-Kong, Singapore, and Colombo, and in each of these ports recommended that the free diagnosis and treatment of venereal disease should be provided.

Progress of Medical Science.

Boston Medical and Surgical Journal.

April 21, 1921, clxxxiv, 16.

1. The Rationale of Forcing Fluids. George Gilbert Smith.
2. Strangulated Hernia in the Aged. Martin T. Field.
3. Significant Reactions of the Arterial Tension. Claes Julius Enebuske.
4. Fecal Units and Intestinal Rate. Francis Lowell Burnett.

1. The Rationale of Forcing Fluids.—George Gilbert Smith considers it worth while to gather certain data bearing on the question of the forcing of fluids in patients with deficient urinary excretion, inasmuch as the results, both in the increase in the amount of urine and in the improvement in the general condition of the patient, have been so striking. Accordingly, he reviews briefly the physiology of the kidney, and discusses the efficiency of the kidney as a means of ridding the body of waste products, the factors involved, and the three ways of increasing the fluid content of the body (ingestion into the alimentary tract, subcutaneous injection of normal saline solution, and intravenous injection of the same). He then discusses the indications for forcing fluids, as in the presence of acidosis after etherization. Even in a patient with healthy kidneys one often finds the signs of renal insufficiency, *i. e.* soft distention, dry tongue, and nausea. Being nauseated, the patient cannot take water, thereby increasing the symptoms. One subcutaneous injection of a liter of normal salt solution will usually suffice to break the vicious circle. It is far better, however, to anticipate the lack of fluids by: (1) forcing fluids until one or two hours before operation; (2) immediately after operation giving either a subcutaneous infusion or three pints of tap water by rectum. The latter, if given before the patient comes out of ether, will usually be retained. After that, the Murphy drip may be used or tap water may be given rectally, eight ounces every six hours. If normal kidneys will react in this way to a lack of fluid, how much more seriously affected are damaged kidneys, particularly kidneys of urinary retention, whose ability to excrete has been taken away at least temporarily by long-continued back pressure. With a sound heart and fairly good kidneys, an intake of 200 ounces every 24 hours is not at all excessive.

New York Medical Journal.

April 20, 1921, cxlii, 12.

1. Modern Commentaries on Hippocrates. Jonathan Wright.
2. Albumin, Lymphocytic Cells and Tubercle Bacilli in the Sputa. Kumpei Takeuchi.
3. General Postdiphtheritic Paralysis in an Adult. David H. Hallock.
4. A Preliminary Report on the Immunity of the Bovine Udder to Carcinoma. Donald C. A. Butts.
5. Colonel Henry C. Smith, C.I.E., I.M.S., C. B. Meding.
6. Report of Two Cases of Concretion of the Lacrymal Canaliculus. Edwin A. Shumway.
7. Gaucher's Disease. Louis Henry Levy.
8. Report of a Case of Splenomegaly. H. Brooker Mills, Eugene J. Asnis and W. Wayne Babcock.
9. A View of Carbohydrate Metabolism as Related to Diabetes. Frank P. Knowlton.
10. Enocrinology and Its Practical Application. D. M. Kaplan.
11. The Historical or More Inclusive Sense of Therapy. John J. McNulty.
12. Retropharyngeal Abscess. Joseph Friedman and Samuel D. Greenfield.
13. Who Is Responsible for the Sponge Count? J. W. Kennedy.
14. The Educational Campaign Against Tuberculosis in Pennsylvania. A. M. Dewees.
15. Fractures. H. B. Pritchard.

2. Albumin, Lymphocytic Cells and Tubercle Bacilli in the Sputa.—Kumpei Takeuchi reviews the opinions of others, then states his own. The point of view held that attributes albumin directly to tuberculosis is naturally annulled by the fact that albumin is often found in the sputa of various cases of other than phthisis. And it does not conform to facts to diagnose a case as tuberculous by the quantitative difference of the albumin in sputum only. Therefore, one cannot but conclude that the existence of the albumin alone in the sputum is insignificant from the diagnostic point of view, even though it is conspicuous in quantity. But if a large number of leucocytic cells (above thirty per cent.) are found together with albumin in sputum, then for the first time one can suspect the case to be

tuberculous. It is also the same in the following cases: In the examination of the albumin in urine one cannot diagnose a case to be nephritis, even though albumin is positive, but one knows the case to be nephritis if casts are found, and can diagnose bladder troubles when a large quantity of the bladder epithelium is found. And in the examination of the cerebrospinal fluid, the albuminous preponderance does not suffice by itself to make an authentic diagnosis, but if lymphocytic cells are found the suspicion of tuberculosis is intensified, and if the so-called four reactions are present one may well recognize with authenticity a case as progressive paralysis. With these views in mind the writer determined to ascertain the relation of tubercle bacilli, albumin, lymphocytic and eosinophil cells in sputa. He examined the sputa sent to the Hygienic Investigation Committee attached to the Hygienic Association, Nihonbashi, Tokyo. From these examinations he concludes that tubercle bacilli, albuminoreaction, and the preponderance of lymphocytic cells in sputa maintain a parallelism. Eosinophil cells also go parallel with these three to a certain degree.

13. Who is Responsible for the Sponge Count?—J. W. Kennedy answers this question by holding that from the doorknob on, everything pertaining to the operation comes directly under the supervision of the operator and he is responsible for all. There is no teaching so reprehensible, so void of all that is manly, so negative of sacred duty, so impotent in strong teaching principles, as to hold a nurse or surgical associate responsible for the sponge count.

15. Fractures.—H. B. Pritchard holds that a study of fractures should be based on end results as regards the anatomical, the functional and the economic conditions. A study made on that basis will break one away from the time honored teaching of the disability caused by fracture as measured by the period of time necessary for union. The aftertreatment of fractures has a demand upon the surgeon as has the uniting of the broken ends, and it is a large item in the treatment of fractures. The open operation is seldom justifiable, and will probably be used less rather than more as time goes on. This is because of the ease with which infection gains entrance in an open operation fracture and the difficulty with which it is prevented. Because war surgery developed some new methods of treating fractures and reestablished some older discarded methods is not of itself sufficient reason for continuing their use. The difference between the war and civil fractures must be considered, and as a result of that the best treatment can be devised for each. Non-union occurs in these days because of some inherent condition in the individual or of the fracture, and not because of insufficient splinting. For this reason the writer makes the plea that more frequent inspections of the limbs be made, and that early massage and passive movements be started.

Journal of the American Medical Association.

April 23, 1921, lxxvii, 17.

1. The Etiology of Heart Failure. Theodore B. Barringer, Jr.
2. Significance of Unequal Pupils.—Earl B. Brooks.
3. Spontaneous Pneumothorax. Ethan A. Gray.
4. Surgical Considerations of Gastric and Duodenal Ulcers. C. A. Roeder.
5. Antisyphilitic Therapy. A Comparative Study of Some Intensive Methods. Louis Chargin.
6. Apex, Hilum and Lower Lobe Lesions of Tuberculosis in Childhood: Their Relative Frequency. William R. Vis.
7. Surgical Operations on Aged Subjects. Robert M. Culler.
8. The Salem, Ohio, Typhoid Epidemic: A Clinical Report. William Hall Dunn.
9. The Significance of Unequal Pupils.—Earl B. Brooks holds that, with the exclusion of eye disease and refractive errors, unequal pupils are always pathologic. The width of the pupil and its reaction any given time are the result of the constant antagonism between the contracting fiber of the third nerve, and dilating fibers of the cervical sympathetic. The determination of whether or not one has to deal with an irritative or paralytic lesion will help materially in the recognition and proper interpretation of unequal pupils in any given case. In contusion of the eyeball, besides the concussion, small lacerations and extravasation of blood into the iris muscles account for some of the pupil changes. In head injuries, the dilated

pupil corresponds to the side of increased pressure.

5. Antisyphilitic Therapy. A Comparative Study of Some Intensive Methods.—Louis Chargin found it necessary, for the proper conduct of this study, to choose: (a) Patients with recent infections, and only such as presented the early cutaneous manifestations of the disease. (b) Cases in which the Wassermann reaction had already become strongly positive (from three to four plus). This served the double purpose of corroborating the diagnosis, and as the criterion of the efficacy of the various plans of treatment with which he experimented. No case in which antisyphilitic treatment had been given before was included, in order that the question of prior treatment should not enter as a factor. The study included 106 cases, all of which met the conditions enumerated. The study demonstrated that 80 per cent. of the early syphilitic patients treated by the modern intensive methods became negative by the tenth week; 93 per cent. by the sixteenth week, and 100 per cent. by the twentieth week. As a general rule, it may be stated that the more recent the infection at the time intensive treatment is begun, the sooner the Wassermann reaction becomes negative. To this there were notable exceptions. Since the clinical and serologic results are practically the same by all methods described in this paper, and since the margin of safety is in favor of the less intensive plan, it would seem justifiable to conclude that the less intensive plan should be favored as the method of choice in the treatment of syphilis.

6. Apex, Hilum and Lower Lobe Lesions of Tuberculosis in Childhood: Their Relative Frequency.—William R. Vis deals in this paper with clinical rather than pathological findings. He discusses not where the initial lesion is found, but where it can first be detected by clinical methods of examination. From the evidence presented it appears probable that in the young child there is a physiologic cause which predisposes the hilum of the lungs to tuberculous infection, namely, the low resistance to tubercle toxin and the consequently greater dependence on the lymphatic system to combat the infection. On the other hand, one has an anatomic cause for the comparative immunity to infection of the lung apex, in the greater respiratory excursion and freer circulation in the child as compared with the adult. In accordance with these phenomena, one finds that in the child tuberculosis may be diagnosed most frequently at the hilum, the apex next in frequency, and the base least often.

The Lancet.

April 2, 1921, cc. 14.

1. An Investigation into the Idio-Ventricular Rhythm, and the Theory of Disturbed Reflexes. Sir James Mackenzie.
2. Observations on Some of the Diseases of Animals Communicable to Man. Frederick Hobday.
3. Medico-Military Training. H. E. R. James.
4. The Treatment of Infectious Diseases by Leucocytolysis Produced by Roentgenization of the Spleen. Ivan I. Manoukhin.
5. Notes of a Typhoid Carrier Case. J. R. Carver.
6. Vascular Change During Uterine Involution: A Study of the Condition of the Arteries in a Uterus Removed Twenty-four Days After Delivery. Geoffrey Evans.
7. Tuberculosis in Germany. E. G. Glover.
8. The Treatment of Infectious Diseases by Leucocytolysis Produced by Roentgenization of the Spleen.—Ivan I. Manoukhin makes the clinical application of the theory previously proposed by him regarding leucocytolysis. By direct experiments he proved that an organism combats infection mainly by means of the breaking up of its leucocytes. If in many acute infectious diseases there is an increase in the number of leucocytes in the blood, he regards this phenomenon as preparatory to their subsequent breaking up. The organism can cure itself only when the specific anti-substances produced by the leucocytes have come out from them and filled the blood plasma, as a result of the leucocytolysis. This process is produced in the blood by special soluble ferments entering into it, which he called "leucocytolysins," and leucocytolysis, in those cases when it precedes leucocytolysis, is produced by soluble ferments, whose properties are opposed to those of the leucocytolysins, and which he called "anti-leucocytolysins." Later, he succeeded in proving that leucocytolysins are produced by the spleen,

and anti-leucocytolysins by the liver. The correctness of this theory was established by animal experiments. He infected monkeys and guinea-pigs with human tuberculosis, and artificially stimulated in them the activity of the spleen so that leucocytolysins would appear in the blood and that the leucocytolysis caused by them would exercise its curative effect. The stimulation of the activity of the spleen was carried out by radiating the organ with small doses of Roentgen rays. The method is now being widely applied to human beings for curative purposes. The writer discusses briefly its application in pulmonary tuberculosis, typhoid fever, tetanus, and other conditions.

Vascular Change During Uterine Involution: A Study of the Condition of the Arteries in a Uterus Removed Twenty-four Days after Delivery.—Geoffrey Evans relates that the organ was placed in formol-saline, and at a later date parts of it were removed for section, and the sections prepared. The sections showed the usual changes in the vessel walls characteristic of normal arterial involution. The most striking changes occurred in the intima; there was a cellular proliferation and hyaline swelling of the subendothelial layer, together with a swelling and splitting of the internal elastic lamina. In the media there is the appearance of a granular atrophy of the muscle fibers and a hyaline swelling of the intermuscular connective tissue fibrils.

British Medical Journal.

April 2, 1921, 1, 3144.

1. The Treatment of Fractures. S. Alwyn Smith.
2. Further Observations on the Etiology of Eclampsia and the Pre-Eclamptic State. James Young and Douglas A. Miller.
3. Cardiac Peristalsis and Mitral Stenosis. D. W. Samways.
4. Bilharzia Disease in Egypt. J. B. Christopherson.
5. Five Hundred Cases of Malaria in Pensioners. Jenner Hoskin.
6. A Note on the Surgical Uses of the Fascia Lata. Cyril H. Chiff.

2. Further Observations on the Etiology of Eclampsia and the Pre-Eclamptic State.—James Young and Douglas A. Miller present, in this paper, confirmation of an explanation of eclampsia published by one of them in 1914. It is based on a study, carried out at the Royal Maternity Hospital, Edinburgh, of 40 cases of toxemia and associated conditions. The original investigations professed to show that the eclamptic and the pre-eclamptic toxemia is dependent on a placental necrosis, and they culminated in the experimental reproduction in animals of a disease closely simulating the classical picture of eclampsia. The first observations were concerned with a study of the pathology and with experiment. In this contribution they give a third link of proof—the clinical. From this clinical study they formulated the following summary: 1. Eclampsia and pre-eclamptic toxemia are due to the products of the early degeneration of a piece of placenta whose blood supply has been interfered with. 2. Infarction of the placenta may be due to mechanical detachment of the organ from the uterine wall—for example, in placenta previa and in some cases of accidental hemorrhage. In other cases it is due to thrombosis; this is the factor operating in most cases of eclampsia. 3. Where time is allowed for the elaboration of toxic elements from the detached placenta toxemia develops. In concealed accidental hemorrhage, therefore, toxemia is conspicuous. Absorption of placental poisons only occurs if and while part of the placenta remains attached to the uterine wall. 4. Toxemia occasionally accompanies placenta previa for the same reasons. 5. The toxemia develops after the hemorrhage; it is therefore not the cause of the bleeding in accidental hemorrhage. 6. The major symptoms of eclampsia are probably due to the flooding of the mother's system with the breaking-down products of liver cells (and perhaps of other tissues), which were killed some hours or days previously by the placental poison. Compare the interval that elapses before the development of symptoms in phosphorus poisoning, etc. A consideration of this sort accounts for the occasional occurrence of postpartum seizures. 7. Recent investigations (Quénu, Delbet, etc.) support by analogy this conception of eclampsia. These observers have shown that the early disintegration products of muscle are

toxic. The injection of these substances into an animal may kill at once. On the other hand, the lethal effect may be delayed for some time, in which case it is due to degeneration of the liver and suprarenal glands. The changes induced in the liver in such a toxemia resemble those found in the liver in eclampsia.

3. Cardiac Peristalsis and Mitral Stenosis.—D. W. Samways holds that there is considerable evidence to show that the contraction of the auricle normally overlaps that of the ventricle, lasting probably till the moment of opening of the aortic valves. In cases of mitral stenosis this overlapping tends to be still further prolonged, invading there for the expulsive portion of the ventricular systole. The ventricle could not prevent the auricle sending its residual blood into it, if their contractions overlapped, because at that time the auricle, being small, would have few units of area of blood to contract on, and a thickened mass of muscle to exert the necessary pressure, whereas the ventricle would be in exactly the reverse position at the time. In cases where the mitral was stenosed the auricle would be further helped by hypertrophy of its walls and thinning of those of the ventricle. The murmur of mitral stenosis ("presystolic") goes up to and into ventricular systolic time because the blood flow does likewise. The murmur is "crescendo" in character because the auricle can exert an ever-increasing pressure on its contents as it contracts. Theoretically the pressure can increase inversely as the cube of the decrease in diameter. Regurgitation through an incompetent mitral orifice is prevented, probably for years, by the contraction of the auricle behind that orifice during the expulsive portion of the ventricular systole. The presystolic murmur is replaced by a systolic murmur when the auricle cannot decrease its size in time to become a sufficiently small chamber to defeat the oncoming of the intraventricular resistance, but on the contrary is defeated by it. This will allow regurgitation, the auricle will speedily dilate, fibrillate, and compensation will break down. Temporary recovery by rest or bleeding will probably mean that the auricle becomes again, for a short time, master of the situation.

The Practitioner.

March, 1921, cvi, 3.

1. Dyspepsia and Malassimilation in Children. Hector Charles Cameron.
2. The Disadvantages of Dried Milk in Infant Feeding. James Burnet.
3. X-Ray Localization at the Base in France. William Cotton.
4. Electro-Cardiography on Active Service. A. D. Brunwin.
5. The Prevention and Treatment of Cancer. A. Laphorn Smith.
6. On Mechano-Therapeutics and the Necessity for Their More Extended Application. Mrs. Kellgran-Cyriax.
7. Swelling of the Pinna—An Early Sign of Deficient Antiscorbutic Vitamine. Herbert Shensby.
8. The Selection of Blood Donors for Transfusion. H. Wallace Jones.

1. Dyspepsia and Malassimilation in Children.—Hector Charles Cameron, discussing the causes of gastrointestinal disturbances in infants, holds that the special liability of the young child to gastrointestinal disturbances depends not only upon his high demand for food and the strain thereby imposed upon digestion, but also upon two further characteristic features of infancy—a low immunity against catarrhal infections of all sorts, and a highly sensitive and uncontrolled nervous system. These three factors act and react with each other in the most intricate way. A faulty diet, and especially a diet which is deficient in fat, produces a lowering of immunity against infection; infection is accompanied by a fall in the tolerance for all food, and especially in the tolerance for fat. Crying and emotional display increase greatly the heat lost from the body, the expenditure of energy, and the need for food, while inhibiting digestion as surely in infants as in adults. The infective conditions which cause diarrhea and vomiting in infants are, comparatively, seldom intestinal, but much more often non-intestinal, or parenteral. The accompanying diarrhea and vomiting may persist throughout the illness, and may be so prominent as altogether to obscure the underlying infection. Gastrointestinal disturbance symptomatic of parenteral infection is probably that which is most frequently met with, especially in breast-fed children. It

is characterized by the suddenness of its onset, often in the midst of perfect health. In this it contrasts with the onset, usually gradual, of primary dyspepsia of purely alimentary origin. Nor does it tend to follow upon an increase in the amount or a change in the character of the diet. The temperature is usually raised higher than is the rule in primary dyspepsia. It is important to recognize the underlying element of infection, because in this symptomatic dyspepsia nothing is to be gained, as a rule, by radical alteration in the character of the diet. Primary dyspepsia may be produced by sheer overfeeding, especially by excess of fat or sugar. Often, however, one is driven to the conclusion that the disturbance is dependent upon an individual idiosyncrasy—that in certain children the power of dealing with sugar, or starch or fat is, relatively, low and easily overstepped. When the child fails to digest and thrive upon the ordinary milk mixture suitable for his age, that is to say, upon the standard artificial diet of health, the treatment consists in the appropriate modification of the diet in the direction indicated by the symptoms. Severe dyspepsia in infants may be the result of sleeplessness, restlessness, crying, and emotional display. Treatment is successful only when it controls the underlying cause—the nervous unrest. To reduce the size of the feeds, to dilute them, to prescribe a twenty-four hours' fast or a purge—the usual methods with primary dyspepsia, are capable of doing a great deal of harm and greatly increasing the severity of all symptoms. In older children a common form of dyspepsia is consequent upon nutritional defect, with amyotonia, vasomotor disturbances, and nervous exhaustion. Treatment must, in great part, be concerned with the education of the child, with its mental, moral, and physical discipline. The lax, timid posture noted in these cases is an expression of a temperamental fault which can be corrected only by educational means. Massage, physical exercises, drill, dancing, eurythmics and the rest, all play an important part. The personnel of the child's immediate environment is important.

Southern Medical Journal.

March, 1921, xiv, 3.

1. The Significance of Vertigo. Douglas Vender Hoof.
2. The Whys and Wherefores of Unreliable Wassermann Reports. William Krauss.
3. Chronic Appendicitis. Ernest H. Gaither.
4. Causes and Management of Athrepsia. William Weston.
5. Factors Involved in Medical Inspection of School Children. Paul G. Pone.
6. Head Injuries. Lucius E. Burch.
7. The Effect of Surgical Operations on the Blood Pressure. Alexis McGlannan.
8. Seminal Vesiculitis: Symptoms, Differential Diagnosis, Treatment and Bacteriological Studies in 1,000 Cases. Edward William White and F. E. H. Gradwohl.
9. Static Conditions of the Lower Extremities as Influenced by Circulatory Disturbances. Thomas Madden Foley.
10. The Relation of the Eye and Certain Skin Diseases. William T. Davis.
11. The Diagnosis of Headaches of Nasal Origin. W. D. Black.
9. Static Conditions of the Lower Extremities as Influenced by Circulatory Disturbances.—Thomas Madden Foley bases this communication on the analysis of the findings in one hundred patients who obtained only partial relief from treatment, his object being to discover, if possible, the most frequent cause of pains in the lower extremities. In practically all of this group the pains were described as occurring not in the joints, but rather in the regions between the joints. A fairly large number complained of discomfort or actual pain on the inside of the thighs and legs, as well as on the anterior aspects, regions not usually affected by the wellknown static disturbances. Examination showed that in 50 per cent. of the patients a hard swelling was noticed over the lower aspect of the leg, especially about the region of the internal malleolus. Soft or doughy edema about the ankle and dorsum of the foot was the exception rather than the rule. The left leg was affected more frequently than the right, and men and women were about equally affected. In point of nationality the Jewish race predominated out of proportion to the total of patients treated. In only 10 per cent. could the blood pressure be considered above normal. No atrophy was apparent in any of these cases. Thickening was rather the rule. In 75 per cent.

of the cases the feet were distinctly pronated, 90 per cent. had some kind of mottling due to a network of small superficial veins. Superficial veins in many of these cases were observed grouped in a rosette form similar to the caput Medusae seen on the abdomen which becomes distended in portal obstruction. Every one of these patients complained of fatigue and pain on exertion, the pain being of the type described. Practically all observed that pain was relieved by elevating the leg. Seventy per cent. had distinct flat foot and 50 per cent. showed static strain of the internal lateral ligament of the knee. The findings are suggestive of obstruction or engorgement of the deeper veins. Appropriate systemic treatment for central circulatory disturbances is indicated.

Western Medical Times.

March, 1921, xl, 9.

1. A Plea for More Active Treatment of Weak Feet in Children. Jacob Grossman.
2. The Essentials in the Treatment of Disease. J. G. B. Bulloch.
3. The Management of Delirious Patients. B. Lemchen.
4. Diabetes Insipidus Due to Syphilis. A. E. Grubb.
5. The Signs of Calcium Deficiency (Calcipriva Stigmata). John Aulse.
6. True Intestinal Pain. W. H. Foreman.
7. Regulation versus Suppression of Prostitution. Herman Goodman.
8. Case Showing Value of X-Ray in Diagnosis of Vesicle Stone. G. Frank Lydston.

1. A Plea for More Active Treatment of Weak Feet in Children.—Jacob Grossman, in connection with other preventive and curative measures, recommends exercises directed to the feet for children old enough to understand them. The following have been found efficient: 1. Tip-toe exercises: The patient places the limbs in the attitude of moderate inward rotation, raises the body on the toes to the extreme limit, the limbs being fully extended at the knees, then sinking slowly, resting the weight on the outer borders of the feet in marked varus, repeating about twenty to thirty times. 2. Walking in bare feet. 3. Walking on the fore part of the foot. 4. Grasping motions with the toes; exercises with foot weights. 5. Bicycling has also proved of value and should be highly recommended. These exercises should be practised twice daily and should not be carried to the extent of tiring the patient. Operative interference may be indicated, especially in cases in which the condition results from infantile paralysis and congenital deformities.

Wiener klinische Wochenschrift.

February 3, 1921, xxxiv, 5.

Operations on the Tonsils During Sepsis.—Rethi does not refer necessarily to acute septicemia but chiefly to the low grades seen when purulent foci in the body have led to a bacteriemia and the tonsil is thought to be a focus. Such operations when performed on singers are apparently followed at times by impairment of the singing voice. The author formerly made many tonsillectomies, but the detention from business and like drawbacks have made him more conservative. There are operative risks and postoperative complications and in addition the injury to the professional voice—the latter sequela not being due to any operative insuccess. Since 1910 he has learned that splitting the tonsils is sufficient in cases of suspected septic focus and that various partial operations, generally speaking, answer as well as enucleation in many cases. In regard to sepsis many tonsillar interventions are of course solely prophylactic, to avert, say, a possible nephritis. Under sepsis the author includes the acute fulminating cases as in one example, doubtless of the cryptogenic kind, with septic pneumonia and nephritis, in which the disease picture subsided after the operation of splitting the tonsil. After this experience the author performed the same operation in cases of milder sepsis, avoiding tonsillectomy, particularly in singers. The author cites cases by American laryngologists in which depreciation of the voice in singers was associated with operative sequelae, including scar formation, but his personal cases occurred in part among those persons upon whom a perfect operation had been performed.

Acta Chirurgica Scandinavica.

December 11, 1920, III, 2.

Results of Operations for Cancer of the Breast During the Years 1898-1915.—Brattstrom of Professor Borelius's Surgical Clinic, Lund, gives some statistics of 138 cases of cancer of the breast treated by extirpation from 1898 to 1908. There was one operative death—the patient had decompensation of the heart and was operated on without narcosis. Of the 137 cases 50 are known to have had recurrences, while in 54 the operations were of too recent date for three-year interval statistics. Six patients had disappeared from observation. This leaves but 27 cases of nonrecurrence in a total of 77 cases—a percentage of 35. These figures were of course compiled long ago. Another series was made up of operations performed from 1905 to 1915. This material evidently overlaps the first and should not be added on. There were 212 cases with one operative death—from pulmonary embolism. Of the 211, 90 patients are already dead of recurrence while 45 live with recurrence, making a total of 135. Thirteen others are lost track of. Survivals of 3 or more years alive and recurrence free number 63. The percentage of recovery is but 31.8. While 19 patients have survived over 9 years, there have been equally late recurrences—one at 7 and one at 9 years. The author has made some attempts to tabulate and analyze the total material from 1898 to 1915, but his figures are incomplete. The total operated on is nearly 300 (297). The operative mortality of 2 cases in nearly 300 is less than 1 per cent. (0.67 per cent.), and apparently he has broken all accessible records. Total untraced is 39. Total recurrences, living and dead, 181. Three year sound survivors 29.2 per cent., which appears to lead the record in Europe; 5 year survivors 23 per cent.; 9-10 years 12.1 per cent. Of the 75 three year survivors 22 had metastases in the axilla at the time of operation. Of the 39 who disappeared many doubtless survive.

Acta Chirurgica Scandinavica.

January 20, 1921, III, 3.

Cultivation of Nerve Tissue.—Henriksen's article on this subject appears in English text. While the cultural aspect is given in full the conclusions of the author bear principally on the subject of regeneration of severed nerves. If a nerve is severed the nourishment supply and the innervation remain intact in the central stump. A profuse growth of protoplasma threads appears after 4-5 days, and fully differentiated medullated nerve fibers after 10 days. In the peripheral section both supply and innervation must be reorganized. The development of protoplasma goes on slowly, and a few fully organized medullated nerve fibers appear after 3-4 weeks. If the accretion of the nerve is prevented the nutrition is established but not the innervation. Formation of medullated substance does not appear till after two or three months, and development does not become complete. If the nerve cell is taken out of the organism and planted in the plasma no growth appears. If the regeneration is allowed to start within the organism, the growth will continue some time after transplantation into plasma. It has not yet been shown whether or not a certain amount of differentiation is possible.

Epiphyseolysis of the Head of the Femur.—Abrahamson shows by x-rays that this affection may occur after minimal contusions and abrupt movements. One accident may detach the cap of the head of the femur and a second one displace it. The symptoms may be quite slight—a mere limp perhaps—and pain may be absent. The author believes that coxa vera is always traumatic although the accident may be slight enough. A radiogram is imperative after any suspicious injury. The separation must be reduced and a Lorenz-Löfberg bandage applied—even after the lapse of much time this must be the management.

Gazette des Hôpitaux.

February 12, 1921, xciv, 13.

Wounds of the Ureter.—Oeconomus of Athens writes systematically of this subject. Rupture is not included.

Operative wounds is a subject which goes back chiefly to 1890. In 1902 there were at least 62 cases on record and in 1914 this number had been increased to 159—this despite the improvements in operative technique. The number of special articles, theses, etc., on this subject is large. The author enumerates ten which appeared before 1890 and naturally many have appeared since. Accidental wounds of the ureter were very rare before the late great war. The author now devotes much space to the anatomy and surgical anatomy of the canal in the two sexes. He then reaches the subject of etiology and as far as France is concerned finds but 15 cases in literature, including military ones, although manifestly this figure is absurdly low. There were but two cases in the world's literature before 1914, one being a fatal case in the Archbishop of Paris in 1848, who was killed by a projectile. There are no stab wounds on record, although a boy of nine was once killed by falling on a spiked fence. But few obstetrical cases are on record, although many operative cases have resulted from intravaginal operations. In connection with laparotomy there have been numerous voluntary resections of the ureter. In 735 cases of Wertheim operation performed by the latter for cancer there were 11 such cases. Involuntary wounds have been due to no one causal factor. In some cases the course of the canal was anomalous or there was a congenital abnormality. In others the "three rules of Latzko" were violated in some particular.

Norsk Magazin for Laegevidenskaben.

February, 1921, LXXXII, 2.

Treatment of Poliomyelitis.—Saethre gives a description of the treatment of this affection as it has been developed in the Neurological Division of the Rikshospital. He emphasizes the importance of early treatment—at the very onset of the disease. During the earlier stages the indications are to prevent deformities and the overstretching of muscles. When all pains and hyperesthesias have disappeared and Kernig's sign has become negative the treatment may be said to be in its second stage. Here it is of the utmost importance to avoid overstretching the muscles and ligaments. The chief indication, however, is the development and utilization of voluntary innervation of the different muscles aided by electrical treatment and massage. To avoid dangerous overstretching the author gives some simple home resources which can be improvised in every house. Saethre is inclined to think that faulty or defective treatment is responsible for almost as much functional loss after poliomyelitis as is the actual destruction of the anterior horn cells.

The Centripetal Part of the Reflex Arc in Abdominal Reflexes.—Monrad-Krohn and Saethre refer to the monograph of the former (1918) in which it was maintained that the centripetal part of the arc corresponds to the uncrossed fibers of the posterior columns, as deduced from a study of the Brown-Sequard syndrome. But one case was studied up to that time, but in the present article three others are given. All four showed that these fibers have no connection with those conducting impressions of pain and temperature. In all, the reflexes were present on the side presenting hemi-hypalgnesia and hemi-hypothermesthesia and were absent on the opposite side. Their absence on the side of motor loss proves nothing, for the latter may be due to lesion of the pyramidal tracts. But presence on the side of sensory loss suggests that the sensory properties have no connection with the reflex arc.

The Bubonic Plague in Infants.—The recent episode of plague in Paris showed a strong tendency to attack children, and it is important to know the clinical picture of the disease in tender years. The appearance of purpura, a variolous eruption, and suppurating nodules is significant, and here a bacteriological examination of discharges should include a research for the *B. pestis*. Angina is practically always present at the outset. A slight meningeal reaction is common, but only rarely has this been so pronounced as to suggest epidemic meningitis. The early meningeal phenomena show clear spinal puncture fluid without the *B. pestis*, and only in the secondary meningitis do we find pus and bacteria in the punctate.—*La Presse Médicale*.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

OHIO STATE BOARD OF MEDICAL EXAMINERS.

Columbus, December 1-3, 1920.

(Continued from page 725.)

PRACTICE.

1. Mention some of the causes of acute cystitis. Give symptoms and treatment.
2. Give etiology, symptoms, diagnosis and treatment of arteriosclerosis.
3. Give symptoms, diagnosis, and treatment of acute pleurisy.
4. Give symptoms and diagnosis of typhoid fever in its early stage.
5. Give the symptoms, diagnosis, and treatment of diphtheria, with a brief statement as to the dangers of the use of antitoxin and how they may be avoided.
6. Give the symptoms and treatment of tetanus. In what class of injuries would you advise the prophylactic use of antitetanic serum?
7. Give the etiology, symptoms, and treatment of bronchial asthma.
8. Give the symptoms of angina pectoris and treatment (a) during attack (b) between attacks.
9. What symptom complex is meant by *apoplexy*? What three pathological conditions may account for it, and how differentiate them?
10. Give the symptoms, and treatment of wood alcohol poisoning.

ANSWERS.

PRACTICE.

1. ACUTE CYSTITIS. *Causes:* (1) gonorrhea spreading to the bladder; (2) the presence of foreign bodies or after operations; (3) the introduction of sepsis on instruments or mucus, as in paralysis of the bladder from spinal injuries. Cantharides and cold in gouty subjects are said to produce cystitis.

Symptoms.—(1) Pain and tenderness over the hypogastrium; (2) frequent and painful micturition, only small amounts being passed (strangury); (3) pyuria. The temperature is raised, and there is tenesmus. The case usually terminates by resolution, though irritability of the bladder may remain. Sepsis may spread to the kidney, and cause fatal toxemia. In some cases retention, distension, and atony occur if the neck of the bladder is chiefly affected. The wall of the bladder may slough in very severe cases.

Treatment.—The patient must be kept in bed with hot fomentations over the hypogastrium. A fluid diet, with plenty of barley-water, must be given. Alkalies and hyoscynamus, with morphine suppositories, relieve the pain. Urotropin (gr. x. t.d.s.) is the best internal antiseptic. If the urine is very foul, the bladder may be washed out. In sloughing cystitis median perineal drainage is necessary, but these cases are usually fatal. (*Aids to Surgery*).

2. ARTERIOSCLEROSIS. *Causes.*—"The principal etiological factors are senility, heredity, male sex, alcoholism, syphilis, lead-poisoning, diabetes, malaria, gout, rheumatism, lithemia, Bright's disease, exposure, and excesses of various kinds. The condition of the arterio-capillary system may be taken as an index of an individual's age. The main factors are time, tension, and toxins."

Symptoms.—These are not always apparent and vary with the arteries involved and their distribution. When the process is general, the peripheral arteries have a hard bony feel, not unlike whip-cord. The increased resistance of the arterial system induces increased cardiac activity and consequent hypertrophy. Attacks of vertigo, pseudo-apoplectic attacks, or spells of unconsciousness in the aged or those having superficial hardened arteries, are generally due to changes in the cerebral vessels. Evidences of myocarditis and angina pectoris point to atheroma of the aorta and coronary arteries. Renal arteriosclerosis manifests itself as chronic interstitial nephritis. Gangrene of the extremities in the old—senile gangrene—point to atheroma or thrombi, the result of the fibrosis.

Treatment.—"The habits, hygiene, mode of life, diet, etc., should be most carefully regulated. When the cause or causes are detected they should be promptly removed. The secretions should be kept free at all times. Constipation should be avoided, as it serves to embarrass the functional activity of the liver and kidneys. Alcohol should be interdicted. Moderate exercise is of benefit. Potassium iodide and nitroglycerin should be administered in small doses indefinitely. Over-exertion of any kind should be avoided." (*Hughes' Practice of Medicine*.)

The diagnosis is made from the symptoms, mainly the thickened arteries, and in addition the hypertrophied condition of the left ventricle and the high blood pressure.

3. ACUTE PLEURISY. *Symptoms:* "Pleurisy is ushered in by—(1) slight or repeated chills; rigor is uncommon; (2) rapid ascent of temperature (which is not so high as in pneumonia); (3) lancinating, tearing pain in the side, rendered worse by any respiratory act; the pain may be referred to the epigastric or umbilical region. As the disease advances, and effusion takes place, the severe pain becomes replaced by dyspnea. The patient lies on the affected side to give the sound lung more freedom. The respirations are hurried, the pulse quickened, and the cough is hacking in character; the sputum is, however, slight in amount, mucoid in character, and never rusty, unless pneumonia exists as a complication.

Diagnosis. "The examination of the cellular contents of the fluid may help to determine the character of the pleurisy. In tuberculous pleuritis these cells are largely lymphocytes, while polymorphonuclear cells prevail in simple inflammations." (*Wheeler and Jack's Handbook of Medicine*.)

PLEURISY WITH EFFUSION.

Onset marked by chilliness persisting for a few days.

Cough is irritating; or, if expectoration, or, if present, catarrhal in character.

Sputum negative; tubercle bacilli rare.

Moderate fever of continuous type; declines by lysis.

Prostration moderate. Unilateral distention of the thorax.

Countenance pale and anxious.

Limited expansion at base of chest on the affected side.

Tactile fremitus diminished or absent.

Interspaces bulging at base of chest.

Percussion shows flatness, with great resistance to the pleximeter finger.

Diminished or absent breath-sounds over effusion the rule. Respiration murmur diffuse, distant, and generally unaccompanied by rales.

Bronchial breathing may be present over the entire affected side of the chest.

Friction sound heard in early and late stages.

LOBAR PNEUMONIA.

Onset acute, with rigor, lasting one hour or longer.

Cough more marked, and accompanied by rusty or bloody, tenacious expectoration.

Dense aggregations of pneumococci present.

Fever, 102° to 104° F.; falls by crisis.

Prostration extreme. Absent.

Mahogany-colored flush of cheeks.

Degree of expansion slightly, if at all, inhibited.

Increased over area of consolidation.

Absent.

Dullness with less resistance, and sometimes a tympanic note.

Harsh bronchial breathing and presence of rales in first and third stages, unless a bronchus is plugged.

No friction murmur; rales present.

(Anders and Boston's Medical Diagnosis.)

Treatment: "In dry pleurisy relieve pain by a blister or if need be by morphine. In pleurisy with effusion, fever diet and a free purge are necessary at the outset. Pain may be relieved by morphine or Dover's powder, leeches, or strapping the affected side to restrict its movements. If the exudate is only

moderate in amount, an attempt may be made to promote absorption by the daily administration of a concentrated solution of magnesium sulphate, of which 5iv to 5vi may be given before breakfast in $\frac{3}{4}$ of hot water. The free purgation induced may, however, prove exhausting to weakly patients. Externally, liniment of iodine is often used, but inunction of mercurial ointment is more effectual. During convalescence, nourishing diet and tonics, such as arsenic or the hypophosphites, should be employed, and respiratory exercises should be begun early to aid expansion of the lung. If the fluid is not rapidly absorbed (within two or at most three weeks), it should be removed by aspiration, which may be repeated on re-accumulation. Aspirate at once if there are signs of serious pressure on the heart or interference with breathing, and always if the dullness reaches the level of the second rib in front." (Wheeler and Jack's *Handbook of Medicine*.)

4. EARLY STAGE OF TYPHOID FEVER. *Symptoms:* Insidious onset, weakness, headache, epistaxis, vague pains. The temperature rises gradually, about 2° in the evening, falling 1° in the morning. Diarrhea, tenderness in the right iliac fossa, enlarged spleen, and a characteristic rash which appears from seventh to twelfth day. During the second week the temperature remains at a uniform level; typhoid state and delirium may be present. The pulse becomes rapid, weak, and dicrotic; the heart sounds are feeble; the tongue is coated, fissured, and tremulous; sordes appear on the teeth; the abdomen is distended; the stools are yellowish and offensive (said to be like pea soup); the Widal reaction may be positive.

The diagnosis may be made from the symptoms, the rash, enlarged spleen, and characteristic temperature chart. In the first few days the typhoid bacilli may be isolated from blood cultures; but in the early stage can not be obtained from the stools or urine. The Widal reaction may be obtained in the second week.

5. DIPHTHERIA. *Symptoms:* Slight fever, malaise, pain in neck, redness of soft palate and fauces with whitish patches which may coalesce and form a membrane, which at first may be removed, but it reforms, and is then adherent; the neighboring glands may enlarge. The temperature rises to about 100° or 102° F.

Diagnosis is made by finding the diphtheria bacilli in the exudate. A sterile swab is rubbed over any visible membrane on the tonsils or throat and is then immediately passed over the surface of the serum in a culture tube. The tube of culture, thus inoculated, is placed in an incubator at 37° C. for about twelve hours: when it is ready for examination. A sterile platinum wire is inserted into the culture tube, and a number of colonies of a whitish color are removed by it and placed on a clean cover slip and smeared over its surface. The smear is allowed to dry, is passed two or three times through a flame to fix the bacteria, and is then covered for about five or six minutes with a Loeffler's methylene-blue solution. The cover slip is then rinsed in clean water, dried, and mounted. The bacilli of diphtheria appear as short thick rods with rounded ends; irregular forms are characteristic of this bacillus, and the staining will appear pronounced in some parts of the bacilli and deficient in other parts.

Treatment includes isolation, rest in bed, liquid diet, washing of the throat and nose with an antiseptic solution, and injection of the antitoxic serum. About 5,000 units may be given at once, and another dose of half this amount in from twelve to twenty-four hours if necessary. The antitoxin should be given (in as large a dose as is necessary) within twenty-four hours, and not spread over several days. By observing this rule, anaphylaxis may be avoided. Hypersensitiveness or anaphylaxis is the main danger in giving antitoxin. The subcutaneous method of injection is the safest.

6. TETANUS. *Symptoms:* Acute Tetanus usually begins five to fifteen days after infection, preceded for a day or two by malaise and neuralgic pain about the wound. The muscles of mastication are first affected. They are contracted firmly, and there is a cramp-like pain in them (*trismus*). The muscles of the neck and face are next affected (*risus sardonius*). Dysphagia is due to contraction of the pharyngeal muscles. Contraction of the trunk muscles follows, called *opistho-*

tonos if the body is arched backwards; if doubled forwards it is called *emprosthotonos*; if to one side, *pleurosthotonos*. Contraction of the limb muscles follows. The muscles of respiration are, fortunately, the last to be attacked. The characteristic feature is that the spasm is never entirely relaxed, yet the least stimulus, such as a noise or a draught of air, induces violent tonic contractions, which may be so severe as to rupture the muscles. The pulse is rapid, the temperature is generally raised, sweating occurs after the convulsions, and the patient is unable to swallow. Consciousness is unimpaired till the end, which is generally due to exhaustion from the poisoning and the continuance of the convulsions, rarely to asphyxia from prolonged fixation of the respiratory muscles. Death occurs in one to four days.

Treatment:—"Prevention by careful antiseptic treatment of all wounds. The infecting wound should be freely excised and purified. Amputation is unnecessary, unless it be a finger or a very septic compound fracture of a limb. Antitetanic serum, which is the serum of an immunized horse, should be injected in doses of 20 c.c. every twelve to twenty-four hours till symptoms cease. Unfortunately, the serum only prevents the further development of the organisms, but is unable to combat the tetano-toxin already absorbed. General measures consist in keeping the patient in a quiet darkened room. Fluids should be given by the nasal tube if trismus is marked. Chloral should be given in doses of 20 grains every two or four hours, and chloroform administered during the severe convulsions. Chloral and chloroform are only palliative remedies; there are no drugs yet known which can cure tetanus." (*Aids to Surgery*.)

The prophylactic use of antitetanic serum is indicated in cases of punctured wounds, particularly those contaminated with soil, or made by rusty nails or dirty wood; also in gunpowder wounds, wounds made by fire-crackers, pistols, or in "Fourth of July" rejoicings.

7. BRONCHIAL ASTHMA. *Etiology:*—"The disease sometimes occurs in children, and when it does so there is usually a history of naso-pharyngeal trouble, measles, whooping-cough, or imperfect recovery after capillary bronchitis. More frequently it is a disease of adult life, in which heredity is an important factor. There may be a family tendency to gout or phthisis, or to nervous complaints, and probably most cases have a neurotic origin. Asthma is much more frequent in males than in females, possibly because of their greater liability to bronchial affections generally. An attack may be induced by a variety of circumstances—change from country to town, or from town to country, an overloaded stomach, certain odors, fright or emotion. The exciting causes are either direct irritation of the bronchial mucosa, or indirect irritation through the nervous system or the blood.

Symptoms:—" (1) *Premonitory Symptoms.*—There is usually some visceral disturbance, such as flatulence, etc., but the onset may be quite sudden. (2) *The attack* occurs most frequently during the night, the patient waking up with a feeling of great dyspnea; he feels as if there were not sufficient air in the room, and asks for the windows and doors to be opened. The characteristic attitude of asthma is assumed—i.e., the patient grasps some support to fix the shoulder girdle, in order to bring his extraordinary muscles of respiration into play. Expiration is much prolonged, and accompanied by sibilant rhonchi, which causes a peculiar, noisy piping or wheezing. Respiration is not accelerated, though in spite of the extraordinary efforts little air enters the lung. A paroxysm of coughing and expectoration gives relief, or even terminates the intense dyspnea and sleep may supervene, or a slight lull may be succeeded by another paroxysm. The sputum is usually expelled with the greatest difficulty, and is distinctly peculiar in its composition. It consists of ball-like gelatinous masses, which can be unfolded, and are then found to represent casts of the small bronchioles."

Treatment:—" (1) *During the Attack.*—Remove any obvious cause of reflex irritation, such as overloading of the stomach. A brisk emetic often cuts an attack short; nitrites, especially nitrite of amyl, or chloroform may be inhaled. Belladonna, stramonium, and lobelia in combination with ammonia are useful remedies; the fumes of burnt niter papers, etc., are also recommended.

A hypodermic injection of morphine may be needed; and pilocarpin or adrenalin may also be used hypodermically. The drug which has most claim to be regarded as specific is iodide of potassium. It should be given during the intervals and steadily persevered with. It is often successful, but as often fails, the disease being very refractory to treatment. (2) *During the Intervals*.—Change of air, careful diet, cod-liver oil, tonics, etc. A suitable climate must be found by experiment in each case. Such sources of reflex irritation as nasal disorders, gastro-intestinal irritation, uterine or urethral disease, must be sought for and removed. The diet must be light and non-stimulating, and the general health must be kept at the highest possible level." (Wheeler and Jack's *Handbook of Medicine*).

8. **ANGINA PECTORIS.** *Symptoms*.—"The chief symptom is intense agonizing pain which begins in the region or the heart and extends to the neck and down the left arm. Shortness of breath, and precordial oppression are present. The chest is fixed and the heart's action is weak and feeble. The face is pale or ashen gray, the expression is anxious, and there is a fearful sense of impending death. The body and face are covered with drops of cold sweat. The pain usually lasts but a few seconds or minutes. Extreme prostration follows the attack unless it is terminated meanwhile by death. The end of the paroxysm is marked by cessation of the pain and precordial distress, and by vomiting, or excessive flow of urine. The first attack may end in death or there may be a recurrence at varying periods, sometimes extending over years."

Treatment.—"The Attack: Prompt relief follows the immediate inhalation of amyl nitrite, m^{ss} to v , or chloroform, or the hypodermic injection of morphine sulphate, gr. $\frac{1}{4}$, combined with atropine sulphate, gr. 1/100, or nitroglycerin, gr. 1/100 to 1/50. In many cases, the use of nitroglycerin, gr. 1/100, three times daily, over an extended period, lessens not only the frequency but also the severity of the paroxysm. Chlorodyne, m^{ss} to xv , repeated often affords relief. Sparteine sulphate, gr. $\frac{1}{4}$, three times daily is also highly recommended. The application of a mustard plaster or other form of counterirritation to the precordium is productive of considerable benefit.

The Interval. Attempts should be made to remove the exciting causes or to diminish their influence. Great care should be exercised in the diet that flatulency and constipation do not occur. Mental excitement and physical exertion should be avoided. When structural changes are suspected; potassium iodide, gr. x to xx , three times daily, should be administered. The nitrites, and nitroglycerin should be employed as they lessen materially the frequency and severity of the paroxysms. Tonics such as iron, arsenic, strychnine, phosphorus, etc., are of value in that they increase the resistance of the body and improve its general tone. Strophanthus and strychnine are indicated when the heart is weak." (Hughes' *Practice of Medicine*).

9. The symptom complex in *apoplexy*, is:—Sudden unconsciousness, coma, muscular relaxation and paralysis. The pathological conditions which may account for it, are cerebral hemorrhage, thrombosis and embolism.

Caille gives the following differential diagnosis: "*Cerebral Hemorrhage* occurs after the age of fifty-five, as a rule, with atheromatous arteries and an hypertrophied heart. The onset is sudden, with coma, during exertion or excitement. The temperature falls in an hour, and then rises, sometimes to 106° F. Gradual recovery of consciousness takes place in from three to five days, with permanent hemiplegia.

"*Cerebral embolism* comes at any age, with heart disease or after childbirth. There is a sudden onset, without loss of consciousness or with slight mental confusion, or with rapid return to consciousness. The temperature does not fall, but may rise as high as 102° F. Improvement occurs within twenty-four hours to a marked degree, but after three or four days the symptoms return. Monoplegia, hemiplegia, or aphasia may remain. Jacksonian epilepsy may develop if the lesion is cortical, involving a special center.

"*Cerebral thrombosis* occurs at any age, but chiefly in syphilitic persons and middle-aged men. There are usually premonitions. The onset is slower, without coma, but with dullness of the mind. The temperature

does not fall, but may rise to 100° F. The paralysis is similar to that observed in embolism. The diagnosis between these three conditions is hardly ever positive."

10. **Poisoning by wood alcohol.** *Symptoms*.—"The acute symptoms resemble ordinary alcoholic intoxication. The main differences are in the stronger irritation and in the more protracted and more serious after-effects, the coma lasting several days and often terminating in death. A very important feature is the frequent occurrence of incurable blindness from retrobulbar neuritis and retinitis. . . . The general symptoms begin with gastro-intestinal disturbance, abdominal pain, general weakness, nausea, vomiting, vertigo, headache. The symptoms of ordinary alcoholic intoxication supervene, with delirium, restlessness, unconsciousness, collapse, and coma. The pupils are usually dilated and irresponsive; nystagmus may be present. Dyspnea and cyanosis are marked. The temperature is subnormal. Death is very much more frequent than with ethyl alcohol. It occurs in coma, from respiratory paralysis, in a few hours to three days. Sometimes the symptoms are deferred for several days and then prove rapidly fatal. Delirium may set in after the acute symptoms have subsided. Cystitis is a frequent sequel. The most important sequel, however, is the optic injury. The symptoms are bilateral and consist in scotoma, dimness or total blindness; the pupils are dilated and insensible to light. The loss of vision may start in a few hours, or be delayed several days; it generally becomes complete; subsequently there is some improvement, which in most cases, however, finally relapses into total blindness."

"The treatment of poisoning by wood alcohol includes evacuation, stimulants, heat; and morphine to allay suffering." (Sollmann's *Manual of Pharmacology*.)

(To be continued.)

Society Reports.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

One Hundred and fifteenth Annual Meeting,
Held in Brooklyn, N. Y., May 2, 3, 4 and 5, 1921.

HOUSE OF DELEGATES.

First Day—Monday, May 2.

THE SPEAKER OF THE HOUSE, DR. E. ELIOT HARRIS OF NEW YORK, IN THE CHAIR.

Address of the President.—Dr. J. RICHARD KEVIN of Brooklyn submitted this address in the form of a report. He said, in part, that it was obvious that in this period of reconstruction in our institutions that Practice of Medicine was not escaping the vision of the so-called reformers. At no time in the past history of the State Society had the need for a more militant body presented itself. The shadow of portentous events was upon us. The profession, to be recognized, must speak with one voice. When we considered the fact that each year we had to meet the Antivivisection, the Chiropractic and the various other Cult bills, it necessarily meant that we should wake from our apathy. Various County Societies, no longer depending on the State Society for its function, so far as the economics of the profession was concerned, had organized independent guilds to combat the menacing legislation appearing at Albany each year. This brought about a desultory method of approaching a solution which, to be successful, must, in the final analysis, reside in the parent body. Because of lack of funds the Society had not properly functioned from the economic standpoint. The dues which had been in vogue were adequate for the sustenance of the Society years ago; but to meet the present conditions and new environments, necessarily meant a radical increase. Because of these reasons, Dr. Kevin said he recommended the amendment to the By-laws which made the dues five dollars a year. He also recommended that provisions be made whereby the office of Executive Secretary be promptly established. When one studied the support given by the public to the various cults and mediums that sprung before the

Legislature each year it caused one to pause and reflect; one wondered how they obtained such surprising support. He was of the opinion that a large factor in the product of their success lay in the inertia of the medical profession. While the profession held itself aloof, these groups took the public into their confidence; by their cunning methods they were apparently successful in obtaining many new recruits to their cause each year. In the Constitution defining the purposes of the Society Article 1 read, "to enlighten and direct public opinion in regard to the great problems of State Medicine." With this end in view the Committee on Arrangements had planned that on Sunday, May 1, about one hundred of the clergy in Brooklyn would vacate their pulpits, and in these vacant pulpits physicians and surgeons would discuss preventive medicine and the problems of health. Dr. Kevin recommended that an expression of approval and encouragement by the House of Delegates be recorded; to the end that all future meetings of this Society, when possible, would include a similar program.

Dr. Kevin stated that he had visited all the District Branches of the State Society during his term of office, that they were generously attended, and the enthusiasm exhibited suggested their great usefulness as branches of the parent body. The scientific programs were of the highest character, the discussions liberally contributed and the economic questions of medicine prominently discussed.

Address of the Speaker.—Dr. E. ELIOT HARRIS of New York presented this address in which he considered the Constitution and By-laws of the Medical Society of the State of New York, and especially those provisions which would be helpful in the work of carefully and expeditiously carrying out their duties as members of the House of Delegates. He quoted one provision of the Constitution which made it the business of the delegates to keep informed as to the work of the graduate, the post-graduate, and the research institutions of the State; and to aid in protecting them from selfish propaganda and misguided legislation that would lower the standards of medical education and licensure, and hamper medical research. The further purposes suggested that the activities of the State and local Departments of Health, the molding of public opinion in harmony with the medical profession, the medical needs of the smaller and larger communities of the State, and the protection of the people from being exploited by quacks, charlatans and pretenders of all sorts, were problems which should be carefully studied by the delegates, and finally a policy should be adopted which could be carried out by the executive body, the Council. After reviewing the duties of and functions of the House of Delegates, the Council, standing committees, etc., Dr. Harris said he could not refrain from taking this opportunity to express to the House of Delegates his appreciation of the honor conferred upon him in electing him the first Speaker of the House. He said he was aware of the obligation he assumed in accepting the office and it was his earnest wish to serve this House as its presiding officer, in a way that would call out the sympathetic cooperation of the members. He said the House of Delegates represented and acted for the Medical Profession of the State of New York, because more than a good working majority of the profession were members of the Medical Society of the State of New York and *ipso facto* of the counties that had elected them delegates. It was sound American doctrine that the majority should rule. Let them rule wisely and well. It was expected of the carefully selected delegates of the medical profession in annual convention assembled to give to the profession of the State something eminently worth while as a result of their deliberations. Never before in the medical history of this State had there been more vital problems affecting medical economies such as the relation of physicians and of the practice of medicine to the community, than those which were demanding their immediate thought and action. Might their minds trained in scientific accuracy search out and marshal the facts which were needed to produce concerted action on the part of the profession, and which would help to secure that kind of public support which was best expressed in right legislation.

Report of the Secretary.—Dr. EDWARD LIVINGSTON HUNT of New York submitted this report, which showed that the Society had lost 125 members by death and 88 by resignation during the year, leaving a total of 8,671 members, just 100 more than on January 1, 1920. The honor list of counties which showed both dues and taxes paid was as follows: Columbia, Essex, Greene, Ontario, Oswego, Richmond, Schoharie, Warren, Washington and Yates. This report recommended the amendment of the Constitution, introduced at the last annual meeting raising the per capita assessment from \$3 to \$5. He also recommended that the House of Delegates levy a special per capita tax for the year 1921 similar to the one levied in 1920, since the increase in dues could not become effective until 1922. Dr. Hunt called attention to the proposed amendment to the Constitution in regard to the apportionment of the delegates from the County Societies. He recommended the adoption of this amendment. He asserted that the reorganization of the Legal Department was the most important and urgent matter which would come before the House of Delegates. The Society should have the best legal talent and should be prepared to pay for it. No new financial obligations should be incurred until a sufficient sum should have been appropriated to maintain a first class legal department. The Society should have such a department; and to insure its efficient functioning, it should be directly under the control and supervision of a special legal committee. He, therefore, recommended that a committee be appointed to consider the establishment of such a legal department, and that this committee suggest an appropriation requisite for the maintenance of the Department. The Committee of Legislation had assumed a position of great importance in the Society. It had in the past year accomplished much and if given proper recognition and aid could be invaluable to the society. It should be given more power and wider scope. It needed clerical help and an appropriation. He therefore recommended that ways be considered to strengthen and assist this committee and that an appropriation be made to provide a permanent clerk during the sessions of the Legislature. It was desirable to have an Executive Secretary; there were two essentials necessary to the appointment—big man and a big salary. The *Journal* has been much improved and strengthened. If the finances of the Society warranted the outlay it would be advisable to enlarge the *Journal*. An important step taken by the Council during the year was the creation of an Executive Committee, for the more efficient administration of the affairs of the Society. This committee met monthly, had supervision over the finances and publications of the Society, and acted as advisers to the legal counsel. It in no way interfered with the meetings of the Council.

Report of the Treasurer.—Dr. HARLOW BROOKS of New York submitted this report, which showed an excess of income over expenditures for the year 1920 of \$4,499.96. The expenses for the year were \$33,510.13.

Report of the Council.—The Council, through its secretary, Dr. E. L. Hunt, submitted this report, which consisted of a record of the meetings held during the year, and a set of resolutions, providing that all standing and special committees of the society should be under the direction and subject to the orders of the Council while the House of Delegates should not be in session, and that the Council be charged with carrying out the Constitution, By-Laws, and rules, regulations, and orders of the House of Delegates.

Report of Committee on Arrangement.—Dr. WILLIAM FRANCIS CAMPBELL of Brooklyn reported for this committee. He called attention to two features of the program, which were innovations, and were presented solely for their educational value to the community in which the convention was held. They believed that their annual conventions should be altruistic and not egoistic. The annual convention afforded a unique opportunity to awaken and interest the local community in matters of public health, sanitation and hygiene. The convention of the State Medical Society should be an annual event not merely for the profession, but sought and welcomed by progressive communities for the educational advantages which it con-

ferred, and the stimulus for higher civic ideals which it bequeathed to its host. To crystallize these ideas this committee had inaugurated two important features. It had planned to make convention week contemporaneous with "health week" for the Borough of Brooklyn, inaugurated by fifty "health talks" on Sunday, and it had planned an unusual scientific exhibit which would be in the fullest sense a health exhibit. While it retained all the features which made a personal appeal to the physician, it had extended its activities to include every department of health and hygiene. These innovations were placed on trial.

Report of the Committee on Medical Economics.—Dr. HENRY LYLE WINTER, of Cornwall, submitted this report, which stated that the work of the committee had touched upon most of those phases of our present day complex social life which affected the medical profession. As a result of their studies they were able to assure the Society that the science and art of medicine were making equal progress with other activities of civilization. They had been importuned, and had importuned others, to join in constructive criticism of such schemes as health insurance and health centers. They had studied these plans and the conditions which they were assumed to help, or which they assumed to exist, actuated only by the desire to get out of them or put into them, those things which were for the good of the public and the medical profession. The result had been an *impasse*. They found that these plans did not permit of constructive criticism because they fundamentally obstructed the normal development of medicine. This being the case the medical profession could find no justification in any other attitude than unequivocal opposition. Aside from other vicious effects, the pessimism regarding the value of medical services and the future of medicine which their legislative efforts tended to produce had a disastrous effect upon the public by indirectly aiding the propaganda of quackery. No one criticized the quack, and he fattened upon the discredit cast upon the efforts of the medical profession. Taking up the matter of health centers, the report shows that rural communities are not as badly off for medical service as reports would lead one to believe, and that there was no cause for anxiety that a sufficient number of physicians would not be available in the future, or that service would not be of the best. Considering the Health Center bill specifically, the committee could find no excuse for its passage. It was vicious in its purpose, tending to centralize certain powers in the State Department of Health, which could only develop to their fullest fruition as functions of the individual physician acting alone or as a member of a group. They believed that it was wise that laboratories should be standardized, but they did not consider that the actual work of the laboratories or the activities of physicians who specialized in laboratory work should be in any way controlled by the State Department of Health. They believed that the State should assist in establishing laboratories in sections of the State where they might be needed, but they also believed that such financial aid should be discontinued as soon as the laboratories became sufficiently self-supporting. What was true of laboratories was true of other phases of medical practice. This report recommended that the State Department of Narcotic Drug Control be abolished; endorsed the Medical Practice Act as amended and introduced at this session of the Legislature, and recommended continued opposition to health insurance. During the year the committee had communicated with all of the county societies with reference to the Health Center bill. The replies received from most of the societies showed strong opposition to the bill.

Report of Committee on Public Health and Medical Education.—Dr. JOSHUA M. VAN COTT of Brooklyn submitted this report, which stated that the committee had watched with interest the various bills pending in the Legislature during the year just past calculated to affect public health and medical education. Fortunately, they all either died in committee, had been vetoed by the Governor or had failed to become laws. In the last analysis every physician in the State should regard himself as a public health officer, whose efficiency of work in his own community must depend

largely upon his ability, probity and personal unselfishness. The difficulty at present seemed to lie, not so much in lack of desire on the part of medical men to do their share of public duty, as in lack of proper directive. The action of the Council in creating an Executive Committee from its own number to meet frequently with power to transact business for the Council would go far toward overcoming the difficulties encountered in meeting sudden emergencies in the Legislature involving important questions of public health and medical education, in increasing the efficiency of the standing committees, and in dealing with those problems more directly related to the individual physician. They felt that more than ever before every physician in the State should consider it his duty to keep informed of all matter pertaining to public health and hold himself ready for any personal service that he might be asked to perform in this relation. He must be willing to spend the time and energy necessary to inform influential people in his community of the menace to the public of efforts at vicious legislation which, if successful, would be disastrous. When asked to write to his Assemblyman, Senator, or Governor, he must waste no time in doing it. Indeed, if asked to attend the hearings in Albany on questions of vital importance to public health and medical advancement he must unselfishly go. This committee recommended that the direction and control of standing committees be placed under the Council of the Society; otherwise they must remain as little more than dead letters. It further recommended the disapproval of the Curtis-Rainey bill, as reported by the Ways and Means Committee of the House at the last session of Congress, for the following reasons: (1) The limitation of the importation of narcotics in the raw materials would endanger a shortage of these drugs at a time when it might be calamitous. Not even the medical profession could always foretell the advent of epidemics or other circumstances which would imperatively call for their use in larger quantities than could be rightfully required under normal conditions. (2) On the other hand, the limitation of importation of the raw materials would, *ipso facto*, create the danger of monopoly by manufacturers, who could obviously control both price and quality of the refined drugs.

Report of Committee on Medical Research.—Dr. FREDERIC E. SONDERN of New York submitted this report which stated that during the current session of the Legislature bills were introduced intended to restrict research, by excluding dogs for purposes of investigation or experiment. Public-spirited individuals, and members of this committee, had actively protested to the members of both branches of the Legislature in person and by letter, and proper objections were presented at the joint hearing on March 22.

Committee to Consider the Appointment of an Executive Secretary.—Dr. FREDERIC E. SONDERN of New York submitted this report, which presented details as to the expenditures that such an appointment would entail. Owing to the expense involved the committee has voted to postpone the desired appointment.

Report of Committee on Legislation.—Dr. JAMES F. ROONEY submitted this report, in which he briefly reviewed the chief measures of importance to the medical profession introduced during the legislative session of 1921. These were:

1. The Compulsory Health Insurance bill which this year scored the whole gamut as had been predicted by him at the first hearing upon this measure in 1916, including unemployment insurance, invalidity insurance and old age pensions. At last the bill was introduced by a member of the party to which the measure belonged, the member being Mr. Orr, the Socialist. This bill had slept very quietly in Committee.

2. The various measures concerning the Narcotic Drug question. Of these there had been four. The first Lord bill abolishing the Department of Narcotic Drug Control; the second Lord bill reenacting the main provisions of the old Whitney law without provisions for any bureau to make rules and regulations; the second Smith bill, practically the same as the Cotillo bill of last year which would prohibit the prescribing any narcotic drug to patients suffering from addiction disease, permitting only personal administration of the drug by the physician, thus prac-

tically compelling the institutionalization of all persons afflicted with addiction disease or driving them to the underworld for their supply of drug. It required that practically all addicts should be committed to State, county or municipal hospitals or to private sanatoria or hospitals which had been licensed *ad hoc* by the State Department of Health. It furthermore required the keeping of records by physicians and official prescription blanks for every case in which a narcotic drug was dispensed for no matter what disease and in no matter what amount and for no matter what method of application or administration except it be for external application. It rescinded for the purpose of enforcement of the act the statute of privileged communications. After describing more in detail all the undesirable features of this bill, the report stated that the first Smith bill classed drug addiction among the infectious and communicable diseases presumably to give the same power to boards of health and health officers to commit and hold in isolation drug addicts as they now exercised under the same section in cases of smallpox, diphtheria and the other infections. This endeavor to so characterize drug addiction was well termed by the Commissioner of Health of the State of New York at the hearing upon these bills before the Governor as "sheer nonsense."

3. The Health Center bill somewhat modified from that of last year, but essentially the same, died in committee after a hearing.

4. The Chiropractic bill, which was reported favorably after a snap hearing on twenty-minutes' notice. The hearing was not publicly noticed. Through a clever maneuver the very capable legislative agent for the chiropractors through a second person handed the bill to Senator Wiswall of Albany who, without reading the measure, introduced it in the Senate and who in two days so amended the bill in order to require proper standards of preliminary and professional education on the part of those who sought to be licensed under the waiver clause of the bill, that the chiropractors at the Senate hearing appeared in opposition to their own bill. At this hearing Senator Wiswall accused them of not wishing to meet educational standards and thus not showing good faith. The bill was never reported by the Senate Committee and was re-committed in the Assembly on the second last day of the Session and thus died.

5. The amended Medical Practice Act, without the provisions for re-registration of physician, providing for prosecution of offenders against the law by the Attorney General instead of by district attorneys was swapped by its introducer for the Chiropractic bill through what seemed to Dr. Rooney an error of judgment, although done with the best intentions.

6. The bill changing the constitution and method of appointment of members of the Public Health Council which would put this most important advisory body into the field of local politics was defeated in the Assembly.

7. The bill for the purpose of authorizing osteopaths to report births and deaths and cases of communicable disease and giving them all the rights, privileges and immunities of regular physicians was killed in the Committee on Public Health of the Assembly.

It seemed important to the Committee that the medical profession should begin to consider seriously the menace involved to the public health, the public weal and the profession and evidenced by the continuous and persistent efforts of lay groups, highly organized minorities, in association with small but influential cliques of physicians. The end was to secure eventually complete control of the medical profession and ultimately to socialize it. The same groups that were interested in forwarding the scheme for Compulsory Health Insurance were now looking toward State Medicine, the entering wedge of which was the Health Center plan which was to be combined finally with Compulsory Health Insurance. Regulations as to the use of narcotic drugs and alcohol were merely the beginning of an attempt to control completely therapeutic methods. The various committees that had been appointed by national and State bodies to "investigate" these subjects apparently had had as their foremost requirement for membership thereon the proof of lack

of experience with the subject to be considered by them and their reports had always been entirely standardized and apparently written *ad hoc* by an interested group comprising not more than ten men in the medical profession and a couple of lawyers. Their investigations had not been unbiased, their findings had not been judicial, and their reports had largely been *ex parte* formalizations. These evils must be excoriated, the Society must be united, it must organize, it must educate the public or if it did not, so surely as the tide covered the sand bar, the profession of medicine would become the tool or instrument of forces existing to-day in the commonwealth, whose sole desire was power attained through absolute control of the medical profession. Unless a greater interest was taken by every individual member and especially by the officers whom the members elect in these matters which so directly interested and affected them they would very shortly be overtaken by a calamity not apparently deserved. At the time of the making of the present medical law in this State the medical profession and the other associated professions following them supinely agreed to provide funds for the administration of the law. The Legislature graciously agreed to this principle because it would cost the State nothing for, in this manner, protecting to a degree the public health, and provided in this law, that all moneys received should be paid into the State Treasury and that the Legislature should annually appropriate an amount sufficient to administer the law. Through these beneficent provisions the professions had paid into the State Treasury each year for the last ten, excluding this year, from three to ten thousand dollars more than the Legislature had appropriated back to them for the administration of the law, and this year would pay in a hundred thousand dollars more than was reapportioned. And still the Legislature would not report a bill increasing the salary of the Secretary of the State Board of Medical Examiners, a salary fixed fourteen years ago, in the sum of five hundred dollars in order to bring the salary for this office to correspond with that of the Secretary of the Dental Board. Was it not time for the professions to insist that they should not be taxed illegally and indirectly to pay money into the Treasury of the State that should by right go to the bureaus having in charge the administration of the law as was the plain intent of the statute? Some attempt must be made to increase the efficiency of the prosecution of offenses against the Public Health law. Outside of murder, no crime against the common weal of the State went so often unwhipped of justice as violation of this law.

The amount of money spent by the Society in prosecuting the work of its Committee on Legislation was woefully inadequate; it had never, so far as the Chairman could recall, exceeded seven cents per capita of membership. The chiropractors alone spent from twenty to fifty thousand a year to maintain their legislative lobby; there were less than a thousand of them and the State Society had nearly nine thousand members.

This report made the following recommendations: "1. That a Legislative Bureau be established permanently at Albany for the purposes set forth in the report of this Committee for the year 1919. 2. That action be taken by the House of Delegates upon the perversion of the statute, by the Legislature in not reappropriating moneys received from the professions, to the department of education for the purpose of administering the law. 3. That a committee be appointed by the House of Delegates to confer with similar committees to be appointed by other professional, educational and lay bodies for the purpose of amending the medical practice act in order to make its provisions effective and to modify its requirements as may be deemed necessary for the practice of medicine, both general and special. 4. That a committee be appointed by the House of Delegates to devise a plan for conducting public health education by County Societies for the purpose of creating a public demand for proper health law and its enforcement. 5. That a Committee be appointed by the House of Delegates for the purpose of prosecuting a real state wide investigation—not the closed chamber five hour stereotyped dictated sort—on the subject of narcotic addiction disease, and that their re-

port embody suggested changes in the present law both Federal and State that they deem necessary for (a) proper medical care, and (b) police regulation. 6. That the House of Delegates determine whether at Legislative hearing the presentation of the argument for the Society shall be made by and at the direction of the Chairman of your Committee on Legislation or whether any County Society may, irrespective of the opinion of your Chairman, present its view in opposition thereto. 7. That the use of personal influence in any way to defeat the legislative program of this Society subject any member so offending to censure by the Society."

Report of Special Committee on By-Law Amendment.—Dr. GROVER W. WENDE of Buffalo submitted this report which stated that the committee had made an investigation of the methods of representation operating in other State Medical Societies. Quite 80 per cent. of the organizations sending delegates to the American Medical Association replied to a questionnaire. A tabulation of the replies compelled the following generalizations: 1. That in every other State Society the representatives to its House of Delegates were apportioned among the constituent societies in proportion to their actual active membership, except that each constituent society was entitled to elect at least one delegate. 2. That such method of representation had been found to work satisfactorily, and 3. That such unit representation was fair and just to the membership.

The report discussed four propositions relative to methods of representation and recommended that no change be made in the present method of determining the representation of the constituent county societies in the House of Delegates to the Medical Society of the State of New York.

Minority Report.—Dr. DANIEL S. DOUGHERTY of New York presented a minority report which pointed out that under the present archaic method whereby the membership of the House of Delegates was apportioned by the State Legislature, neither the House of Delegates, the State Society, nor the constituent County Society had a voice in the actual membership of the House, and this membership might be changed at any time by political gerrymander. In a body which professed to be democratic and representative, as did the Medical Society of the State of New York, the only just and equitable method of electing delegates possible was that which was based upon the membership. These United States were founded on the valid and indisputable contention that representation and taxation should be in proper proportion; any deviation from this was virtually disenfranchisement and verges on autocracy. Above all, the power of regulating the membership of the House of Delegates should be in the hands of the State Society and not of the State Legislature.

The adoption of the amendment was earnestly recommended.

Report of the Counsel.—Dr. GEORGE H. WHITESIDE submitted this report, which covered the activities of the Counsel of this society from the period between September 1, 1920, and April 1, 1921. During this time there had been received by the Counsel 57 separate cases instituted before September 1, and since that time 24 new actions, making a total of 81 cases that had required the attention of the Counsel. Eighteen cases had been disposed of in favor of the defendants, and one case resulted in a jury verdict against the doctor. In the latter case an appeal was now pending. There were now awaiting disposition 62 cases. A classification of the cases presented showed that fracture cases were particularly hazardous to the physician, 19.4 per cent. of the cases being of this nature, while 18.2 per cent. were obstetrical cases. In the latter there was a double hazard to the physician for damages to the patient as well as by suit on the part of the husband to recover for the loss of his wife's services. The total number of cases based upon injuries resulting from the use of apparatus, such as x-ray, galvanic current machines for the administration of anesthesia, together with those due to breaking of a needle in lumbar puncture, etc., was about 16 per cent. These figures indicated a high degree of hazard in cases involving the use of such devices. A brief outline of each of the cases was submitted. Mr. Whiteside then submitted a supplementary report in which he showed that since assuming the

duties of Counsel he and his assistant had spent 50 per cent. of their time on this work, for which he had received on an average of \$31 per case or about \$1.45 per hour for his time. He showed how the cases tended to accumulate in an ever increasing ratio and the necessity for clearing the calendar. He also submitted a suggestion for combining insurance indemnity with malpractice defense. At the present time if a physician or surgeon carried indemnity insurance with an insurance company, in case of suit he could not have the assistance of the malpractice defense of the Society because the insurance company preferred to conduct the case itself. The indemnity benefit under this plan would be entirely optional with each man. Mr. Whiteside acknowledged that he had found difficulty in finding an insurance company ready to cooperate in providing this feature, but he confidently believed that the plan was feasible, and by it all malpractice cases among those who took advantage of the indemnity would be tried entirely by the malpractice defense of the Society. He estimated the cost of such indemnity insurance as \$18 a year for \$5,000 to \$15,000, which was about one-third the new rate for this type of insurance.

These reports were referred to their appropriate reference committees for consideration.

New Business.—A number of resolutions were presented, referred to the Committee on Miscellaneous Business, and reported back to the House during the session. Among these was a resolution presented by Dr. Joseph A. Blake of New York, urging the support of the Society for the Duell bill, Senate No. 1636. This bill was an act to incorporate the State Veterans' Relief Fund, which provided for the removal of the administration of relief to veterans of the recent war from political influences and placing it in the hands of a commission. This bill had passed both houses and was before the Governor awaiting his signature. The House of Delegates approved the bill and sent a telegram to Governor Miller notifying him of the action of the society and urging him to sign the bill.

A resolution was introduced stating that the National Anesthesia Research Association requested the Medical Society of the State of New York to petition the American Medical Association for such a section. The Reference Committee disapproved of this resolution, and Dr. Murray stated that the American Medical Association already had under consideration the matter of forming a section on anesthesia. The Section on Miscellaneous Subjects was being used to try it out and find if there really was sufficient demand to warrant the establishment of such a section. A motion to lay the matter on the table was carried.

Dr. MARK MILLIKEN of Ohio submitted resolutions from the House of Delegates of the Medical Society of Ohio urging that the right to practise medicine in one State be extended to all States, that interstate practice of medicine be made as easy as interstate commerce. The Reference Committee disapproved this resolution, but approved of that part of the resolution providing that the A. M. A. be urged to perfect a plan for interstate practice which should maintain the standard that now existed in the State of New York. The resolution submitted at the last meeting of the Society amending the constitution to increase the annual per capita assessment from \$3 to \$5, payable before June 1 of each year, was approved by the House of Delegates; also a resolution for a special tax of \$2 for 1921 similar to that levied in 1920, to be collected by the treasurers of the county societies.

Dr. GEORGE W. KOSMAK introduced resolutions to the effect that, whereas many interesting and valuable papers were read before the Society, frequently by distinguished visitors from other States, that deserved a wider circulation than could be given them by the *State Journal*, and whereas the publication of papers in the *State Journal* was sometimes long delayed, that writers of papers be permitted to publish their papers elsewhere without simultaneous publication in the *State Journal* if they so desired. The House of Delegates disapproved of this resolution.

Dr. EDEN V. DELPHEY introduced a resolution providing that the Medical Society of the State of New York was emphatically opposed to "State Medicine," and to any scheme for "Health Centers," "Group Medicine," and "Diagnostic Clinics," either wholly or partly

controlled, operated, or subsidized by the State or National Government and that the delegates from this Society to the American Medical Association be instructed to present this resolution to the House of Delegates of the American Medical Association at its coming session in June and to use every possible means to secure its adoption. This resolution was adopted.

Dr. NATHAN B. VAN ETEN of the Bronx introduced resolutions requesting that in the *Directory* Bronx physicians be accorded a separate listing as those of the other counties, Richmond, Queens, etc. This resolution was adopted.

Dr. WENDELL C. PHILLIPS of New York presented resolutions providing for the appointment of a committee which in cooperation with the Counsel should make a revision of the constitution and by-laws of the Society and formulate a policy for future guidance, which should be published in the official organ before the next meeting. He stated that he had been studying the methods of other State societies and thought the constitution and by-laws of the Medical Society of the State of Texas furnished a model. By that plan the funds of the Society were handled by a board of trustees. This resolution was adopted.

The Reference Committee disapproved of the recommendation for reapportionment of delegates and the House voted to make no change in the present method of representation.

Dr. WILLIAM FRANCIS CAMPBELL of Brooklyn submitted resolution calling attention to the campaign against cancer being carried on by the American Society for the Control of Cancer, requesting the Society to endorse and support this work, and urging physicians throughout the State to take an active interest in the campaign.

Second Day—May 3, 1921.

Election of Officers.—The following officers were elected for the ensuing year: *President*, Dr. James F. Rooney, Albany; *First Vice-President*, Dr. William Meddaugh Dunning, New York; *Second Vice-President*, Dr. William H. Purdy, Mt. Vernon; *Third Vice-President*, Dr. William D. Johnston, Batavia; *Secretary*, Dr. E. Livingston Hunt, New York; *Assistant Secretary*, Dr. Wilbur Ward, New York; *Treasurer*, Dr. Seth M. Milliken, New York; *Assistant Treasurer*, Dr. Charles Gordon Heyd, New York; *Speaker of the House of Delegates*, Dr. E. Eliot Harris, New York; *Vice-Speaker*, Dr. Dwight H. Murray, Syracuse; *Chairman of Committee on Scientific Program*, Dr. Samuel Lloyd, New York; *Chairman of Committee on Medical Education*, Dr. Joshua Van Cott, Brooklyn; *Chairman of the Committee on Legislation*, Dr. James N. Vander Veer, Albany; *Chairman of Committee on Medical Economics*, Dr. Henry Lyle Winter; *Chairman of Committee on Scientific Research*, Dr. Frederic E. Sondern, New York; *Committee on Prize Essays*, Drs. Edgar A. Vander Veer, Albany, Edward D. Fisher, New York, Charles Stockton, Buffalo; *Delegates to the American Medical Association*, Drs. William Francis Campbell, Brooklyn, James F. Rooney, Albany, Frederic E. Sondern, New York, Grover E. Wende, Buffalo, Thomas E. Chalmers, New York; *Alternates*, Drs. Henry Lyle Winter, Cornwall, Russell S. Fowler, Brooklyn. E. MacD. Stanton, Schenectady, Joseph B. Hulet, Middletown, James E. Sadlier, Poughkeepsie.

Resolution in Favor of First Lord Bill.—Dr. JAMES F. ROONEY stated that there were now four bills before the Governor awaiting his signature. He thought that possibly he was delaying his signature waiting to see what the sentiment of the Society was in reference to these measures. The four bills were the two Fearon-Smith bills and the two Lord bills. Dr. Rooney reviewed the substance of these bills (see Reports of Legislative Committee) and made a motion recommending that the Society put itself on record as favoring the first Lord bill, which wiped off the statute books all laws on the subject of narcotic drug control. After considerable discussion, this motion was carried and a telegram was sent to the Governor informing him of the action of the Society. On motion the other bills affecting narcotic drug control were referred to the Council for consideration and proper action.

Amendment to By-Laws.—An amendment to the by-laws was adopted making it unnecessary for the

House of Delegates to give notice at one annual meeting of the time and place of the next annual meeting.

On motion the selection of the time and place of the next meeting of the Society was referred to the Council with power to act.

GENERAL MEETING.

May 3, 1921.

THE PRESIDENT, DR. J. RICHARD KEVIN OF BROOKLYN, IN THE CHAIR.

The one hundred and fifteenth annual meeting of the Medical Society of the State of New York was called to order by the president, Dr. J. Richard Kevin.

Address of Welcome.—Dr. WILLIAM FRANCIS CAMPBELL of Brooklyn, chairman of the committee on arrangements, delivered this address. He stated that it was one of the functions of the chairman of the committee on arrangements to make a perfunctory address. The work of the committee was completed, the feast was spread, the committee bid them welcome and invited them to partake. They believed the function of a medical society need not be circumscribed solely by the personal activities of the members who attended. They had discovered a unique opportunity to interest the local community in public health, sanitation, and hygiene. He hoped the annual meeting in the future would be an event not merely for the profession, but would be sought and welcomed by progressive communities for the educational advantages which it conferred and the stimulus to higher civic ideals which it bequeathed its host. He trusted the meeting would demonstrate that the results of the efforts of medical science could be applied to the individual, the home and the community. They should feel that their efforts were well expended if this exhibit demonstrated that medical science was not something aloof from the community but was the very essence of communal idealism, satisfied never with things as they were but only with things as they ought to be. It seemed that that was the fine idealism that inspired all art, and science and literature—the passion of things as they ought to be, that was the keynote of medical science. Dr. Campbell said he did not wish to repeat the hackneyed formula of welcome, but merely to say that the Society of the County of Kings was honored by the presence of the Medical Society of the State of New York, one of the links that united the medical profession of this land in the great American Medical Association. It was said that the flesh of animals that fed exclusively was better than that of those that were cooped up. He was quite sure that the medical profession was far richer since it had acquired the peripatetic habit. This had been the means of bringing the influence of the Rochester Clinic, of the clinics of Cleveland, Chicago, and Baltimore to every town and hamlet, because the progressive physician fed exclusively. Dr. Campbell said they had come here for recreation, for instruction, to be blessed by the bishops of the profession, men not circumscribed by the narrow limits of their own parish but men whose domain was the limit of the world, the masters who would stimulate their professional work and their idealism. They had each come from their own Main Street, and if he might interpret them by his own personal experience he would say that in Main Street one often grew weary, in Main Street one sometimes lost his perspective, in Main Street one was not always the man he would like to be, so it was periodically necessary that from time to time they should pause by the way, to come to a convention like this to relight their lamps, to retrim the lights of their idealism, and to kindle their enthusiasm. If when they went home they were better men in Main Street their trip would not have been in vain.

President's Address—The Future Physician.—Dr. J. RICHARD KEVIN delivered this address, in which he said that in order to determine what should be the attributes, the function and the standing of the future physician, we must necessarily review the conditions and environments which had placed the present physician on his pedestal. Unlike the law of gravitation, the law of economics changed frequently. There was no form of matter in the world which did not change.

If all the changes in the economic and industrial world were to occur through revolution we would be constantly in a stage of confusion. We could not think of such a thing as standardization. It was many hundreds of years ago when the barber was the local surgeon, but even today his sign, which displayed white and red bars, was symbolic of blood and bandages. If one glanced over the wonderful changes in our profession in the past seventy-five years, it would be seen that just as the great achievements in medicine and surgery had advanced just so much had the States defined a higher qualification to practise the art of medicine and surgery. Even twenty years ago the preliminary requirements of the State to enter any recognized medical college were quite meager; and three years in college were all that was required for graduation. Today practically all of our medical colleges required an equivalent of four years college course before matriculation; then four years in a recognized and qualified medical college; and thereafter an internship in a recognized medical college. Thus one saw how progressively the State had advanced in its demands upon the doctor, before he was permitted to practise. The late John B. Murphy of Chicago, some years ago maintained that excessive standardization suppressed individualism, dwarfed genius, and created a standard doctor, with constantly decreasing instances of unusual talent. He believed that the medical schools of several decades ago fostered individualism, which resulted in a relatively larger number of men with unique ability. It had been said that the specific endowment of men varied in intelligence and ingenuity, and balanced judgment was a necessary constituent in the ore of mankind. To subject all this varying ore to the same process of reduction was to attack common sense and waste opportunity. However, the standardization of the qualifications of the present and future physician was too large a question to discuss tonight. Assuming that the requirements and qualifications of the future physician would not have changed, what were his prospects for the future? Would he be permitted to pursue his profession in an independent and progressive way, unmolested from without and contented within? Would he encounter on the one side compulsory health legislation and on the other State medicine legislation? We must remember that the physicians of this day were recognized as leaders in all great health questions. Unless we heeded the writing on the wall this leadership would fast ebb away. New economic conditions were bringing to the front a social welfare element which would soon dominate our health affairs unless their activities tightened the grip of leadership. Physicians were content to allow the departments of health and welfare to fight the big dangers which could only be successfully fought by the power of State, such as epidemic diseases, polluted water supplies, proper sanitation, better housing facilities, and the removal of filth from the cities, towns, and villages. He could see a change in the curriculum of the future physician. Relatively his functions would be: First, to conserve the health of the well; second, to detect, when possible, and arrest incipient disease; third, to restore the sick to health; fourth, to ease the comfort of chronic patients, and bring comfort to the old and feeble. The curriculum today was fixed mainly in the diseases having a definite pathology. It was to the diagnosis and treatment of these diseases that more thought was given. The courses that were given in preventive medicine, sanitation and personal hygiene did not begin to do justice to these subjects. Because of our deficiencies in these subjects, sanitary engineers and social workers had entered the field. Those who regarded the conservation of health as the foremost of human interest were far from content with what had been accomplished in preventive medicine. When we considered that at this advanced age we had failed to suppress scarlet fever, diphtheria, measles, whooping cough, and poliomyelitis there seemed to be good grounds for apprehension. The educational facilities of the future physician would have progressed so rapidly that he could predict great advancement in the near future so far as preventive medicine was concerned. In the future practice of medicine he saw an abundance of specialists, internists, surgeons, pathologists, etc. But towering over them all he predicted

that the family physician would have come into his own. He would take the child in its prenatal state; after its birth, he would see that the child would participate in the environment of health and that its nourishment should be abundant and healthful by his frequent examination. Due to the education of the future public, yearly examinations would be obtained. He would replace the public school inspector; the child's tonsils and adenoids would receive attention when required; its mentality would be classified, and its general health kept to a high standard. This would be productive in bringing forth better physically developed men and women in the future. The future physician would have acquired ampler knowledge in sanitation and hygiene and thorough knowledge of the psychology of character and habit. He predicted that the future physician would be educated to the necessity of having frequent thorough physical examinations, not through the pressure of the family physician, but rather through the knowledge of the patient. As an example of the past propaganda, consider what had been accomplished in dealing with tuberculosis. The improved results were not due to any change in treatment, but rather to the doctor obtaining the patient in the incipient stage of the disease. The future physician was already with us in the prenatal state. His path of usefulness lay entirely on the mercy of the physician of today. Should we remain indifferent to the attempted legislative barrier which was being constructed to limit his initiative power and thereby lessen his usefulness to suffering humanity? We must awaken to our duty, be ever alert to the harassing efforts to impede the progress of our profession today so that the arrival of the future physician would be unfettered by the chains of limitation. Should we be successful in maintaining the healthful, independent environment the arrival of our brother would be a joy and a blessing to future communities.

Annual Oration—The Future of Medicine in America.—Dr. LEWELLYS F. BARKER of Baltimore delivered this address, in which he said, in part, that he did not claim to have any special prophetic power, but would simply try to report how the coming period in medicine looked to one who, during the last thirty years, had been fairly close in touch with medical scientists, medical educators, and medical practitioners. Science, industry, social organization, and philosophy had been undergoing momentous changes in our time, but in no domain had the alterations been more marked than in medical research, in medical education and in medical practice. Indeed it was not an overstatement to say that they had been revolutionary throughout the world and, above all, in America. It would seem that an unusual opportunity for creative work now opened up before America. Men, money, and materials were here in greater abundance than elsewhere. Our duties and responsibilities were obvious. The failing hands of Europe had thrown to us the torch; let it be ours to hold it high. There were many evidences that the medical profession in America was keenly alive to existing opportunities and to present duties. All over this country preparations were being made for a great advance in science and especially in medical science. That the progress of the medical sciences was, to a very large extent, dependent upon the advances in the underlying sciences of physics, chemistry, biology, psychology and sociology, and upon the training of prospective medical students in these fundamental sciences precedent to their undertaking their medical studies proper was a lesson that had been well-learned in this country. Provision had been made for work in these basal sciences in our greater universities, in privately endowed research institutes, in government laboratories and in great manufacturing plants; in all of these institutions arrangements had been made for the prosecution of original researches in natural science subjects and for the training of young men in their methods while they also studied their principles. We must see to it that these opportunities were not only preserved but expanded. Careers in these branches must be made attractive and the numbers of men entering upon them must be increased. Institutions of this kind should be more liberally subsidized than they were now. Special institutes for intensive work in psychology, sociology, in psychobiology, in the study of human be-

havior and of industrial relations were urgently needed and would doubtless soon be provided. Without progress in the directions mentioned, the advance of medicine itself would be hampered, and those who were interested in the welfare of medicine should see to it that a knowledge of the need for these activities was widely promulgated. The medical sciences proper, both preclinical and clinical, had, since 1890, made great progress. In the majority of the States in the Union there were now institutes, more or less well equipped, devoted entirely to the subjects of anatomy, physiology, biochemistry, pharmacology, pathology, and bacteriology. Each of these institutes had at its head a director who devoted his whole time and attention to teaching and research in his subject. In many provision had been made for an adequate corps of assistants and for suitable technical help. In the near future, however, it would be necessary to make careers in these preclinical sciences more attractive to young men than they seemed to be now. Judging from the difficulty at present experienced in securing accessions to the staffs of these institutions, ways and means would have to be devised to make the positions more rewarding on the material as well as the intellectual and social side; for otherwise the necessary succession of preclinical scientists would be lacking. The domain waiting for tillage by these preclinical scientists was enormous in scope. Normal structure and function must become ever better understood in their chemical physical and biological details in order that pathological histology and cytology, pathological physiology, and pathological chemistry might continue satisfactorily to evolve. Those who were interested in the clinical sciences of diagnosis and therapy should, therefore, take an active interest in favoring the continuous development of the preclinical sciences in every legitimate way. Dr. Barker declared that he could not emphasize too strongly that the material and human needs in these scientific departments now urgently demanded serious attention. After referring to the growth of clinical science, he said that, after all, it was for the diagnosis of disease, the treatment of disease, the prevention of disease and the maintenance of the highest possible level of the physical, mental and moral health of the people that the medical profession existed and that the whole group of medical sciences clinical and preclinical, had been developed. It had been found that the methods of science were just as important in the pursuit of new clinical knowledge as in the prosecution of premedical and preclinical research. System and precision were just as essential in one domain as in the other. Facts must first be carefully collected, arranged, and compared; then they must be brooded over, in order that suggestions of interpretation might rise in the mind and, finally, these suggestions must be tested for validity before they were accepted as true or rejected as false. This was the method of science and the clinician used it just as did the physiologist or the chemist. Owing to the great extent of the clinical domain there had, as every-one knew, gradually developed a variety of medical and surgical specialties with corresponding concentration and intensification of the effort of particular workers. This division of labor had brought with it special difficulties and disadvantages, but, on the whole, the advances made in the clinical sciences by means of specialization had been astounding. That there would be a cessation of this tendency to specialization seemed unlikely; on the contrary the differentiation of workers would in the future, in his opinion, become ever greater, for men had found that mastery came through limitation of field and concentration of interest and effort. Coincident, however with this ever increasing division of labor, provision had to be made for the synthesis of results of the special workers into harmonious wholes. For this interpretative function men of wide training and sympathies, with comprehensive grasp possessing the so-called encyclopedic type of mind would be needed more than ever before to sift the essentials from the non-essentials, to arrange, classify and reduce to manageable volume, the total results of all the special workers. Contributors to the various forms of medical literature performed a most valuable service for unless knowledge came quickly and adequately organized so that it could be generally absorbed, the practising pro-

fession and the public would be wrongly deprived of benefits that should accrue to them. We had still far to go in this country before we should reach even the imperfect forms of medical communication that existed in certain countries in Europe before the war.

Dr. Barker then spoke of the improvement of medical education and the various factors that had been operative in bringing it about. At the moment medical education was confronted with a number of problems that pressed for solution. These problems were partly financial, partly matters of policy. Vast amounts of money could be used if available. Even if money were available, men could not at present be supplied with the training that was desirable to fill the new posts. The lack of men trained in the preclinical sciences was particularly alarming at this time, and the adoption of the whole time system in the clinical departments of many institutions would bring with it its own difficulties, those of finance, those of personnel, and those of adjustment among whole time workers and part time workers. For the welfare of the schools both types of workers would seem to be desirable in the clinical branches, and just what function each type of worker was to perform must gradually, through experience, be decided upon. The utilization of both whole-time men and part-time men in clinical work had in his opinion, many advantages over an exclusively whole-time or an exclusively part-time staff. It was of great help to the hospital to have certain men whose whole time and interests were given to the work of the institution, undisturbed by outside activities. Such men set a wholesome example of devotion to teaching and research and could help to instill the spirit or scholarship in the medical student. Certain types of men were happier in whole time positions that protected them from outside solicitation and set them free from the necessity of practising privately for income. The part time man was also an asset to the university clinic for he would attract clinical material to it, and would bring into the clinic along with the knowledge and experience gained in private practice a certain robustness and tolerance indicative of his wider contacts with outside life. He could exert a wholesome influence upon medical students who expected, later on, themselves to engage in practice for men were greatly stimulated by contact with seniors who had been successful in careers to which they themselves aspired. Furthermore many of the tasks of the clinic could be just as well performed by part-time men as by whole time men, with corresponding conservation of financial resources and of the time of the whole-time appointees. Both whole time men and part time men should invite constructive criticism of their work in order that the ideas of all might receive due consideration. A tendency to suppress constructive criticism did harm.

The whole time plan was so new that it was too soon to prophesy just what its effect ultimately would be upon the medical education, but he believed it was a step in the right direction and had come to stay, though he felt that it would be some time before we should have learned how best to adapt it to the needs of single institutions. If faculties would remember what a University really stood for and would arrange conditions in the best way suited to approach university ideals, taking care not to restrict the free development of the personalities of the scholars, they would have but little difficulty in arriving at a satisfactory solution of the problems of clinical teaching.

Certain subjects like neurology and psychiatry had not been adequately provided for except in a very few of our medical schools. A crying need at the present time was for a well endowed psychiatric institute in every university medical school. Then provision must also be made for graduate instruction and for continuation schools for practitioners who wished to do graduate work.

In discussing the future of medical practice Dr. Barker spoke of the relation of the general practitioner to the specialist as being one of the most difficult. The value of the group method of diagnosis was now recognized; but there were difficulties and dangers that confronted with the group practice of medicine which he had dealt with elsewhere. How the problem of rural medical service was to be solved remained to be

seen, but the medical profession should set to work to solve it at once. It might be wise to have county hospitals and a motor service to care for the county. It seemed likely that State medicine in one form or another was coming, and it would be well for the medical profession to see to it that its beginnings should be such as were best suited for the welfare both of the public and of the medical profession. The medical requirements of the public must be duly considered by medical men and a campaign of education inaugurated with the purpose of satisfying them in the best way.

As the medical sciences had advanced it had become ever clearer that in the future medicine would be largely preventive in function. As time went on humanity would find out how to secure well born children, and how to control the environmental influences, so that not only disease would be largely prevented but also more and more members of society would enjoy abounding vitality with a minimum of discomfort. We had learned how to prevent the spread of many infectious diseases that formerly caused large epidemics; malaria and hookworm disease were subject to control. Sooner or later we should learn how to prevent the spread of the exanthemata. The prevention of the acute respiratory diseases was more difficult, but the speaker was confident that the human brain would yet solve it. Dr. Barker then outlined some of the tasks in the way of the prevention of disease that remained to be done. There was the prevention of insanity, mental deficiency, and psychoneurotic states. It was astonishing how negligent we had been in attacking this problem in this country. It was reasonably safe to predict for the near future a great expansion of the United States Public Health Service and of the State and City Departments of Health throughout the country. Health centers with Red Cross support would soon be springing up everywhere. The number of medical men and trained nurses that would be needed in this work of protection of the public health was appalling to think of. One scarcely saw how they were to be provided. He thought likely that a dilution method would be resorted to. A relatively small number of highly trained men and women could make use of a very large number of persons who could be trained for certain special but limited tasks.

In closing Dr. Barker said it was our duty as members of the medical profession, and especially the duty of the family practitioner to take pains to educate the public regarding these needs of coming medicine and to urge laymen to do their part in hastening the advent of the better conditions that could be visualized.

(To be continued.)

Rabelais as Medical Man.—The recent labors of Montgomery in the United States, of Maurel and Gillard in France (the latter in his graduation thesis, and of Cumston in Geneva) show the appeal of this subject to the moderns. Among the older French medical students of Rabelais may be mentioned Brémont, Le Double, Chambard-Henon, and Martin-Dupont. Maurel, mentioned above, devoted his study to the travels of Rabelais in Italy, but Gillard, in his graduation thesis, which has recently appeared with the title "Rabelais the Physician," gives a more general review of his life and activities. The great man had the advantage of a fine classical education and could read the medical writings of antiquity in the original Greek. He was at an early period an accomplished botanist. After qualifying as physician he corrected proofs of the medical classics published by Gryphe and met Champier, the leading practitioner of Lyon, who got him the position of resident physician in the local Hotel Dieu. The salary was forty pounds annually with keep. For a time he became a sort of combination man to the bishop of Paris—secretary and body physician—but returned to his hospital position where his continued absences caused him to be investigated. He moved about a good deal and at times probably limited his medical activities to the capacity of private physician to some prominent man and his family, although at a late date he was at the head of a hospital in Metz. In the meantime he had become famous by his pen and we must seek for his medical activities in his books.—*Le Progrès Médical*.

Miscellany.

NEW BOOKS AND OLD.

V. BENJAMIN RUSH ON THE RELATION OF DISEASED TEETH TO ARTHRITIS.

By JOHN RUHRÄH, M.D.

BALTIMORE, MD.

LAST winter in trying to estimate Rush as a pediatrician, I went over his published writings, not a dull task by any manner of means, but in spite of his fluent diction, I came away with the impression that it was his imitation of the great father of English medicine that earned him the title of the American Sydenham rather than any very definite contribution to the advancement of medicine. Unless I err as a pediatrician, he certainly fell short of that other old Revolutionary worthy, Samuel Bard. What interested me most was Rush's account of medicine among the American Indians, and some of his clinical descriptions. Very much to the point is his observation in "The Relation of Diseased Teeth to Arthritis." Thinking that few know of this contribution, I am reprinting it in this place. It would be interesting indeed to follow up the history of teeth and arthritis, but time and space forbid for the present.

Some time in the month of October, 1801, I attended Miss A. C. with a rheumatism in her hip joint, which yielded, for a while, to the several remedies for that disease. In the month of November it returned with great violence, accompanied with a severe toothache. Suspecting the rheumatic affection was excited by the pain in her tooth, which was decayed, I directed it to be extracted. The rheumatism immediately left her hip, and she recovered in a few days. She has continued ever since to be free from it.

Soon after this I was consulted by Mrs. J. R., who had been affected for several weeks with dyspepsia and toothache. Her tooth, though no mark of decay appeared in it, was drawn by my advice. The next day she was relieved from her distressing stomach complaints, and has continued ever since to enjoy good health. From the soundness of the external part of the tooth, and the adjoining gum, there was no reason to suspect a discharge of matter from it had produced the disease in her stomach.

Some time in the year 1801 I was consulted by the father of a young gentleman in Baltimore, who had been affected with epilepsy. I inquired into the state of his teeth, and was informed that several of them in his upper jaw were much decayed. I directed them to be extracted, and advised him afterward to lose a few ounces of blood, at any time when he felt the premonitory symptoms of a recurrence of his fits. He followed my advice, in consequence of which I had lately the pleasure of hearing from his brother that he was perfectly cured.

I have been made happy by discovering that I have only added to the observations of other physicians, in pointing out a connexion between the extraction of decayed and diseased teeth and the cure of general diseases. Several cases of the efficacy of that remedy in relieving headache and vertigo are mentioned by Dr. Darwin. Dr. Gater relates that Mr. Pettit, a celebrated French surgeon, had often cured intermitting fevers, which had resisted the bark for months, and even years, by this prescription; and he quotes from his works two cases, the one of consumption, the other of vertigo, both of long continuance, which were suddenly cured by the extraction of two decayed teeth in the former, and of two supernumerary teeth in the latter case. (*Recherches sur differens points de Physiologie de Pathologie et de Therapeutique*, p. 353, 354.)

In the second number of a late work, entitled, "Bibliothèque Germanique Medico-Chirurgicale," published in Paris, by Dr. Bluver and Dr. Delaroche, there

is an account, by Dr. Siebold, of a young woman who had been affected for several months with great inflammation, pain and ulcers, in her right upper and lower jaws, at the usual time of the appearance of the catamenia, which at that period were always deficient in quantity. Upon inspecting the seats of those morbid affections, the doctor discovered several of the *molars* in both jaws to be decayed. He directed them to be drawn, in consequence of which the woman was relieved of the monthly disease in her mouth, and afterward had a regular discharge of her catamenia.

These facts, though but little attended to, should not surprise us, when we recollect how often the most distressing general diseases are brought on by very inconsiderable inlets of morbid excitement into the system. A small tumour, concealed in a fleshy part of the leg, has been known to bring on epilepsy. A trifling wound with a splinter or a nail, even after it has healed, has often induced a fatal tetanus. Worms in the bowels have produced internal dropsy of the brain, and a stone in the kidney has excited the most violent commotions in every part of the system. Many hundred facts of a similar nature are to be met with in the records of medicine.

When we consider how often the teeth, when decayed, are exposed to irritation from hot and cold drinks and all airs, from pressure by mastication, and from the cold air, and how intimate the connection of the mouth is with the whole system, I am disposed to believe they are often the unsuspected causes of general, and particularly of nervous diseases. When we add to the list of those diseases the morbid effects of the acrid and putrid matters which are sometimes discharged from caries teeth, or from ulcers in the gums created by them, also the influence which both have in preventing perfect mastication, and the connection of that animal function with good health, I cannot help thinking that our success in the treatment of all chronic diseases would be very much promoted by directing our inquiries into the state of the teeth in sick people, and by advising their extraction in every case in which they are decayed. It is not necessary that they should be attended with pain, in order to produce diseases, for splinters, tumours, and other irritants before mentioned often bring on disease and death, when they give no pain and are unsuspected as causes of them. This translation of sensation and motion to parts remote from the place where impressions are made appears in many instances and seems to depend upon an original law of the animal economy.

Hospitals in the Middle Ages.—Coudeyras, writing in *Le Progrès Médical* for January 15, 1921, xlix, 3, considers this subject under the following heads: hospices, hospitals, infirmaries, maladeries, leproseries, and lazarettes. The *hospice* was a sort of shelter or inn for the sick traveler and was an annex to a monastery. Sick pilgrims were cared for by the monks and made a voluntary offering on their departure. Certain orders of monks specialized in these hospices. Next are mentioned *hospitals* proper, usually styled *Hôtels* (or *Maisons*) de Dieu. From the XII to the XVI centuries these institutions abounded in France. The buildings were usually erected near a water course and were not isolated but grouped with other religious edifices. The building for the patients was a large single ward suggesting the interior of a church in which beds corresponded roughly to pews. The same interior architecture and decorations were seen—stained glass windows, pillars and arches, and ornamental façades. A chapel adjoined, so that the bedfast patient could hear mass. The most famous of the earliest hospitals were found not in the large cities but in towns which are now barely known to the casual reader. One of the largest was at Compiègne and measured 200 feet by 50. There is no mention of the number of beds. The proximity of a river

facilitated the disposal of excreta, etc. In the ward there were usually no distinctions of sex, but individual beds were walled off by wooden partitions or curtains. Hot water and vapor baths were installed and the hospital walls were whitewashed, sometimes annually. Heating was accomplished by means of huge chimneys. At a later period there were sporadic attempts to separate the sexes and to install confinement wards. *Infirmaries* seem to have differed in no respect from the hospitals, save that they were restricted to the care of the members of large religious establishments; however, one of the oldest had separate wards for the public. This was associated with the Cistercian Abbey at Ourcamp. A *maladerie* seems to have been nothing more than a small infirmary, a sort of sick bay for the members of small religious houses. *Leproseries* were at one time so numerous that nearly 2,000 existed in France alone. This maximum occurred during the XIIIth century. In these buildings the lepers were permanently interned until death. Civil death was ceremoniously decreed on entrance into the leproserie. The status was not unlike that of the Carthusian nuns. Only a few remnants of these numerous installations still remain. The *lazarettes*, despite the suggestion of the name, were not intended for lepers but were the analogues of our pest-houses—vast barracks of buildings used during severe epidemics. They were always burned down after the termination of the epidemic.

The original Academy of Medicine of Paris.—In celebrating the centenary of the present *Académie de Médecine* in Paris it must not be overlooked that this is not the first society to bear the name. On September 24, 1804, a number of medical men met at the Hotel d'Aligre to found a society under that name. The object was to raise the standards of the profession and advance the art of healing. The president, or, rather, director, of the new society was none other than the redoubtable Dr. Guillotin, who was unanimously chosen. Napoleon's permission was asked to use the adjective "imperial" in the title of the society, but this was refused. There were bimonthly sessions. The rent of 15 francs per session for the hotel was a hardship to the few members, and the society obtained from the Government the use of the building known as the Oratory.

New applicants were required to pass an examination in Latin, surgeons were not eligible as full members, and the well-known Sedillot was obliged to declare himself a physician to gain admission. Nevertheless the enterprise prospered from the start. The first general subject to come before it was the use of bark in intermittent fever. By 1808 there were 163 members of all classifications, although but 35 were active titular members, the remainder being honorary or corresponding. Dissensions arising, the society ceased its existence in 1811, or rather merged into a new one with Portal as president. The Society of the Academy, a separate body of men, continued its existence, despite the factional fight. Guillotin, its president, died in 1814. The malcontents of the Academy organized under the name of the *Cercle médicale*, and the two factions were reunited in 1819, retaining the name of the latter body. In the next year the present *Académie* was organized, with Portal as first president.

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Original Articles.

THE PROBLEM OF A PSYCHOPATHIC HOSPITAL CONNECTED WITH A REFORMATORY INSTITUTION.*

By EDITH R. SPAULDING, M.D.
NEW YORK.

THERE has been much discussion during the last ten years regarding the exact meaning of the term defective delinquent and the types of individual that such a diagnosis should include. When appropriation was made in the State of Massachusetts in 1911† for an institution for the defective delinquent, it was generally supposed that all those who had been misfits in the various institutions to which they had been sent, namely, the mental hospitals, the schools for feeble-minded, and the reformatories, would be found to be defective intellectually as well as emotionally and therefore would be fit subjects for permanent segregation on account of their intellectual defect. When it was found on closer study that many, although defective in emotional control, ranked high when psychometric tests were applied, considerable doubt arose as to the legality of the commitment of such persons, if neither insane nor intellectually defective, no matter how ill they were fitted, on account of their irresponsibility and their lack of emotional control, to be members of the community. Accordingly, certain examiners agreed that the term "defective delinquent," as they used it for diagnostic purposes, should include only those individuals who were intellectually defective as well as delinquent. This may be considered a restricted interpretation of the term, but it is, we believe, the only accurate one. Should the term be used to include all cases with a personality defect of some kind, there would be few in the entire reformatory population who would escape such a classification. When the term is used to include that heterogeneous group of individuals that for years have constituted one of the most difficult of institutional problems, it is a misnomer and leads to misunderstandings and a confusion in diagnosis. Such a group should be called preferably psychopathic delinquents, and the word defective reserved for those who manifest intellectual limitations not in the sphere of judgment alone, but according to accepted psychometric standards. It is this group, in

which a psychopathic hospital connected with a reformatory institution should be interested, and which was the object of our study at the hospital at Bedford Hills* during a period of over a year and a half.

The cases selected will comprise borderline cases of mental disease, such as manic depressive cases showing much instability but not in an acute phase, early cases of schizophrenic and cases of cerebrospinal lues that are not committable, psychoneurotic and neurotic conditions, cases of epilepsy, and the many that may be grouped under the general terms of constitutional inferior or psychopathic personality and who are also subject to psychotic episodes. Since such a hospital must necessarily be, in so uncharted a field, a research laboratory, there should be included, with the cases showing obvious nervous and mental symptoms, all problematic cases with marked conduct irregularities. Many cases will remain in the hospital but a short time and can be returned to the institution proper after a period of observation, but the majority of cases will be the very difficult ones that, because of their emotional instability and unadaptable traits of personality, find it impossible to maintain their equilibrium for any length of time in the midst of the main institutional group.

While it is of great help to the institution to have these unruly members removed from its midst, it is no easy problem to manage them for any length of time in a single family group in which they must of necessity continually rub up against each other's idiosyncrasies.

For eight months the experiment was tried of managing the hospital as nearly as possible as any other psychopathic hospital away from a reformatory institution might be managed. No punishment of any kind was resorted to, except the occasional locking of doors when situations grew too tense and threatened to get beyond our control. Every resource possible was offered to stimulate interest and much individual attention was given to the different patients to help them to form a more constructive attitude toward life in general and their daily problems in particular. In spite of all efforts, however, there was continual unrest, friction, irritability, and dissatisfaction that was as trying and unsettling for the patients themselves as for the staff.

Besides hydrotherapy, which consisted of continuous baths, shower baths, and wet packs, there was for the twenty patients whom the hospital accommodated, a department of physical training and

*The Psychopathic Hospital of the Laboratory of Social Hygiene in connection with the New York State Reformatory for Women at Bedford Hills, New York.

*Read before the Women's Medical Association of New York City, October 20, 1920.

†Acts of 1911, Chap. 595, An act to provide for the maintenance at Reformatory for Women, the Massachusetts Reformatory and the State Farm of departments for defective delinquents.

an occupational department. A physical director had charge of out-door and in-door exercises and of entertainments in general. There was coasting and skating in winter, basket-ball, tether-ball, and croquet in summer, and volley ball, Indian clubs, dumb-bells, together with out-door tramping all the year round. In the occupational department there was basketry, weaving, embroidery, knitting and crocheting, rug-making, painting, carpentry, etc.

The most striking feature of the group was the widely differing personalities that were represented. One woman was an expert pickpocket who prided herself on her ability to steal from men better than any other woman in New York, with one exception. She had been alcoholic, a drug habitué, swore as easily as she breathed, was excessively irritable and had withal a keen intellect, a lively sense of humor, a dominating will, much vulgarity and a very penetrating, loud rasping voice. In the next room to her was to be found a very unsophisticated child of seventeen with an acute chorea, undernourished and anemic and meek and suggestible, seemingly a ready prey for the first patient. Again, there was a patient who for fifteen years had been a prostitute, who showed much delapidation of personality and who spent all her time trying to think up obscene words and jokes in several languages. If urged to do anything resembling work she would not infrequently lie down on the floor and scream; and exercise of any kind was entirely out of the question. Another patient was a colored woman who for years had associated with gunmen and who loved a good fight. In her personality make-up was to be seen the abandon of her race combined with much sentimentality and childishness together with great inflammability. Although a physical coward she was brave and audacious as long as she saw nothing in the hospital program to restrict her license.

It may be of interest to give here the following diagnoses that were made on the thirty-three patients and the eleven workers who were residents in the hospital. Among the patients there was one case of dementia præcox and one manic-depressive psychosis. These, with four unclassified depressions and a case of constitutional inferiority with psychotic episodes, were transferred to a mental hospital.

Thirteen cases were classified as psychopathic personalities. Of these, four were pathological liars or habitual fabricators. One of the four was also a border-line case intellectually; another was subject to attacks of migraine and showed great emotional instability; one had a multiple tic and one was feeble-minded and had latent lues. Four of the psychopathic personalities showed great emotional instability, one of these four having attacks of migraine, and another latent lues. Still another showed evidences of neurosyphilis and later on was transferred to a mental hospital; another showed marked paranoid traits.

Besides these cases there were three feeble-minded women with latent lues who showed much emotional instability; one manic-depressive constitution, an early case of paresis, two cases of chorea, one of torticollis, a case of epilepsy with a luetic infection, and two cases showing much emotional instability. Two cases that were admitted for ob-

servation and spinal puncture were discharged.

Among the eleven workers who were supposed to be more reliable than the patients, six were considered to have normal intelligence. Of these, however, two were luetic and one was very unstable emotionally. Four were feeble-minded, two of these having latent lues and one epilepsy; there was one border-line case who was also luetic.

Among the offences of these women were found four cases of grand larceny and nine of petit larceny. Twenty-two cases represented sex offences of various kinds and the remaining nine were for attempted perjury (1) receiving stolen property (1), possessing narcotics (1), disorderly conduct (1), vagrancy (2), and for contracting venereal disease (3).

While the group varied greatly from time to time, there were certain elements that were fairly constant; namely, much emotional instability with little power of inhibition, the play spirit in large measure, much childishness of the spoiled child type, strong primitive emotions, the clan spirit, and the antisocial grudge.

The majority of superintendents of hospitals for the insane, who have had in their care a group of four or five psychopathic women without facilities for separating them into different groups, appreciate the situation and recognize their inability to deal with them. Those who have not had this experience, however, understand with difficulty how the situation differs from that in the ordinary psychopathic hospital, or even in the ordinary boarding school attended by a difficult class of girls. I am going to describe a day at the hospital in order to give a picture of a few of the situations which, at the beginning at least, were daily occurrences, and which even with the best management possible and the greatest resourcefulness will, we believe, always be common.

A little after six o'clock in the morning loud screams are heard, piercing and agonizing, as if some one were being tortured by the methods of the Inquisition. The noise, however, emanates from Mary, the prostitute of fifteen years' standing, who thinks if she objects strenuously enough to her morning shower she will be sent to her room, thereby avoiding her morning's work, which consists in cleaning the bathroom. After this sound has gradually died down, but only after a prolonged argument between Mary and the nurses, loud talking and swearing by a very angry young woman is heard. A chair, basin, and water-pitcher are being hurled at a closed door, and the noise increases in such crescendo that it is necessary to go to the spot as soon as possible to discover the cause of the disturbance. It is found that the nurse, in giving out fresh towels, discovered that Mabel had an extra one that had been procured surreptitiously. The patient, a girl of nineteen who has always had a vicious temper and who occasionally warns us to keep out of her way when she is angry so that she will not injure us, implies that her personal rights have been infringed upon in not being allowed to have as many towels as she wishes. Undoubtedly a sense of guilt in having appropriated property to which she had no right accentuates her anger at being discovered. Hence, suddenly and without warning she strikes the nurse a fairly vicious blow, accompanying it with threats of further violence, delivered in a forceful language. When the door of the room is closed she picks up every available utensil to hurl against it.

At breakfast, at which this patient is in no fit condition to be present, being instead in a continuous bath, Grace, her boon companion, resenting the fact that her friend is in difficulties, deliberately makes uncomplimentary and insulting remarks about the hos-

pital, the food, and the nurses. She brings to the firing-line her entire force of profane and obscene language and is accordingly requested to leave the table. To this she replies that she will have to be carried out first and suits the action to the word by falling to the floor and kicking and screaming. After she has been removed from the breakfast group, all of whom have become greatly excited in the interim and have threatened to find similar outlets for their emotions, she proceeds to rip the sleeves of her waist from wrist to shoulder and otherwise deliberately tear her dress, later stating that the nurses did this in their maltreatment of her when they removed her from the diningroom. One nurse in particular on whom she swears everlasting vengeance, she accuses of giving her a knock-out blow under the chin. The following day, when brought face to face with this nurse, who laughingly says, "Why Grace, how could you say such a thing? You know that isn't true. Did I ever do such a thing as that?" she meekly replies, "Well, anyway, you put your fingers under my chin and lifted up my head."

After breakfast it is time for the biweekly treatments for venereal disease. According to laboratory tests, about forty-five per cent. of our patients were luetic and eighty-five per cent. had gonorrhea. Some of them had been sent previously to general hospitals for the treatment of these diseases and because they had refused to receive it while there they had been committed to the reformatory solely for the purpose of treatment.

Some of these patients have as little intention of receiving treatment now as they had then. Some of them represent borderline cases of mental disease and others are simply refractory through habit. Each group upsets the other. Persuasion is slow and discipline for the refractory not available. The hystericals and the epileptics are equally loath to undergo treatment, especially when that treatment consists in injections of mercury that may mean temporary discomfort. The antisocial group joins in complaining. Therefore, the clinic that would have lasted but forty-five minutes under different conditions, now lasts nearly two hours. Remarks like the following are heard: "I tell you I am not going to have any treatment this morning—I am sick of this damn joint. All you get is treatments, treatments, treatments. Can't you let me alone? Get out of here. Don't bother me. No, I won't go up there. If I do, she'll make me take it."

One patient, of a more playful disposition, is in hiding. After some search she is discovered sitting at the head of the attic stairs. Great shouts of laughter from her colleagues greet her discovery, followed by a demonstration of irritability and profanity on her part while she is being persuaded to descend. In spite of the fact that most treatments are eventually given, much effort has been expended in their accomplishment, and ingenuity and resourcefulness are often exhausted.

The housework, consisting of putting the rooms in order, making beds, sweeping and polishing corridors, and cleaning bathrooms and stairs, has been attended to, for the most part, by the nurses this particular morning, since many of the patients are incapacitated. Mary, our first patient, contrary to her expectations, was not sent to her room and so was fully able to care for her bathroom as usual. A new nurse, inexperienced with reformatory women but well versed in the ways of nursing, has just arrived to take charge of Mary's corridor. She discovers Mary hurling full pails of water over the bathroom floor and then attempting to mop up the flood. When the nurse remarks about what appears to her a rather unusual procedure and remonstrates with our patient, Mary insists that she is supposed to do it that way. Later, when asked why she took advantage of the nurse's inexperience Mary remarked, "I was just giving her a test to see if she was feeble-minded. You test us, why shouldn't I test her?"

The time now arrives for one group of patients to go to the occupational room and another to go out for exercise of some kind. Later in the morning the two groups change places, the first going out while the group that has been out of doors goes to the occupational room. One of the first group, Augusta, has taken a sudden dislike to occupational work of all

kinds. She had been working for some time on a rug that was to have been given away at Christmas, but becoming bored by the work as she frequently is by anything that lasts several days in succession, she swears that she will never work on it again even if it is not done by Easter. After several days' delay, during which time the loom is not in use, the work is given to someone else in order that it may be finished for Christmas. This results in great discouragement on the part of Augusta, who vows she will never again attempt work of any kind. This spirit is contagious. Others refuse, too, heaping abuse at the room and all in it, being led on by the clan spirit that makes all follow blindly where one leads. One patient, Vida, has been told by another patient that she will have to sew in the occupational room and make her own night dress as the supply is short. She leaves the room this morning swearing and insists she will never return. Although assured by the instructor that other work will be found for which she does not entertain such feelings of abhorrence, she insists, throughout her entire stay in the Hospital, upon anticipating that the sewing will yet be forced upon her and she can never be persuaded to remain in the occupational room for any length of time. This Vida is older than the others in criminological experience and she uses profanity as naturally as she breathes, and moreover almost as unconsciously and nearly as steadily. Furthermore, she is exceedingly unstable and her mental condition is such that it may be necessary to transfer her to a hospital for the insane. It is impossible to prevent her profanity. The slightest irritability brings on an emotional storm. In the meantime, and as a result of her influence, profanity becomes the fad of the hospital. All her followers—and she is decidedly a leader—vie with each other to see who can use the most. The habit is even adopted by those who have never before cultivated it.

The group to go out of doors is also out of sorts this morning. They don't feel like working in the garden. What do they care if the whole country is planting gardens, they don't have to; and what is more, they won't. One girl states that she has been sent here for nothing and that therefore the State owes her a living while here. Accordingly she intends to contribute nothing herself towards her maintenance. Another girl, who has just been operated on for tuberculous glands, and who has been ordered by the physician to stay on the sleeping-porch, refuses to leave her room. When every means of persuasion fails, and because of the fact that she is losing ground, it is thought best to insist on her obeying orders and carry her out. Whereupon, as she has never in her life been made to do anything she does not like, she retaliates by trying to trip the nurses up, biting and kicking, like a naughty girl of five, but with the strength of a grown woman. This proceeding is accompanied by screams and wails that can be heard nearly a mile away. Upon reaching the porch she throws herself down on the cold floor and continues the crying, so that for the peace of the whole neighborhood she has to be taken in the "quiet room" where she stays until the paroxysm passes. After this episode, the patient writes a long letter of repentance, in which she promises from now on to be good and to help those who are trying to help her. A few days later, however, a similar performance is likely to occur.

In the meantime, loud and angry voices arise from the kitchen where our so-called workers, also reformatory girls but supposedly more stable than the patients, are attending to the cooking and laundry. Rushing to the scene we find two angry colored girls attacking each other with the clothes stick and the stove lifter, respectively. Attempting to separate them is as dangerous as interfering in a dog fight. However, it must be done and one girl is finally extirpated, led upstairs and persuaded to allow her temper to cool down in a prolonged bath while the other is induced to remain in her room for the present. The superficial cause appears to be that Florence refused yesterday to help Martha remove the clothes boiler from the stove. Martha, not liking to risk a second refusal, applies this time directly to the matron for help. It angers Florence so much to have the matron know of their disagreement that she loses her temper and strikes her

friend. This, however, is Martha's side of the story, and we learn from other sources that Martha has a deep affection for Florence that has recently been discouraged by another of Florence's admirers. Martha has a mortally jealous disposition and moreover, a record of quarreling with everyone with whom she has worked, so that constant changes have been necessary in order to maintain any degree of peace. The laundry, however, is a large one. It must be finished this week and today is Friday. There is no one among the patients who can act as a substitute. These two must return to their work. But in this situation emotions of the most primitive nature have been aroused. There has been friction for some time and anger and jealousy so keenly aroused do not subside immediately. We try persuasion. Florence, a large, rather masculine type of negress, says ironically, "I am afraid to go back. I might get hurt and my face injured and then how would I look?" Later she says, "I guess we just can't get along together." Nothing more can be obtained from her regarding the cause of the disagreement or the prospect for the week's washing. Furthermore, she is not at all sure that she will not repeat the attack and even kill her opponent at the first opportunity. Still, that laundry must be finished, so they are told that they must return for the present but that some adjustment will be made in the near future. It is now quite apparent that they will probably never be able to work together amicably. This afternoon when the kitchen is unoccupied the young women return to their work with an accompanying nurse who stands in readiness to separate the two tigresses if the war should break out afresh. Primitive fires of that kind do not die down, however, and continued friction ensues until it is possible some days later to make a permanent change in the laundry force.

At the dinner hour Alema makes a remark detrimental to the food, that this time applies to the cook rather than to the management, whereupon Aggie, the cook, remarks that it is all very well to criticise the hospital and the nurses but she needn't think that her fellow prisoners are going to stand for criticism of themselves. A racial argument ensues, during which one girl rushes to her room in tears and the other is invited to go to her room on account of her disturbing actions and abusive and profane language.

The rest period of an hour after dinner was at one time taken on cots on the sleeping porch with one of the nurses reading aloud. This, however, appeared to be the cause of so much friction among our extremely irritable and sensitive population that it was thought best for the girls to spend the period alone in their rooms. This is the only time during the day when the room doors are locked, except in cases of emergency, and the effect on the patients of being definitely separated during this time is good. Without the lock and key the rest period is replaced by a time for much visiting in the corridors and at different doorways, which when interfered with results in renewed outbursts. The sex proclivities of these women must also be recognized, and, while nagging and apparent supervision must be done away with, they must be closely watched. The rest hour, then, in spite of our efforts to make it a real rest hour, is today rather disturbed. Still there is no serious outbreak and except for the sobs of one patient who curses the institution that prevents her from seeing or communicating with her lover, and the replies of others that come from various rooms, some sympathetic and some scolding, it may be said to be quiet.

In the afternoon some workmen arrive to put in electric lights. This is most disconcerting to the patients and every conceivable ruse is resorted to that will give them an opportunity to show off in the workmen's presence. When asked to do a simple task, one retorts "Go do it yourself, do you think I'm your slave? We'll show you nurses who's boss about here." Another will cleverly pick the workmen's pockets in passing (even while a nurse is in the immediate vicinity) obtaining matches and tobacco, as we learn afterward, with which to regale herself in the midnight hours.

Later in the afternoon a patient who has been much depressed since her entrance to the institution, because of what she considers unjust confinement, and who has been disturbed during the day, laughing loudly or wail-

ing, as the case may be, now becomes infuriated because a nurse has dared to bring her another eggnog. Being disgusted with the liquid diet on which she is kept on account of some gastric disturbance she throws the eggnog, glass and all, across the room, laughing with much glee as she does it. Later she overhears a remark made by another patient which she considers detrimental to her race, and, becoming much excited, she tears her hair and screams to the full capacity of her lungs. The excitement continues and as prolonged baths appear to have an undesirable effect it is decided to put her in a pack. At this she appears to be terrified and as she promises to be quiet, the preparations are discontinued. A half hour later, remembering again the insult, the screaming recommences. She is taken to the "quiet room" and given the pack, the whole force being required to accomplish it. After struggling at intervals for half an hour, she succeeds in getting out. However, she is now willing to go into one again without resistance and is decidedly helped by its sedative influence.

In the recreation room in the period before supper (the occupation groups and the out-door groups having had periods in the afternoon similar to those in the morning), Mamie, in order to draw attention to herself, begins without apparent provocation, to see what she can accomplish in the use of profane and obscene language. Vida, who has known her "on the outside," and who knows only too well the language capacities of both, is irritated beyond control by such unproductive language and suddenly attacks her with her own weapon, pouring forth such a flow of undesirable phraseology that Mamie, famed as she is for such talk, is stunned into silence. Vida, delighted at her achievement, laughs loudly and feels that the joke is such a good one that the doctors must certainly be told so that they also may appreciate it.

Let us suppose that supper is accomplished today without incident. In the recreation room afterward there is card playing in one corner, with a nurse making up one of the four, while the gymnastic teacher is showing some of the others some new dancing steps. A new patient has recently arrived. She has been looked upon with suspicion by the others, who fear that she will "rat" on them, telling their secrets. Many insinuating remarks have already been made in her presence and the newcomer, who in truth is anything but a worm, is about to turn. Enraged suddenly by a remark she believes intended for her, she sends the pack of cards she holds in her hand flying across the room at the speaker. It misses the target but hits another girl in the eye. The victim swears eternal vengeance and will have her blood. They grapple. Girls and nurses fly to the rescue. They are finally separated but most of the patients have to remain in bed the next day as a result of the various blows and injuries that they have received. Again the continuous bath is used and the attacked girl, who has been tearing her hair out by the handful, finally quiets down and asks that she may be allowed to spend the night in the "quiet room" in order to be spared any further noise and excitement.

Bed time comes. The excitements of the day make all the patients very talkative. Several are afraid to have their lights put out and are given permission to keep them lighted. Others of less nervous temperament do not wish any one to have a privilege that they cannot enjoy, and they sit crocheting or finishing some bit of embroidery that will bring a slight remuneration, refusing insolently to have their lights put out until a late hour, a fact that naturally enough increases their irritability the following day. And so our hospital day at length draws to a close.

It is well known that some of the most difficult cases found in penal institutions have never responded to disciplinary measures. It is these cases that are not infrequently transferred to hospitals for the insane, where some of them do well, making it appear that cases of this nature may be treated as mental cases with good results. Whether or not such treatment could be successful with a group of this kind, either apart from an institution where

discipline must necessarily be a factor, or in some other experiment connected with a disciplinary institution, we are unable to say. We can, however, show the factors that have complicated our own experiment.

While dealing with a reformatory group, and admitting the various problematic cases to the hospital for study, there will always be individuals who show no marked mental abnormality, but who, because of certain traits of character such as extreme childishness and excessive egotism, take advantage of the knowledge that no punishment or deprivation of privileges will follow, no matter what disturbance they may cause. They voluntarily instigate as much trouble as possible to try out the new system, and cheer over the fate of their fellow inmates in the next cottage whose conduct is controlled by other methods. As can readily be seen, this license, either in the form of riotous behavior or merely the intentional infringement of any rules laid down for the rest of the institution, has a most disastrous effect on the morale of the neighboring cottage.

The fact that the girls feel that they are being treated as *patients*, possibly of a mental nature, arouses their suspicions and touches a sensitive point that is perhaps a half-knowledge of their own instability. The entire group dub the hospital a "nut house" and surround it with all the suspicions and prejudices that are felt among the laity for hospitals for the insane. "If you go up there they'll operate on your brains" is commonly heard from the campus. The fact that the hospital patients are allowed more freedom and are not corrected to the extent that the reformatory inmates are for minor details, simply enhances this impression, and they are frequently heard to say, "Well, if the other girls consider us nuts, let's live up to the reputation."

It sometimes seems as though the psychopath has a more or less conscious sense of inferiority, when she compares herself with her reformatory friends who have more stability than she has, for which she tries to compensate by accentuating the recklessness and abandon that is natural to her. When the same patient is sent to a hospital for the insane and suddenly finds herself on the disturbed ward in the company of extreme mental cases, the feeling of inferiority is to a certain extent replaced by one of superiority. She realizes for the first time what complete loss of control means and she uses every effort to remain in the superior rather than to sink into the inferior class. One of these girls will say, "It made me realize what I was doing and what would happen to me if I kept on, so I just kept out of trouble."

Again the more abnormal a girl is the more suspicious she often is of any kind of mental hospital, and when she knows that it has frequently been necessary to transfer patients from this building to a hospital for the insane, she fears intensely that this is indeed but a stepping stone to such a hospital. The close relationship that is necessary in such a group as this only accentuates the unpleasant impression made by the transfer of a single individual to whom they have become attached. It is as though one of their own family had been transferred from their midst to a hospital for the

insane. Furthermore, the delinquent woman as a rule considers a prison Heaven when compared with a hospital for the insane. A patient will say tragically, "She has gone, and her young life is blighted. She wasn't insane. She had a good heart. I'll be the next to go, I know. You are just taking your time."

All this may serve to suggest the amount of re-education that must take place in reconstructing the patients' mental attitudes. Some of their fears, of course, can be allayed in the course of time, but it is difficult to maintain an atmosphere in which such fears do not predominate.

Another complication results from the fact that in such an institution it is necessary to rely on the more stable reformatory girls for the work of the hospital. The patients themselves are too unstable to be depended on. It is too expensive, and in other ways undesirable to employ workers from the outside. But those who are familiar with the reformatory situation nowadays know that the tendency of the judges is to place the more dependable girls on parole so that the reformatory population is made up largely of the most difficult cases that go through the courts. For this reason even the workers are none too stable and are kept up to the best standard of the institution with difficulty. This means that a standard of behavior will be required of the workers that is not possible with the patients and the double standard is at once a source of difficulty. The question may be raised as to whether discipline in any form is necessary in such an institution. We gave the experiment a trial and were not successful without it. The friction was constant and the hospital morale sunk to its lowest level.

The following incident may serve to illustrate what became only too common an occurrence. The cook, Louise by name, one of the colored inmates of the reformatory, usually had her room cared for by one of the patients. As she was over-critical of the results and frequent quarrels ensued, one after another of the patients refused to do it, and the task finally fell to one of our well-paid nurses. One morning the nurse allowed a few cracked nuts to remain on Louise's table supposing them to be considered of value. Later in the day an irate colored woman called the nurse to account for her negligence in the most insolent manner possible, adding that she had found a few hairs on the floor on the day previous and that such inadequate care of her room must not continue. Had the woman been an irresponsible patient, such an incident would have had no significance, but coming from a supposedly normal individual on whom the hospital was depending for its daily sustenance, and who could neither be treated as a patient, dismissed as a cook, nor disciplined, it and its sequelæ became serious. Not only did it express to a great extent the result of freedom allowed other inmates who were patients which had been quickly converted into license, but furthermore, coming from a so-called "worker," it aided in influencing in its turn the patients. Continual criticism of everything was common and no sense of responsibility could be aroused as one retort to every appeal was—"We shan't be punished, so what do we care? If we don't want to work or behave, we won't have to."

The prevailing idea in the hospital at one time was that the nurses were "too d— fresh" and that they must be put in their proper place and shown what they were there for, namely, to do all the work and wait on the patients.

The question of what discipline is, and how it may be administered is a subject on which volumes might be written. It is only possible to say here that we have found that a definite set of rules, correlated with a deprivation of privileges, administered always from a therapeutic point of view, even though by a layman, was very helpful in influencing the whole atmosphere of the hospital. There are undoubtedly cases in which exceptions must be made, but it is much easier to make exceptions in disciplinary measures in a few cases than it is to control the emotional reactions that occur in the psychopathic patients in general as a result of the license that follows when the disciplinary measures that are needed by the majority are suddenly withdrawn. We might say that the condition which resulted at the beginning of our experiment from bringing a certain class of difficult patients from a disciplinary environment, into a hospital atmosphere, suggested strongly the chaos that existed during the reconstruction period after the Civil War, and the revolutionary conditions that have followed the great war.

In studying the best methods of attacking the problem of the treatment of the psychopathic delinquent we sought the council of various eminent psychiatrists. One argued that, as many of these women represented primitive types, they should be allowed as much as possible to seek their own level, instead of having forced upon them a degree of civilization to which they were unable to conform. However true this may be theoretically, the practical result of following out such a method would be a Bedlam in which it would be difficult to formulate a constructive plan of any sort. With such a theory the progress or amount of civilization necessary to catch up in the least degree with standards of the present day, would take a period of time, covering several generations. The most rational method of attack, we believe, is, as far as possible, to reduce the environment to the simplest possible factors, to make it correspond rather to the environment of the child than to that of a primitive race. In this way, if the environment can be reduced to its simplest factors, the individual can begin with the situations he should have learned to face as a child. Gradually his responsibilities can be increased until as a reliable member of society his energy is finding adequate constructive outlet instead of exploding spasmodically at the slightest obstacle. In order to carry out this idea, it was the aim of the hospital to maintain as peaceful a level as possible in which outward irritation or disturbing influences were reduced to a minimum, in which there was a certain repression, if you will, of the most primitive characteristics, but at the same time a corresponding outlet of energy of a constructive nature. In other words, while an effort was made to discourage the loud laugh which, instead of being a healthy outlet, is frequently, if continued, the forerunner of an emotional explosion, which it is impossible for the patient herself or for anyone else to control, at the same time a variety

of interest was continually furnished, and the attention, as in the case of children, was diverted to something of a constructive nature.

Aside from the hospital spirit, the following resources were available for reconstruction:

Physical.—The women were first put in the best physical condition possible. A special requisition was made in the budget for extra food, such as milk, eggs, etc., that might be used to correct conditions of malnutrition. Funds much greater than were then available for the treatment of venereal disease in the State institution were provided for its intensive treatment. Physical defects, such as poor vision, carious teeth, etc., were corrected. A physical instructor had charge of the girls certain hours throughout the day, supervising the outdoor exercise as has already been described.

Mental.—Prolonged baths were found to be both popular and helpful, and their use was considered a privilege by the majority of the patients. Wet packs were used in acute excitements. Only in such a small group as this can the individual attention be given to each patient that is necessary in helping her to adjust herself to her environment, and gradually to assume responsibilities never before accepted. Such treatment includes the painstaking analysis of the individual through first winning her confidence and later unearthing her complexes and helping her to reconstruct the available material in her mental make-up.

Educational and Social Resources.—These included school work, stenography and typing and the occupational work already described. Among the social activities of the group were short plays and many small entertainments. The amount of attention and strain accompanying the acting of a small play is more than such a group of unstable individuals can stand. There ensues usually an emotional reaction that makes such attempts undesirable. For this reason the entertainments were made as simple as possible.

In order to stimulate individual initiative and promote self-reliance and to inculcate a spirit of cooperation, a club was organized. Though it is recognized by those who have had the most experience in self-government that a group such as ours can gain little, if anything, from such procedure, it was possible to organize a club that represented an effort to adapt to our own very variable group the idea of self-government, used to such good advantage in more reliable communities. The name chosen by the girls was "The Peacemaker's Club," the seemingly ironical title being the result of their own consciousness of their constant irritability and continual fighting. Later on, a system was evolved that was a combination of the campfire organization and a well-known credit system. However, neither of these plans was sufficient in itself to stimulate coordinated effort among the patients and any results obtained were too short-lived to be of much value.

It is interesting to see the attitude of nurses and teachers, who are confronted by a situation such as ours, after years of work attended with much success in hospitals for the insane. They approach the problem with a knowledge of their previous success, and much to their surprise discover before them an entirely different problem.

One nurse, who had been of inestimable value in the management of mental patients, said, as she was leaving in dismay before half her allotted time had expired, "But I cannot help you. You don't want me. What you want is a disciplinarian. I have never met anyone in my years of experience who has responded so little to kindness as these patients." It is true, I believe, that we needed a disciplinarian, but that was only the smallest part of our need.

A teacher, who had had years of experience in interesting successfully the patients of a hospital for the insane, said, "I have certainly had the conceit knocked out of me. I didn't dream, in spite of what was told me, that it could be so difficult. Anyone who can manage to hold their interest and attention has a hard undertaking before her."

As we have already stated, the attempt was made to introduce the routine of a true psychopathic hospital as far as possible without the use of disciplinary measures of any kind. After trying for many months to find some way of stimulating initiative and a constructive independence without discipline, the attempt was finally abandoned and a disciplinary officer was appointed to take charge of situations that seem to warrant it. Her sympathetic understanding of the women brought out their best rather than their worst side, and made of discipline *per se* an added asset in furnishing a temporary prop to start these unstable and inflammable women on a progressive rather than a retrogressive journey. One of our most difficult girls, when trying to sum up courage to have a spinal puncture performed, said of this very matron, "Call Miss R. I don't know how she does it, but she can make me do anything." And, "Oh, well, no one can be cross with Miss R."

Conclusions.—Those who have dealt with a group such as I have described in the midst of a larger and, in itself, a difficult group of emotional, unstable persons, either in a hospital for the insane or in a reformatory institution, have realized for years the need of an institution where such patients could be segregated in order to promote the stability of the larger group and also to give to the few the amount of outlet and individual attention necessary. That there is such a need is obvious. But that it can be met by placing such individuals together, at least in a single group, is not yet proved. The problem, which will vary always with the individual members of the group at a given time, may not be solved for many years to come.

The chief function of such a hospital connected with a reformatory institution should be to differentiate types. In the initial examination made of each woman on entrance to the institution any cases needing immediate transfer to a mental hospital should be recognized before they join the general population of the institution and should be sent to the appropriate institutions without going through the psychopathic hospital. While this number is small, being in our experience but 2 in 100, it is of much importance. Cases doubtful in nature should be sent to the hospital for a period of observation. The majority of cases, however, that are recognized as being markedly unstable at entrance belong to the hospital throughout their entire residence in the reformatory. It is by removing the

more unstable ones from the general population that the institution proper is given a chance to maintain a higher standard in morale and the psychopathic individuals themselves are given the best chance to maintain their highest level. The hospital should also be equipped to take for study and observation any patient who presents a special behavior problem in the institution proper.

It is in the management and treatment of the resulting heterogeneous group that the real difficulty of the problem lies, because a fairly stable background is necessary as a foundation for reeducational procedure. The most important factor then consists in finding a social level into which they can best fit so that as much effort as possible can be expended on their individual reconstruction. This reconstruction of personality should consist, generally speaking, in efforts to socialize their egotism. It should include any therapeutic measures that will benefit the physical condition of each woman, the stimulation of healthy interests and activities, and the unearthing of mental conflicts that have kept the personality from developing beyond infantile levels; and find ways to counteract feelings of inferiority, to sublimate primitive desires, and build up the weakest points in each personality whatever they may be.

418 WEST TWENTIETH STREET.

THE SCIENCE OF LOGIC VERSUS INFLUENZA.

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IN the Field of Thought embraced by the Science of Medicine there is no such thing as metaphysical certitude. The certainties of to-day are the doubts of to-morrow. In this realm there is no place for dogma or ex-cathedra speech. In the final analysis practically every medical question remains debatable. The writer recognizes the obvious. He has hesitated a long time before presenting this article to the medical profession. Just how long will appear from the following. This paper, conceived in 1906, was first drafted in 1916, was vamped and revamped as events demanded, partly to keep it up-to-date, but mostly to tone down its style, against the possible charges of dogmatization and aggression. As it is presented to-day it represents the irreducible minimum, the *sine qua non*, of the writer's argument. If in spite of this it remains unusual in form, and too vigorous in language, he craves the reader's indulgence. He prays him to eliminate mentally these admitted personal defects, that he may concentrate on the larger issue involved. He reminds him that in the years 1918-19 8,000,000 souls crossed the bridge from Time to Eternity as a result of the subject under discussion. It is extremely important that these dead shall not have died in vain. No avenue of Hope, however seemingly remote, should remain unexplored.

The writer feels that under these circumstances his request for the reader's toleration will be granted.

In the year 1906 the writer began the study of the influenza problem. The following conclusions are the result of this study: (1) The medical prob-

lem of to-morrow is the sanitation of the nasal sinuses. (2) The search for the causative organism of an unknown disease should always include the mucosa of the nasal sinuses. (3) The disease influenza does not exist. (4) Nasal sinusitis, a well established respiratory disease, at the gateway of the human economy, is the only respiratory disease which has not a chapter of its own in the general text-books of medicine. Why is such an important disease so omitted? (5) The burden of proof is upon those who assert that a nasal sinusitis, at any time, under any circumstances, is a complication. The writer does not exclude dental conditions from debate. (6) For anatomical reasons it would be better to use as a generic term, the expression "infection of the lateral nasal wall," reserving the expression "nasal sinusitis" for specific diagnosis. (7) Putting aside the interesting question of the lymphatic drainage of this area, the nasal sinuses stand in direct venous connection with the right heart, by three main routes—the facial vein, the ophthalmic vein, and, through the foramen cecum, the coronary and longitudinal sinuses. What this means to the lungs and brain is self-evident. (8) This blood-supply and the phenolsulphonephthalein test, to be described later, have suggested to the writer the following addition to the treatment: If the proper therapeutic agent could be provided, be it bactericide or serum, the ideal site for injection would be the lateral nasal wall, and preferably the inferior turbinate, because of its vascularity. The writer would hope in this manner to short-circuit the infection at the source, and also to follow it through the system on its own elected route. (9) The diagnosis of nasal sinusitis is never eliminated until it is ruled out by the microscope. This fact is to be borne in mind in the study of non-secretory infectious diseases. (10) One attack of nasal sinusitis does not protect against a future one.

In this paper the writer proposes to analyze the disease influenza in the cold calm light of Formal Logic.

Logic is the science of the laws of thought. It is the science of right reason. It holds no brief beyond the grave. On every human question requiring solution the science of logic supplies the ultimate "why?" and "wherefore?" which reason demands. It is the science of all sciences. Upon it all other sciences are based.

Every science has its primary laws or axioms. If logic is really the science of all sciences, we must find in its first principles that which is the foundation, not of logic alone, but of all other sciences. Whatever be the subject-matter, out of all things in heaven and earth about which we think, those first principles must be accepted as supreme, irrefragable, universal, immutable, eternal. The science of medicine is based upon these principles. Therefore the truth or falsity of a medical idea will be determined by this court of first principles. The "influenza" problem must acknowledge this jurisdiction. The disease "influenza" must stand or fall by the verdict of this court.

Before we enunciate these first principles, let us consider proof. There is a double method of proof. We may prove a thing either directly and positively, by showing from certain positive principles respecting it that it is so, or indirectly and negatively, by

showing the impossibility of any other alternative. It is clear that positive or direct proof is better argument than negative or indirect proof. The former teaches us immediately what things are. The latter teaches us what they are only by an inference from what they are not. Positive proof, moreover, not only teaches us what things are, but gives us an insight into the reason why they are so. Negative proof in its final result never gets beyond the conclusion that something that was in dispute is really true.

One further word before we take up the real subject matter of this paper. Everything must either exist in itself or it must inhere in something else. In the first case it is a substance. In the second case it is an accident. Accidents are nine in number. When added to substance they form the ten categories of Aristotle. If we say anything about some object which has an existence of its own, we must speak either of its quantity, its quality, its relation to surroundings, of what it is doing or what is being done to it, of the place or time of its existence, or of its position or external belongings. These categories are enumerated in the following distich:

Summa decem: Quantum, Substantia, Quale,
Relatio, Actio, Passio, Ubi, Quando, Situs,
Habitus.

With these things premised we may proceed to lay down in order the principles or primary laws of logic, and not of logic only, but of all science and of all truth. These laws are *a priori* propositions which no rational man may deny without committing intellectual suicide. It is not the province of this paper to explain them. A mere statement of them with their concurrent application to the influenza problem is the writer's objective. (1) The principle of contradiction. (2) The principle of identity. (3) The principle of causation. (4) The principle of excluded middle.

1. *The Principle of Contradiction.*—The foundation of all proof, direct and indirect. First and foremost, implied in and underlying all other principles. It may be enunciated thus: Nothing can at the same time exist and not exist; influenza cannot at the same time exist and not exist.

This principle is called the first principle because it concerns itself with being as it is related to non-being. What is this relation? Obviously one of exclusion or contradiction.

A. The medical profession has ignored this principle in its consideration of the disease influenza. Without a scintilla of proof, direct or indirect, positive or negative, it has taken the existence of influenza for granted. When it asks, "What is influenza?", it implies that the existence of this disease is established. This is unwarranted assumption. This existence has not been established.

B. Under these circumstances the writer denies the existence of the disease influenza. He offers as negative proof the fact that the medical profession has failed to establish this disease. He offers positive proof that this disease does not exist by supplying an alternative condition, which in substance and in category fulfills all the necessary conditions of the unestablished disease influenza. This alternative is nasal sinusitis in epidemic form. An established entity, standardized to Koch's laws.

The first principle of logic is the natural foe of the fallacy known as *ignoratio elenchii*, and of its child the *petitio principii*. It does not allow us to evade the issue (which is the existence or non-existence of the disease influenza) by discussing or attempting to discuss the nature of influenza, or the truth or falsity of the writer's alternative. What it demands is proof that the disease influenza exists. It has received no answer.

2. *The Principle of Identity*.—This second principle is the foundation of all definition and of all demonstration; it is of all definitions the most universal. It is enunciated in the formula: Every being is its own nature, or, Every being is that which has an essence of its own.

Essence is defined in logic as that which makes an object what it is. Essence is also called the quiddity (*quidditas*), because it answers the question, What is this? *Quid est hoc?* In order to discover what is the essence of an object we must ask: If I took away this or that quality, if I reversed it, would its nature simply remain the same as before, save only that this one attribute has disappeared? If it would, then the attribute in question is not the essence. But if there would be a general change in the whole nature, a general disturbance, then such an attribute belongs to the essence and is part of the inner nature.

Let us apply this principle to the disease influenza.

A. What is influenza? What is its essence? What makes it what it is? Let the medical profession answer. That answer is that it does not know. Some few there are who say that it is an acute respiratory disease. This may be true or false. The physician who has seen influenza only in its gastric or nervous forms may doubt it. The fallacy of the definition lies not in its truth or falsity, but in the fact that it is a universal definition, when that which is sought is a particular one. To say that influenza is an acute respiratory disease is to classify it. Classification is not identification. This definition is an obvious *petitio principii*.

It is a fact that the medical profession cannot identify the disease influenza, either in logic or in practice, as the diagnostic errors will testify.

It has established an artificial identity, giving it the name influenza. Any other name would be equally fitting.

B. Under these circumstances the writer maintains that the name influenza is a misnomer, and that the disease known to the medical profession as influenza is actually another disease, namely nasal sinusitis in its epidemic form. To show how he arrived at this conclusion, a word of explanation becomes necessary. The writer first became interested in the disease influenza in the year 1906, and began a study of its literature. He found it, as have others, a kaleidoscopic disease. Nevertheless there was something familiar about it, which he was at a loss to describe. In this contingency he attempted to find one or more constant factors which might prove to be a key to the solution. With this in mind he discovered that all authorities from Weichselbaum to Osler were agreed that purulent nasal sinusitis was constantly found in this disease. Here was a constant factor. What was more important was his discovery that this

was the only admission of constancy in this most variable disease. In influenza, therefore, the sole constant factor was a purulent sinusitis. This was true on the highest authority. Rereading any standard article on influenza, with this fact in mind, the writer found that he was reading the history of a severe, but nevertheless, normal case of nasal sinus infection in epidemic form. He became convinced that the essence of this disease was nasal sinusitis.

Accordingly, in the year 1916, he wrote an article entitled "Epidemic Nasal Sinusitis; Influenza and Grippe Its Misnomers." This article was published in the MEDICAL RECORD, May 27, 1917. In the writer's opinion, therefore, the essence of this disease was a purulent nasal sinusitis.

In the year 1918 the world was visited by a new condition, which puzzled the profession. It was not influenza, but it seemed to be so closely allied to it that it was given the name of Spanish influenza. This was partly to distinguish it from true influenza, partly because it was first noticed in Spain. The situation now was that we had two diseases of which we knew nothing, instead of one.

The writer, however, immediately searched for his constant factor, purulent nasal sinusitis, and found that it was absent. This confirmed him in his opinion that this factor was the essence of influenza. When it was present he had influenza, when it was absent he no longer had influenza, he had something else.

But this something else, Spanish influenza, was a very closely allied condition. If purulent sinusitis was the essence of influenza, another kind of sinusitis might be the essence of Spanish influenza. In other words, was not the difference one of form and not of substance? The writer thought so, and in the *Boston Medical and Surgical Journal*, Nov. 28, 1918, described Spanish influenza as an acute mucous sinusitis, using this formula to express himself: "Acute Mucous Sinusitis is to Acute Suppurative Sinusitis as Spanish Influenza is to Influenza."

The autopsy reports of this epidemic seem to have confirmed this contention. Most of these autopsies were performed during the war and the sinuses were examined macroscopically, and not microscopically. In spite of this the sinuses were found filled, not with pus, but with mucus in percentages varying between 80 and 95 per cent. of the cases. Had the microscope been used it is a fair inference that it would have been 100 per cent. Once again we had a constant factor, the essence of Spanish influenza—a mucous sinusitis. That these facts may take on the semblance of authority the writer quotes the verbal and written opinion of the President of the American Rhinological, Laryngological and Otological Society, based on autopsy reports up to the year 1919, "that the sphenoid sinus would seem to be established as a focus in influenza." In the writer's opinion it is much more than a focus, it is the essence. The surprising thing was that sinusitis was never suspected clinically. Some physicians pointed to the fact that in Spanish influenza the patients were suddenly stricken and collapsed. They did not think it was possible that a nasal sinusitis could do this. The writer had to demonstrate that this

was not only a possibility, but a practical certainty.

In this contingency he thought of the phenolsulphonophthalein test of kidney function. Injecting this dye into the lateral nasal wall, submucously, he was able to recover it in the urine in the average time of 20 minutes. Sealing the ostium and the point of entrance of the needle, he dropped 1 c.c. of the dye into the antrum, and recovered it in the first 24 hours amount of the urine. This shows the approximate rate and potentialities of absorption from the nasal sinuses, and should silence objection to the category of time (*quando*). This experiment is described in the MEDICAL RECORD, Jan. 24, 1920.

With this somewhat long preamble the writer presents his

IDENTIFICATION TABLE.

What is this disease? This disease is its own nature.

- (a) Genus: Acute respiratory disease.
- (b) Species: Epidemic nasal sinusitis.
- (c) Essence: Acute inflammation of the nasal sinuses.

FORMS.

- 1. Mucous.
- 2. Mucopurulent.
- 3. Purulent.
- 4. Fetid.

MISNOMERS.

- 1. Spanish influenza.
- 2. Border-line influenza.
- 3. True influenza.

Tendency to spontaneous recovery.
Tendency to relapse.

(d) Cause: *Bacillus influenzae*.

(e) Category of time (*quando*): Onset, 20 minutes to 24 hours. Phenolsulphonophthalein test. Duration: A few days to six weeks.

(f) Symptoms: Local, general, due to complications.

(g) Standardized to Koch's laws.

This is the identity of the condition which all authorities agree is a constant factor in the disease influenza. The writer maintains that "per se" and "in se" it can account for every symptom attributed to this unestablished and therefore fictitious disease. Nasal sinusitis is his alternative proof.

Before leaving this principle of identity, the writer wishes to emphasize the fact that nasal sinusitis is a distinct organic disease in situ. The nasal sinuses are a portal of entry for infection, but nothing could be more tragic than the belief that this is the whole story. They are much more than a mere portal of entry. They are a base of supply for the multiplication of the invading organisms and the manufacture of their toxins. This is the reason why this disease is so resistant to therapy. The system of therapy which does not recognize this is valueless in fighting this disease.

3. *The Principle of Causation.*—The third principle of logic may be enunciated thus: Every effect has a cause. When we say this we must distinguish between the various kinds of causes. We do not mean the material cause, or that out of which an object is made; nor the formal cause, as the concept in the mind of the architect; nor the final cause, as the end for which an object was made. When we say "every effect has a cause" we mean the actual producing or efficient cause (*causa efficiens*).

An efficient cause must always be an active agent. We must, however, distinguish between an efficient cause in *potentia* and an efficient cause in *actu*. The former is one which possesses the power to do something, but which for certain reasons remains inactive. It is nevertheless a true efficient cause.

An example of a true potential efficient cause would be the bacillus of diphtheria (the germ known to cause the disease of this name), when it is tightly bottled up in a test-tube, where it can do no harm. We know, however, that under certain conditions this potential agent attacks the human

system and becomes immediately an agent in *actu*, causing the patient to become a victim of diphtheria.

Those necessary conditions which transform a potential agent into an active agent are known in logic as *conditiones sine qua non*.

That branch of the science of medicine which makes a study of efficient causes in *potentia* is the department of Bacteriology. Those which treat of efficient causes in *actu* are the departments of Pathology and Clinical Medicine.

In the study of the efficient cause of disease each one of these departments is important, as from each we draw certain facts which we dovetail into a rational conclusion.

Koch had these principles of logic in mind when he enunciated his three laws, which are nothing but a special application of general principles.

Reduced to simple terms Koch's laws may be stated thus:

It is necessary to be able to recognize an efficient agent, and it is equally important to know what that agent is doing. To prove our knowledge we must be able to do likewise with the agent. These three things are absolutely necessary when we wish to establish an efficient cause for a disease. But these are exactly the three things which the medical profession does not know about the disease called influenza, as a consequence of which they have failed to establish it. Whereas with the writer's alternative, nasal sinusitis, these three things have been known for many years.

A. What is the efficient cause of the disease influenza? If we do not know the identity of our effect, and as we have seen, we do not, how can we know its cause? If by some miracle the cause were placed in our hands, how could we correlate it with an effect of whose identity we are ignorant? Is it rational to seek for a cause under these circumstances?

B. The efficient cause of the writer's alternative is an efficient organism or organisms acting under those conditions necessary to bring about a nasal sinusitis. There is no evading the issue that a nasal sinusitis is necessary, unless we are ready to reject all human testimony. It is well known that a nasal sinus may be infected by a variety of organisms. The moment this is admitted the third law of Koch applies to these organisms, and must be considered fulfilled. This has always been accepted, it is not a new idea. By far the most frequent organism to invade and infect a nasal sinus is Pfeiffer's bacillus. So frequent is this invasion that it may be said to possess a selective, specific, infective affinity for the nasal sinuses. It therefore fulfills Koch's third law.

Writing in 1916, the writer said, "that the *Bacillus influenzae* can be taken by mouth, injected subcutaneously or intravenously, with probably some systemic infection, but as long as the nasal sinuses escape, the clinical picture of influenza will be wanting." The United States Navy Department actually did these things in 1918, but did not succeed in infecting their nasal sinuses, and their results were absolutely negative.

On the other hand, by way of comparison with the above quotation, the following is interesting: In the *Medical Clinics of North America*, July, 1920, New York Number, appears an article from the

clinic of Dr. Harlow Brooks, entitled "The Complications and Sequelæ of Influenza and Their Management." In this article Dr. Brooks says, "Russel Cecil, in a personal communication, informs me that in his monkeys experimentally infected with influenza, this early and very persistent involvement of the sinuses is constantly present, even though in his experiments the infection was introduced not by supposedly normal avenues, that is, through the upper air passages, but through intratracheal inoculations." The reader will notice that the *constant factor*, nasal sinusitis, continually comes to the surface. It is certain that the *Bacillus influenzae* may be the sole invading organism in nasal sinusitis, and where it is found in pure state there is no opposite argument.*

But it may be associated with other organisms, in which case it is never going to be possible for the bacteriologist to say dogmatically that the *Bacillus influenzae* is the organism. If it predominates he may say that it is the chief, the others the contributing organisms. As a matter of fact this is the history of these epidemics. There is not a single piece of evidence to support the hypothesis that we have to do with a single invader. On the contrary all the evidence points the other way, namely that the *Bacillus influenzae* is the chief invader, but that other organisms have a very active part.

In fact, as Hajek in his classic, and Lindenthal in the article quoted above, have pointed out, these secondary invaders, as they call them, may be so numerous as to cause the initial *Bacillus influenzae* to be overlooked. This does not prove its absence, they say, but does suggest that bacteriology has not been able to overcome certain difficulties connected with the biology of the *Bacillus influenzae*. Preponderating positive proof favors the latter. However, the important point is that pure or mixed, as in pneumonia, we are confronted with *un fait accompli*, and to wit, a nasal sinusitis. When this has once been established nothing which may happen in the general system should occasion any surprise.

Under these circumstances Pathology transcends Bacteriology. The causative pathology of these epidemics is nasal sinusitis.

4. *Principle of Excluded Middle.*—The fourth and last of these primary laws of thought is the Principle of Excluded Middle. This law, in all its various forms, is but an immediate application of the Principle of Identity, which we have described as the foundation of all demonstration. It may be enunciated thus: Every object of thought is A or not-A; every disease is influenza or not-influenza; or, this disease is influenza or it is not-influenza; or, any two contradictories exhaust the whole field of thought; or, between two contradictories there is no third alternative, no compromise, no middle ground; or, of two contradictories one or the other must be true.

If we analyze the meaning of contradictory, we shall find that it means, in reference to any concept, whatever is not included in it. If we analyze not-A,

we find as the result of the analysis not A. Hence our law will read: The contradictory of any object is that which is not included in that object. This is but a particular application of the general law: All Being is identical with its own essence.

A. Applying this principle to the influenza problem we enunciate it thus: This disease is influenza, or it is not influenza.

The first three principles of logic have not dealt kindly with the attempt to establish the disease influenza, but when we come to this fourth principle we arrive at an impasse.

Not knowing its identity we cannot say that this disease is influenza, and we cannot say that it is not-influenza. Under these circumstances the disease influenza becomes a non-entity. It is analogous to that vacuum which Nature abhors. Influenza becomes a meaningless word, because from the standpoint of Reason it never gets beyond its own spelling. Can we maintain this position? If not, is there any avenue of escape?

Obviously there is a retreat, and that retreat is our second line of defence, the Principle of Identity. If instead of asking, "What is influenza?" we return to the second principle of logic, and ask ourselves "What is this disease?" we shall be on our way to escape the dilemma.

B. The writer enunciates the influenza problem thus: This thing is not A, because it is B; This disease is not influenza, because it is epidemic nasal sinusitis. This is so because this disease in its every manifestation is identical with nasal sinusitis in epidemic form. The nature of nasal sinusitis is such that it may have one or many invading organisms. We cannot change that nature. Why demand the impossible of Bacteriology? By so doing we only cloud the more important issue of Pathology. Nasal sinusitis is a local and a general disease which in substance and in category explains these epidemics *in toto*.

The writer believes, however, that time will prove, that many other diseases, known and unknown, have their causative pathology in the nasal sinuses. He believes that diphtheria, anterior poliomyelitis, the exanthemata, and epidemic cerebrospinal meningitis are diseases which commence as mucous infections of the nasal sinuses. For this reason he believes that the mucous membrane of these cavities should be carefully examined microscopically when the causative organism is unknown. For this reason he believes that the medical problem of to-morrow is the sanitation of the nasal sinuses.

He defends his nomenclature of "Epidemic Nasal Sinusitis" in this disease, because of all the diseases which may be in substance nasal sinusitis, it is the only one which has no single distinctive symptom by which it may be recognized.

Under the head of Categories, diphtheria has its throat symptoms, the exanthemata have their specific skin conditions, anterior poliomyelitis has its paralyses, *et cetera*. These are sufficient to identify these conditions. In substance they may be identical, in category they are different. They are well named, and well identified, even if in some cases the causative or invading organism is still a mystery.

*This well confirmed fact was first established by O. Lindenthal, *Wiener klinische Wochenschrift*, 1897, No. 15.

WHAT CONSTITUTES A FAIR ESTIMATE OF LOSS OF USE OF EYE IN WORKMEN'S COMPENSATION CASES?*

BY WILLIAM MEHL, M.D.,

BUFFALO, N. Y.

THE operation of the Workmen's Compensation laws of the several States of the Union has given rise to many new problems connected with the reporting of diagnostic findings in industrial accident cases. The medical practitioner is called upon not only to supply a scientifically accurate statement of his findings, but to put this in such form that an intelligent layman may understand it clearly and judge therefrom the significance and degree of the impairment sustained.

In eye cases the difficulty of arriving at a final conclusion has been complicated by a regrettable lack of agreement on the part of ophthalmologists as to what should be considered the standard for fixing the percentage of loss of vision sustained by an injured visual organ. The embarrassment of the situation has been felt most keenly by the State officials charged by law with the final adjudgment of compensation cases. In order to bring about a clarifying of controversial points surrounding this particular subject and to arrive, if possible, at a proper basis for estimating degrees or percentages of loss of vision, the State Industrial Commission of New York called a conference of eye specialists which was held at Albany, N. Y., on October 14, 1920, for the full discussion of the subject.

The chief difficulty encountered appears to have been that the findings reported by examining ophthalmologists did not always commend themselves to the injured workmen as well as to the employers, insurance carriers, and the general public. The adjudging officials desire that whatever tests are adopted to prove the findings shall do full justice to the injured claimant for compensation, under the law as it stands, and that these tests shall be simple enough to be applied readily or at least to be verified easily by the official who must decide cases.

In the State of New York, the law makes 123 weeks of compensation the maximum payable for the loss of an eye or the loss of use of an eye. The legislature of 1920 added two important amendments, to wit:

"The loss of eighty per centum of the vision of the eye shall be considered to be equivalent to the loss of the use of the eye, and the loss of binocular vision shall be considered to be equivalent to the loss of one eye."

The Courts which pass upon the Commission's interpretations and applications of the law, in cases of appeal, seem to have taken the ground that the percentage of "loss of use" of an eye shall be based on the percentage of vision remaining, after *advantageous correction* by appropriate lenses. In other words, no allowance shall be made for loss of natural vision so far as this loss can be *advantageously corrected* by lenses. My impression is that the qualification made by the Appellate Division, in one

of the cases on appeal (*Cortina versus Lathrop & Shea Co.*), is not generally understood, as the impression is abroad that compensation shall be allowed only for loss remaining after the highest possible correction. It seems to me, when the Court asked that Commission should be governed in its findings by the question "Whether the vision of eye could be corrected advantageously by use of glasses," the suggestion was that any correction which an injured eye will not tolerate need not be taken into consideration.

Every oculist knows of persons who will not tolerate even a slight lens correction. Besides, there are cases where the correcting lenses would have to be so powerful that they could not possibly be used with any degree of comfort necessary for a wage-earning pursuit. I am aware that the Commission itself is governed by these considerations and will not make allowance for correcting glasses where these cause other disabilities to the injured. The meaning of the phrase "advantageously corrected" appears, however, to have escaped many of us, and I must admit it came to me only quite recently. Here, then, we have one point which the examining oculist will have to consider when reporting his tests, so that the information he may have to give regarding any disadvantages of a correction may be brought to the attention of the Commission.

One other point which court decisions have emphasized is that the law, as it stands, allows only for the loss of an eye and the loss of use of an eye, but not for the loss of *natural value* of an unimpaired eye. The value of an eye that can see without correcting lenses will readily be acknowledged by all. The importance of this value is apparently to receive no consideration as a factor in determining the loss of the use of an eye. It may be that the next legislature can be persuaded to amend the law so as to allow compensation for the loss of value, as well as for only the loss of use of an eye.

Employers of laborers appear to be more or less prejudiced, as a rule, against applicants wearing glasses. To the injured man the change means also that he must shoulder a new burden of expense for the renewal, repair, and replacement of glasses, for periodical re-examination of the eyes, and the like. He is excluded from several kinds of athletic sports. Change from indoor warmth to outdoor cold clouds his glasses and exposes him to new danger. There are many lines of employment in which the wearing of correcting glasses means a distinct economic depreciation for a man's services, and there are not a few occupations from which a man is excluded entirely by reason of it.

It is not unlikely that the Legislature will amend the law still further, in the course of time, so that loss of the *economic value* of an eye may be taken into consideration as well as mere loss of *vision*. However, this is a matter which is probably only remotely related to the present subject of discussion, which is to bring about, if possible, a unification of views as to the most equitable manner for determining the percentage of loss of vision sustained by an injured eye.

*Suggestions submitted to the New York State Industrial Commission at a conference held at Albany, N. Y., on October 14, 1920, for the consideration of this question. Revised for publication.

If I am not mistaken, the New York State Industrial Commission has hitherto based its findings in eye cases more or less, if not altogether, on the Snellen test. Under the law, as amended this

year, vision amounting to 20,100ths by this test would be considered total loss of use of eye, without regard to the degree of remaining peripheral or binocular vision.

I should like to confine myself to a brief examination of the scientific justification of the method of basing loss of use of an eye on the Snellen test exclusively.

We know that vision is a complex act, comprising at least three functions. There is, first, central vision, or visual acuity, the only factor considered in the Snellen test. There is, second, allocation, commonly known as peripheral vision, or field of vision, for which no specific allowance is made in the Snellen test. There is, third, stereoscopic or binocular vision, the loss of which is made loss of use of the injured eye by the New York Compensation Law.

Opinions vary greatly as to what percentage of loss of use of an eye is represented by the findings in a Snellen test. For example, 20/40ths central visual acuity, according to this test, means to the Commission 50 per cent. loss of use of eye; Dr. Frank Alport allows 20 per cent. for the same impairment; Dr. Chapman, 10 per cent.; and Dr. Prince concedes only 5 per cent. A table worked out by the Milwaukee Ophthalmological Society declares 20/40ths to represent 6 per cent. loss of vision, and the table agreed upon by Chicago eye specialists says that 20/40ths is equivalent to 11 per cent. loss of vision. We now have the perplexing condition that a man whose central visual acuity has been reduced to 20/40ths is supposed to have a 50 per cent. eye in New York, an 89 per cent. eye in Illinois, and a 94 per cent. eye in Wisconsin. In other words, a man who is told in New York that the efficiency of his injured eye has been reduced by one-half, learns in Illinois that he really lost only 11 per cent., and in Wisconsin he will be assured that he suffered an impairment of only 6 per cent.

The Milwaukee and Chicago tables are supposed to represent the best judgment of the eye specialists of those two cities. This makes the difference in calculation even more perplexing. We are driven to the conclusion that either one of the two tables is right and the other wrong, or both are wrong.

I have attempted to analyze both tables, and must confess that I am unable to consider either of the two tables to be defensible on scientific grounds. The manner in which these two tables were constructed appears to be purely mechanical. The distance covered by a progressive destruction of vision from 100 per cent. normal to industrial blindness is divided into fractions with arbitrarily fixed denominators.

The Milwaukee table is based upon a 3 per cent. loss of vision for every 10 foot loss of ability to read the letters of the Snellen chart up to 20/350ths, which is considered by that table to be industrial blindness. The Chicago Ophthalmological Society table is based upon a $5\frac{1}{2}$ per cent. loss of vision for every 10 foot loss of ability to read the Snellen chart up to 20/200ths, which is regarded by that body to mean industrial blindness.

Here we have two tables constructed on the same principle, so far as the measurement of central visual acuity is concerned. Both allow a certain

percentage of loss of vision for every 10 foot loss of ability to read letters of Snellen Chart up to a point considered industrial blindness. Despite this fact, the percentage loss of visual acuity varies according to which of the two tables is consulted. This inconsistency is brought about by the fact that the denominators indicating industrial blindness differ in the two cases. The larger the denominator, the greater must be the number of 10 foot stops contained in the table. Thus if the denominator is 100, the distance from normal efficiency to loss of vision can be divided into 10 equal parts of 10 feet each, and if the denominator is 1000 the distance can be divided into 100 equal parts of 10 feet each.

The Milwaukee table uses 350 as the denominator, and there provides for 33 stops of 10 feet each. By dividing 100 per cent. (representing normal vision) by 33, they arrive at 3 per cent. as the percentage of loss of vision for each 10 foot loss of ability to read Snellen letters.

Now if the denominator were increased to 1000—and there is nothing to prevent anyone from doing it—we would acknowledge 1 per cent. as the percentage loss for each 10 foot loss of ability to read Snellen letters.

In the case of Chicago table 200 is the denominator. This 200 is divided by 18, which fixes the number of 10 foot progressions up to 20/200ths. In this way, an allowance of $5\frac{1}{2}$ per cent. loss of vision is made for every 10 foot loss of ability to read Snellen letters. The percentages, it will be seen, are wholly arbitrary and do not in any way represent actual loss of vision in any given case. We can make these percentages what we will by increasing or decreasing the denominator. Such being the case a table based on such a foundation cannot possibly be of any scientific value, it seems to me.

I ought to add here, that in addition to the faulty recording of percentages of visual acuity, as noted above, the Chicago Ophthalmological Society advocates the separation of the three essential factors concerned in the act of vision, allowing 2/5ths for central visual acuity, 2/5ths for field of vision, and 1/5th for stereoscopic vision. I have already conceded the importance of each of these three factors as essential in the act of seeing, which means the usefulness of the eyes. I believe, however, that central vision is relatively the most important of the three factors, especially as regards industrial efficiency. Moreover, it is the factor which is disturbed most frequently in the vast preponderance of cases. Besides, I feel sure every ophthalmologist will concede that, along with loss of central visual acuity, there is, at least in practically all industrial accident cases, a more or less corresponding depreciation of field vision. This loss of field (peripheral) vision usually is not realized by the patient as long as the uninjured eye remains normal and supplies the concealed defect. It would certainly seem reasonable to assume that for every diminution of central visual acuity, however slight, due to the scarring of the cornea or to changes in dioptric media, there is also to be found some decrease of field (peripheral) vision, until a given point is reached where the disappearance of this vision will be conceded by all.

Of all the working tables for fixing the percentage of efficiency for an injured eye, the one prepared by Dr. Snell of Rochester appears to me to be most deserving of serious consideration. It certainly represents more accurately than any table which has come to my notice, the actual loss of central vision, and he is deserving of much credit for this. However, I cannot get myself to accept the table altogether. In Dr. Snell's table twelve steps are involved, each one being credited with 8 per cent., making the total approximately 100 per cent. He starts from 20/20ths and ends at 20/320ths. There we have again an arbitrary denominator, which in this case is 320. By geometric progression he has come nearer to giving adequate allowance for central vision, as by this method the number of progressive steps between the two extremes of normal vision and 20/320ths has been reduced to twelve. But this advantage has been modified to some degree by the adoption of an arbitrary denominator. If he had perchance made his denominator 200, the number of steps would have been still further reduced and a larger percentage of loss of visual acuity would have been recorded for each step.

My personal belief is that the safest standard for determining a percentage of vision is supplied by the Snellen test. By this test 20/40ths means 50 per cent. loss of vision, 20/60ths means 66% per cent. loss, 20/80ths means 75 per cent. loss, and so forth. It is a simple test and has the advantage of being readily understood by laymen. Moreover, the reports furnished to the Commission by examining oculists will have at least an approach to uniformity. Aside from being simple, it has also the merit of being just.

Accidents causing loss of field (peripheral) vision alone are of such extremely rare occurrence that the average injury to the eye should not be minimized by the thought that perhaps the field (peripheral) vision had sustained a less serious loss than the central vision. And as regards binocular vision, I hold that every impairment of central vision affects it in some measure. Furthermore, estimates of the degree of field vision which is supposed to have been lost, would be so much a matter of pure conjecture that I doubt if any two examining oculists would ever agree as to its exact amount.

Taking into consideration, finally, that the New York State law makes loss of binocular vision equivalent to the loss of an eye, there would seem to be no justification for making allowance for binocular vision in cases of ordinary impairment of the central visual acuity.

All this would seem to sustain the proposition that by allowing the figures of a Snellen test to stand for exactly what they are, we have the most equitable method for determining the fraction of loss of vision sustained by an injured eye.

417 FRANKLIN STREET.

Bilateral Orchi-Epididymitis from Serum Injection.—This excessively rare serum accident is reported by Blechmann and Stinssnie. The injection was made for severe diphtheria and the whole syndrome comprised fever, eruption of wheals, arthralgia, albuminuria, and the lesion of the gonads which resolved in about 12 days.—*Le Bulletin Médical*.

THE TRAGEDY OF THE ABDOMINAL INCISION.*

By J. W. KENNEDY, M.D., F.A.C.S.

PHILADELPHIA, PA.

ONE should not write without having lived in the experience of his subject. Papers should have personality and not be composed of bibliography. I grow tired of the fashion of things, they teach nothing. Editors should not take originality of expression from one's paper, by so doing they insert literary brains as a substitute for the life-saving argument of the author's discussion. The strongest clinical teacher I ever knew was the most original and epigrammatic in his expressions. If we had learned and practised one-tenth which is common knowledge of the profession, the death rate in urgent lesions of the abdominal cavity would be less than one-tenth of what it really is. We just cannot catch up to the real privileges of our profession. We will be forced to change the style of our writing and teaching, we get nowhere. The reader is soothed to sleep by the melody of an article. We should be irritated or stimulated to protective action. I constantly see the necessity of giving the medical profession some one definite thought to carry away. It is questionable whether we can forcibly teach symptoms or signs. Had we not better teach a symptom or a sign? I illustrate: the occasion of my writing this paper is that I have been forced of late to resect a large amount of bowel in a great per cent. of cases which have been sent to me for bowel obstruction due to an adhesion from a previous abdominal operation. Now then, if I wrote a paper on bowel obstruction and included that due to adhesions from previous abdominal operations as one of the causes of bowel obstruction, would I impress the medical reader as forcibly as I would if I drove this scar into his mentality as a fertile source of bowel obstruction? The brain remains a useless storehouse of knowledge and is impotent without the ability to call forth a portion of this stock in store. Such ability may be called memory and memory is most stimulated by the vividness of impression by which said act was registered in the brain. A slap in the face is longer remembered than a scolding, etc.

I am not straying from my subject, I am trying to bring out the importance of impression which has much or all to do with men's ability to recall important fact or facts, such as those relative to diagnosis or therapeutics, things they have known but overlooked, with the cost of a life. In other words, we are rarely able to say anything new, but we miserably teach the cardinal points or factors in urgent conditions. The penalty is costly. There is probably not a physician in America but who is perfectly familiar with the fact that an adhesion due to previous abdominal operation is a very fertile source of bowel obstruction and yet in my experience, which has been large, it has been the rarest thing for the physician to have early recognized the bowel obstruction from such source. Further, I at this moment cannot recall a single instance in which I have been compelled to resect a large portion of the bowel but which could have been prevented on account of well marked symp-

*From the clinic of the Joseph Price Hospital.

toms of bowel obstruction which should have been so forcibly impressed at an early hour by the abdominal scar. Therefore, the profession has been in error in just one hundred per cent. of the cases, a very clear indication for stronger teaching on the subject.

So how can I again relate a well known cause of a most serious and fatal condition? Cause, adhesion to the scar; condition, bowel obstruction; indication, instant abdominal surgery. This is the complete story, a thousand years from today will be the same.

Please learn it, the reward is mighty, a life saved. If the reader is a busy man he need not read further, this is my message, this is all the real philosophy there is in it. If you have some patience with me, let us go into the subject just a bit. A negligent profession has made me too familiar with the condition. Why is it we have not been able to impress the profession with the seriousness of this condition? It is for the reason that signs and symptoms are not proportionate to the underlying pathological condition. There is no condition I know in which there is such a disparity between what seems to be a good condition of the patient when measured by pulse and temperature and the real condition which is so often a dying patient. This can be said to be equally true of most internal bowel obstructions, the patient is sick unto death with little external evidence of the same. Experience tells us this, not pulse, not temperature. Experience is the most eloquent of all teachers. Listen to earnest men who are trying to tell the mighty story of experience. Do not live so much by the thermometer and pulse rate, they are only accessories in most of the serious abdominal lesions.

This is a live subject in these days of frequent abdominal operations. As the abdominal incision has increased in length and there has been much exploring of intraabdominal organs by the insertion of entire hand for diagnostic purposes, adhesions constantly follow abdominal surgery. Certain popular teachings of this hour have given us later surgery with more drainage and thus more adhesions. In a large series of abdominal operations in which I did not do the primary operation, ninety-nine per cent. showed adhesions to the scar or lateral to the scar. This morning in the operating room I asked my two assistants who have been associated with the Joseph Price Hospital for fourteen years, in what per cent. did adhesions occur in those outside cases which came to us for re-operation? They both said they did not remember any case in which I had not demonstrated adhesions.

The trouble is men do not look for adhesions and again, it is the teaching not to interfere with adhesions as they are supposed to be sacred to Nature's process of protection. I am prepared to meet such argument with volumes of protest but must not dilate here. The amount of dead bowel in these cases is greater than in the ordinary bowel obstruction from any of the ordinary forms of hernia. This is probably due to the fact that the adhesion causes a twist or rotation of the mesentery of the bowel which would necessarily cut off the circulation to a great amount of bowel. In reviewing the cases which have been my experience, I am within

conservative estimate when I say at least an average of three and one-half feet of small bowel has had to be resected, the extremes being from two to over six feet. So it is a serious operation and done on a patient who has probably been toxic from a partial bowel obstruction for a good length of time and is thus a bad surgical risk. It is not my intention to discuss the symptoms of bowel obstruction from this cause as they are those common to any bowel obstruction, but to impress upon the reader the one and always evident cause, viz., scar of the abdominal incision.

Dozens of times I have cleared the mystery of diagnosis over the telephone by asking the physician: has the patient had a previous abdominal operation? Please ask yourself this, for this is all I have done in a brief discussion about which volumes could be written.

241 NORTH EIGHTEENTH STREET.

NOTES ON THE PROGNOSIS AND TREATMENT OF PNEUMONIA

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INFANTILE pneumonia, despite intense bacteriological and clinical study, cannot offer a specific treatment which would apply to a large series of cases. Fatalities occur despite serum treatment even where the specific type of organism is recognized.

The prognosis of a case of pneumonia can best be foretold by studying the leucocyte count. A high leucocyte count, or leucocytosis, denotes good resistance and a good prognosis. When a low leucocyte count, or leucopenia, is encountered then it shows poor resistance and denotes a bad prognosis. So that given a case of pneumonia with a leucocyte count of 14,000, the prognosis is less favorable than in one with a leucocyte count of 20,000.

Toxic symptoms such as drowsiness, restlessness, very high or very low fever, with vomiting, delirium, and twitching, usually denote a severe form of intoxication. It is during this stage that most active treatment is required to insure a good result.

Detoxication can best be accomplished by stimulating the emunctories and eliminating thereby a large quantity of toxins. Aconite supported by fairly large doses of acetate of ammonia, and this followed by a very warm pack will stimulate diaphoresis and rid the system of considerable toxic and effete material. It is very important that such treatment should be supervised by a trained nurse competent to administer caffeine or digitalis should the cardiac condition require the same. Haphazard stimulation with alcohol is unnecessary and harmful. In some cases we irritate the gastric mucosa and thereby lessen the tolerance for food.

When a cardiac stimulant is called for, my choice is adrenalin, but it must be administered in 5, 10, or 20 minim doses until the effect of the same is apparent. Detoxication by diaphoresis should be given at least once in twenty-four hours, depending on the toxic symptoms present and on the activity of the emunctories. The vital organs of the body, such as the bowels and kidneys, especially the latter, should be stimulated to greater activity if a good result is to be achieved. It is important to give large quan-

ties of water by mouth or, if this is not possible, by colonic instillation.

Presuming we have a low leucocyte count, the same can be increased by hypodermic injection of 10 to 20 c.c. of leucocytic extract once in twenty-four hours. If the blood examination is made daily we can easily learn when sufficient of the leucocytic extract has been given. Thus a low leucocyte count of 10,000 to 14,000 if increased within a few days to 20,000 or 25,000 would show a better resistance primarily and also show that the object of giving the leucocyte extract has been attained.

Detoxication can best be accomplished by giving hot tub-baths aided by hot packs. Diaphoresis should be stimulated by giving spirit of milderer and aconite. Stimulation of the kidneys to aid diaphoresis, likewise intestinal stimulation to keep the bowels active and elimination frequent, are valuable aids in detoxication.

Stimulants such as adrenalin, caffeine citrate, or caffeine-sodium benzoate are valuable unless cardiac arrhythmia or irregularity demands digitalis.

Concerning Cold Air.—Fresh air warmed to 65° or even 70° should be advised for susceptible and cyanotic infants. Cyanosis and death have frequently been seen to follow the shock of prolonged exposure to cold air in feeble infants with low resistance. When the vitality is low and the reserve poor, one should remember that chilling of the body does not favor a good circulation and does harm. This does not imply that I am opposing oxygen—far from it. I advise oxygen, but in the form of fresh air without the chill and the depression of cold so fatal in infantile pneumonia.

When caffeine is given the pulse should be watched until it is reduced to 100. Caffeine will steady the heart action as well as digitalis. Besides being indicated in cardiac arrhythmia it is a valuable diuretic.

Hypodermic injections of camphor in oil should be rarely or never administered. While the temporary effect of camphor may be useful the oil used with the camphor leaves a tumor-like residue in the tissues which cannot be removed. These tumors resemble paraffinomas as to their slow development. "When the oil is injected it is deposited between the connective tissue and in the lymph spaces remaining there as an inert foreign body. The localized pressure stimulates a very low grade of temporary inflammation with the gradual production of new connective and fibrous tissue, and a fibroma is gradually produced encapsulating the oil." From the studies of William H. Mook and William C. Wander of St. Louis, made in the service of Dr. Engman, the conclusion is reached that camphor oil should not be used as a stimulant until research shows that it can be made innocuous with an animal fat instead of paraffin.

Dr. John Fordyce of this city states that camphor in oil should not be used because of the danger of producing tumors from the mineral oil. The dangers of emboli from paraffin oil as a vehicle for mercurials has long been known. Knowing the dangers of mineral oil injections we should hesitate to advise them.

The outcome of any case of pneumonia depends on the reserve—naturally the blood strength, and on the amount of nutrition—food and oxygen—properly metabolized. The depression and reduction of the

oxyhemoglobin due to continued fever and loss of sleep are incidents which must be counteracted before normal conditions are reestablished. When very high temperatures are encountered, the loss of fluids from the tissues can be made up by giving a hypodermoclysis of 4 ounces physiological saline solution daily. If for any reason this procedure is objected to, then warm saline colonic irrigations at a temperature of 105° twice daily will supply liquids to the system and indirectly add salt to the circulation.

Concerning Elimination.—This has already been mentioned, but is again emphasized as during an acute intoxication of a febrile nature there is a weakened peristalsis which calls for daily stimulation. A teaspoonful of a saline, the taste of which is disguised with orange-juice, should be given every morning to cleanse the gastrointestinal tract.

Concerning Feeding.—When the body is depleted by fever and the patient is anemic, the indication is to supply nutrition, providing the child can take it. I have tried to add the yolk of raw egg to a cup of broth and sometimes to milk. In some instances steak juice was given as a stimulant with excellent results. Gruels and the carbohydrates were always given when acidosis indicated carbohydrate starvation. The fruit juices are always agreeable because of the palatability and their tendency to quench thirst.

23 WEST SEVENTY-THIRD STREET

A CONCEPT OF X-RAY PATHOLOGY.

XIII. ENTEROPATHY.

(Continued from page 785.)

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Glenard's Disease.—Enteroptosis can be determined by x-ray study, which reveals the exact position of the stomach and intestines in all their parts. The x-rayist is in the position definitely to outline the exact posture of any part of the gastroenteric path. The diagnosis of anatomical enteroptosis is made by inspection of the gastric intestinal x-ray plates. Whether it shares in the etiology of the patient's complaint must be determined by the clinician.

Neoplastic Enteropathies.—Tumors of the intestine may be malignant or benign. Of the malignant tumors, carcinoma, sarcoma, and lymphosarcoma are the most common. Intestinal cancer is nearly always primary. It may be nodular or ulcerative and tends to produce intestinal obstruction. It is unfortunate that the presence of an intestinal cancer is not suspected until the obstruction produced gives rise to obturation symptoms; and by that time, the growth has proceeded to such an extent as to preclude the possibility of surgical intervention with any measure of hopeful recuperation. The x-ray examination may be made after a contrast meal or after a barium clysm. The x-ray pathology is typical and consists of very obvious irregularity in the lumen of the intestine, which irregularity is unchanging and in every case presents identical conformation. It is important that the irregularity or filling-defect in the colon be differentiated from pseudo-filling-defect. Among

the pseudo-filling-defects may be mentioned gas, improperly and insufficiently administered enema, enteric spasm, extrinsic tumors, pressure of bony parts, adhesions, diverticulitis, and scybalous masses. If the x-rayist can make certain that the filling-defect is not an artefact, but is real and persistent, the diagnosis of intestinal cancer is practically established. The minor signs in the diagnosis of intestinal cancer may include enterospasm, and, as the disease progresses more and more, colonic obstruction. It is helpful actually to observe the barium clysmas entering the colonic tract under the fluorescent screen, palpating as the column permeates the colon and examining particularly for spasm and irregularity in the filled contour.

Congenital Enteropathies.—These include congenital malposition, Hirschprung's disease, and Meckel's diverticulum. On the topic of congenital malpositions of the intestines Barker says:

In *situs inversus totalis*, the stomach and intestines occupy a position corresponding to a mirror-picture of the normal; the spleen is in the right, and the liver in the left, hypochondrium; and the thoracic organs are similarly transposed.

In *situs inversus partialis*, the abdominal viscera are transposed, though the thoracic organs are in their normal positions.

Congenital malpositions of the intestine alone occur and may be very important in abdominal diagnosis. The four main forms are: (1) the large intestine lies wholly behind the small intestine, owing to failure of the umbilical loop to rotate—*retroposition*; (2) the large intestine lies in the left side of the abdominal cavity, owing to incomplete rotation of the umbilical loop—*sinistroposition*; (3) the large intestine lies in the right half of the abdomen, owing to partial rotation of the umbilical loop in the wrong direction—*dextroposition*; and (4) there is complete crossing of the small and large intestine, but the position is abnormal, owing to complete rotation of the umbilical loop but in the wrong direction (*situs inversus abdominalis partialis inferior*).

As de Quervain emphasizes, the practically important features are (1) the position of the vermiform process, and (2) the crossing of the small and large intestines. Taking the several malpositions together, the appendix may come to lie in any part of the abdomen.

The matter of the crossing of the small and the large intestine may be important in performing gastro-enterostomy. Ordinarily, the surgeon seeks the uppermost loop of the small bowel where it passes beneath the transverse colon; if the normal crossing has not occurred, it will be necessary to follow the duodenum in order to find the beginning of the jejunum. In sinistroposition of the large intestine, the duodenum passes toward the right kidney, and goes over into the jejunum in the right iliac fossa (de Quervain).

Hirschprung's Disease.—This is a persistent dilatation of the colon characterized by an unusual capacity of the bowel. The congenital condition is met with chiefly in young adults. There are some who would describe an acquired form. Enormous dilatation of the colon, usually accentuated because of meteoric inclusion, can be visualized under fluoroscopic examination without additional preparation; but when a barium enema is introduced the colonic radiopacity is readily observed as an enormously extended structure.

Meckel's Diverticulum.—Meckel's diverticulum or persistency of the omphalomesenteric duct may sometimes be readily visualized by the opaque meal.

Examination of the Gall-Bladder.—X-ray examination of the gall-bladder is useful and may sometimes prove of diagnostic value, particularly with

reference to gall-stones. It has been claimed by some that any gall-bladder is pathological whose outline can be visualized on the x-ray plate; but this sweeping generalization does not seem warranted by the facts.

That there is a relation between the cholesterol metabolism in the human economy and the formation of gallstones would appear established (Pacini). The x-ray pathologist must determine a relation between the presence of gallstones and their radiability. On this score it has been indicated that the radiopacity of a gallstone increases in proportion to its lime contents (Cole). In addition to the lime content, which undoubtedly has much to do in fixing the radiability of biliary calculus, it is also true that the actual density of the stone is as much a determinant in affecting the radiability as is the calcium content (Pacini).

In x-raying the gall-bladder region for the purpose of studying whether or not stones are present every attention must be paid to the minutest details of the technology involved. The preparation of the patient should not include magnesium sulphate purgation for the reason that the gas distention of the intestine practically always incident to Epsom salt purge in many instances will blot out any barely perceptible gallstone radiolucent shadows.* The position of the patient should be postero-anterior. The ray should be directed so that it will not pass through the vertebral column and should be aimed at the gall-bladder in a manner that will make for maximum exclusion of liver. Compression seems preferable. The use of intensifying screens and duplitized films is optional with each investigator, but if used, only fine grained screens should be employed. It is perhaps better to under-expose than to overexpose; but, in studying gallstones, it is important to use a high rather than a low penetration. The reason for using a high penetration (5½ inches or over) rests with the fact that soft rays evolved with low penetrations are rapidly absorbed by soft tissue. Another reason for failure in the x-ray detection of gallstones rests with the fact that the stones are contained sometimes in a bladder filled with thickened bile. In such cases it has been found that the introduction of a duodenal tube into the duodenum and the subsequent injection of one ounce of saturated magnesium sulphate solution acts on the gallbladder in a manner that will make for the expulsion of the bile; and an x-ray examination after the bile has been emptied will sometimes make for visualization of radiolucent gallstone structures not otherwise seen (Pacini).

When shadows are visualized on the plate in the region of the gallbladder it is necessary that they be differentiated from shadows such as renal calculi, pancreatic calculi, calcified mesenteric glands,

*There is recalled a case in which a loop of intestine distended by gas overlaid the iliac pelvis, and by its radiopacity created a circular radiolucency in the bone that could easily be mistaken for a perforative osteomyelitis. It is obvious that if a gas shadow will create an artefact, blotting out bone detail, that a relatively radiolucent gallstone shadow would certainly be entirely obliterated by any overlying gas. In this connection the writer differs in opinion from those who recommend saline purges purposely to inflate the intestine on the presumable basis that gallstones will be made more apparent.

scybala, foreign bodies, and calcified patches in tuberculous kidneys. Stereoscopic x-ray examination of the gallbladder region does not always prove a satisfactory means for the definite assignment of the site of the calculi.

Knox suggests making three exposures in three positions, namely: (1) dorsoventral; (2) ventrodorsal; and (3) lateral or oblique. Gallstone shadows will be larger in the ventrodorsal exposure than in the dorsoventral exposure, which is the opposite from the case of kidney stones, these being larger in the dorsoventral than in the ventrodorsal exposure. And in the lateral view, although these are difficult to obtain with any degree of satisfaction, gallstones will be more ventrally located than renal calculi which are more posteriorly or dorsally located. Among foreign bodies, especial difficulty is sometimes experienced with the case of epithelial papillomata, or warts. These should be examined for previous to undertaking the exposure; and if they are found on the skin of the patient they should be encircled with a lead washer maintained in place through the use of adhesive tape. By this means a wart shadow is soon recognized on the x-ray plate and will not be mistaken for the shadow produced by a gallstone.

There are those who argue that gallstones can be revealed by the plate study in from five to ten per cent. of the cases; and others estimate positive findings in from eighty to ninety per cent. of the cases. There can be no definite expression of the percentage of successful gallstone visualizations, nor should the x-ray evidence in cases of only doubtful shadows be the only criterion in arriving at a positive diagnosis of cholelithiasis. Of course, a negative diagnosis from the x-ray plate is wholly without value.

It is difficult to subscribe to the opinion that any gall-bladder visible on the x-ray plate is pathologic. In particularly thin individuals it may be an easy matter to outline the gall-bladder with the x-ray in the entire absence of gall-bladder abnormality. A valuable sign of gall-bladder trouble may develop from the adhesions that attack the pyloric end of the stomach as the result of inflammatory extension from the gall-bladder. The induced stomach deformity is visualized as a sharp angulation at the pylorus, which angulation persists and is characterized by smooth edges. In the presence of the gastric angulation, revealed by the contrast meal, and of a coexistent gall-bladder shadow which is markedly accentuated, an inference of gall-bladder disease is permissible from the x-ray appearance. For a comprehensive review of the bibliography of the x-ray examination of the gall-bladder reference must be made to the monograph by Knox entitled "Radiography in the Examination of the Liver, Gall Bladder and Bile Ducts."

Pneumoperitoneal Diagnosis.—In this country Doctors Stewart and Stein introduced pneumoperitoneal roentgenography. Their summary of this form of x-ray diagnosis appears in the X-Ray Bulletin of the Hospital Division of the Public Health Service (Volume I, No. 3), and is here reproduced.

The authors were the first to introduce Pneumoperitoneal Roentgen Diagnosis in this country. Since their preliminary report in July, 1919, they have endeavored, by improving the technique, to show distinctly the parenchymatous organs within the abdominal cavity

and their mutual relations, as well as many pathological changes in the same. The procedure has been utilized by them in about one hundred cases. The patients varied in age from 7 to 48 years.

Practically the only accessories required for pneumoperitoneal x-ray examination are: (1) A lumbar puncture needle, (2) rubber tube, (3) rubber bag (such as is used with the gas-oxy-n apparatus for anesthesia), (4) tank for gas.

Formerly they employed oxygen for inflation, but were forced to discontinue its use because of the length of time consumed in absorption. The first step to overcome the objection to oxygen was to deflate the patient after the examination had been made, but on account of the necessity of re-introducing the needle, it was thought best to employ a gas which would be absorbed more readily.

Dr. W. C. Alvarez of San Francisco suggested the use of carbondioxide, but recent experiments by the authors showed that the absorption of this gas was too rapid; all traces of same having disappeared within 15 minutes. At the present time they are using two parts carbon-dioxide and one part oxygen; this mixture disappears within about 30 minutes, thus allowing time enough to make a thorough roentgen examination.

The patient is prepared for the procedure by thorough emptying of the bowels, and, just before the inflation, the bladder should be emptied. We have found it advisable to administer one-quarter grain of morphine before pneumoperitoneum is established.

The lumbar puncture needle is introduced through the abdominal wall into the peritoneal cavity with all aseptic precautions—no local anaesthesia is used. About a half gallon of the gas is then allowed to enter the large sterilized rubber bag which is connected directly to the needle, through a rubber tube, the abdomen is then slowly inflated by gentle pressure on the bag. Thus the gas has an opportunity to warm in the bag before it is introduced into the abdominal cavity. No other warming, filtering or sterilizing apparatus is employed, nor is it necessary to use a manometer; the more complicated the apparatus, the more danger of infection.

In our first experience with oxygen, the patient was troubled with considerable pain in the shoulders; this, however, is now completely controlled by the injection of morphine, the gas being absorbed before the effect of the drug disappears.

One or two cases of puncture of the intestines have been reported. The authors have never had such an experience, but they who were so unfortunate as to enter the intestinal tract with the needle report that there were no ill effects from the accident. It is essential to be sure that the peritoneal cavity be entered, otherwise when the connection is made with the needle and the gas turned on, the tissues become impregnated with the gas and this interferes with clear roentgen detail.

The advantages of pneumoperitoneal roentgenography are that it enables one to see the paranchymatous organs which have not before been visible. We are able to demonstrate the liver, its many pathological changes and deformities; the gall bladder, both normal or pathological, and, in many instances the presence of gallstones; splenic enlargements and the diaphragmatic and subdiaphragmatic spaces clearly outlined. Cysts of the liver, pancreas and ovaries are easily recognized, also malignancies involving the large and small intestines. The female genital organs in their entirety, including tumors of these organs, can also be visualized. Kidney tumors of all characters and peritoneal adhesions are easily outlined. In fact, the possibilities of the method have not yet been exhausted.

Acute abdominal conditions would seem to contraindicate this method nor is it recommended in any case of known valvular heart disease. It has been the authors' experience that a certain type of patients, particularly elderly men who have used alcohol frequently, do not take well to pneumoperitoneum.

At the present stage of development the method should be reserved for the elucidation of diagnostic problems which cannot be "cleared up" by the ordinary roentgenographic methods of diagnosis.

Carman, under the topic of dangers and complications incident to pneumoperitoneal diagnosis, says:

(1) Puncture of the hollow viscera, (2) rupture of abscesses with liberation of infected materials into the peritoneal cavity; (3) fatal embolism by entering a blood vessel with the puncturing needle; (4) respiratory and cardiac disturbances; (5) severe pain in the shoulders due to gas distention; and (6) syncope.

It will be seen by a review of the literature that the method of diagnosis by means of pneumoperitoneum has many possibilities. For instance, Goetze's publications would lead one to believe that practically all organs of the abdomen and their diseases can be demonstrated by pneumoperitoneal roentgen examination. His opinion is doubtless colored by his enthusiasm for he goes so far as to say that examination of the gastrointestinal tract without air filling of the peritoneal cavity is not particularly promising. However, those who have had a vast experience with disease of the gastrointestinal canal well know that lesions of the intestinal tract are best shown by the opaque method.

Both Rautenberg and Goetze state that while they have been able to see the gall-bladder, pericholecystic adhesions, etc., in many instances, they have not been able to demonstrate gallstones consistently by this method. This is what might have been expected since the visualization of gallstones depends on the percentage of calcium in the stones and on the density of the enveloping bile. It is disappointing, however, from a clinical standpoint for any new method by which gallstones might be discovered in a large percentage of cases would have marked a real advance in diagnosis.

Although the kidneys may be clearly shown and many of their diseases are demonstrable by means of pneumoperitoneum it is questionable whether it can be compared for accuracy with the data obtained without air inflation by means of radiography, cystoscopy, differential renal functional test, and ureteropyelography.

The method of pneumoperitoneal roentgen diagnosis unquestionably has much merit, but because of its newness and the likelihood of its being used by the inexperienced it may come into considerable disrepute before its real limitations are learned. As in other x-ray work the difficulty will be in the interpretation of the picture and correlation of all roentgen findings. For this reason the roentgenologist should be chary of reading something into the plate that he does not clearly see.

If the patients for examination are carefully chosen pneumoperitoneum should prove a valuable aid to diagnosis, but it should be resorted to only after all other methods of examination have failed.

Present experience with this form of x-ray investigation is thus far limited; but in the few cases in which it has been used it seems to offer tremendous advantages in the study not alone of the intestines but more particularly of the liver and spleen. Splenomegaly, a topic heretofore unapproachable excepting through the expedient of splenepuncture and percussion has, in a series of 18 cases, been more accurately diagnosed through the use of pneumoperitoneal diagnosis than has heretofore been possible (Pacini).

It seems desirable to add Dr. Le Wald's experience with pneumoperitoneal diagnosis experimentally determined at the Gibbs Memorial X-Ray Laboratory. The conclusions reached by Doctor Le Wald were published in the *American Journal of Roentgenology* for October, 1920, and were as follows:

1. The presence of gas in the peritoneal cavity after the injection of oxygen can be demonstrated as late as eight days after the original injection.

2. A very moderate amount of gas is sufficient for diagnostic purposes. A proportion of about 2 c.c. of gas to 100 grams of body weight appears to answer this requirement.

3. The withdrawal of the gas appears advisable unless a rapidly absorbable gas, such as CO₂, is used.

4. The use of a more readily absorbable gas than oxygen appears desirable.

Note: Since this paper was read an effort has been made to follow the suggestion of Alvarez* and use carbon dioxide alone or a mixture of carbon dioxide and oxygen. The results have demonstrated the very rapid absorption of carbon dioxide, and the retardation by means of mixing carbon dioxide and oxygen in suitable proportions.

Philips, in *Surgery, Gynecology and Obstetrics* for November, 1920, suggests a useful expedient, that of inflating the colon as an aid in roentgen examination. Dr. Philips' communication is so short as to bear reproducing in full.

A patient on the dispensary service of Henry W. Frauenthal, appeared at the clinic suffering from chronic arthritis of the shoulder. In the course of a routine examination, a large tumor, apparently of the left kidney, was noted. It was diagnosed as a hypernephroma, and referred to the x-ray department for further examination.

The roentgenograms resulting from the usual examination of the urinary tract, were unsatisfactory, due to the immense size of the tumor. Its borders blended with the shadows of the spleen, liver, and pelvis, and it was exceedingly difficult to make out the margins of the growth. Oxygen inflation of the peritoneum was thought of but not resorted to because of the reluctance of the patient to stay over in the hospital for a few days, and his absolute refusal to be subjected to any operative procedure no matter how slight.

The following technique was used, a method frequently used in physical examinations, and in roentgen examinations of the bladder, but as far as the author can determine, not described as utilized in roentgen examination of the abdomen proper. The patient was placed on his left side, and a rectal tube inserted into the colon. With a small hand bicycle pump, the colon was slowly and gradually distended to the degree of slight discomfort, when the tube was withdrawn. The roentgen examination was then repeated with very gratifying results. The distended and slightly displaced colon offered a contrasting background, which clearly outlined the tumor, as well as the other solid abdominal viscera.

This method certainly does not offer as universal an application as oxygen inflation of the peritoneum, however its expedience, freedom from dangers and inconveniences, makes the author feel justified in submitting it to the profession at large.

Orndoff has pointed out the value of pneumoperitoneum as an aid in the diagnosis of gynecological conditions. He shows how the pelvic organs, including the uterus, round ligament, oviduct and ovary may be visualized and palpated synchronously. Other conditions in which pneumoperitoneum has proved useful are fibroids, pregnancy, extrauterine pregnancy, ovarian cysts and tumors, peritoneal adhesions with viscera fixation and pyosalpinx. The differential diagnosis of conditions of the rectum, bladder, and uterus has also been greatly facilitated through this expedient.

The new method is deserving of every trial, and great credit should be extended to its introducers for opening a new avenue of approach to x-ray pathologists in their study of the abdominal viscera.

*Alvarez, Walter C. "CO. Instead of O for Injecting the Peritoneal Cavity." *California State Journal of Medicine*, February, 1920.

THE NEWER TECHNIQUE FOR DEEP ROENTGENOTHERAPY.

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THE newer technique for deep roentgenotherapy is justly attracting more than passing interest from all the world over. Since the method had its origin in Germany it is also called by some the new German technique for deep roentgenotherapy. The only reason for offering this paper at this time is the thought that perhaps those who are having their patients treated with the roentgen rays would enjoy having the facts of this newer technique for deep roentgenotherapy in one short paper.

The old standard technique had for its factors the following: 5 MA of current, 9 in. parallel spark gap, 8 in. focal distance, 6 mm. filter, and an exposure over each area of from 5 to 10 minutes or according to the output of the machine in use. From each area one would cross-fire directly onto the new growth. In most of the cases so treated, I have been able to produce results that were most satisfactory to patient, physician, and myself. But there were a few cases of malignancy that were only made to feel better generally, and perhaps to live a somewhat longer life; also these people did not die the agonizing death that is common in malignancy. Some of these cases I thought ought to have done better, and I believe that in this newer technique we have the means at hand to produce even better results in the future. I have seen many cases do exceedingly well under the older methods but finally become ray-fast, while with the newer technique it is not uncommon to see an inoperable growth of the uterus, for instance, entirely disappear within ten days following the first series of treatments. This is called by the Germans, "the knock-out dose," and I like this term.

The newer technique for deep roentgenotherapy provides for the operation of the tube at a constant voltage equivalent of a 16 in. to 18 in. parallel spark-gap. The filter consists of one millimeter of either zinc or copper. The secondary radiations are now believed to be perhaps equal in value to the primary rays, and so as to increase the secondary radiations the Germans have increased their focal distances to from 50 cm. to 70 cm. and have enlarged their ports-of-entry to 20 cm. x 20 cm. An exposure of three hours is allowed.

It has been shown that when we increase filtration there is a marked change produced in the rays upon the addition of each millimeter of filter. This does not remain so for long, however. When the filter has reached a thickness of four millimeters we find that each millimeter in addition to the four millimeters changes the rays less and less, and that when our filter has reached a thickness of ten millimeters the rays are all practically homogeneous and that further filtration fails to change the radiations. I have followed in the footsteps of Schmidt, Pfahler, and Boggs, increasing my filtration in my deep work for malignancy to ten millimeters of filter material.

We, here in America, have been advised by no less an authority than Dr. W. D. Coolidge not to install the new high power transformer of German manu-

facture, for he doubts very much that the higher voltages obtained from this machine will prove practical. Dr. Coolidge has, however, definitely stated that those who have not as yet been able to raise their voltage to 126,000 must do so in the very near future, otherwise they will not be able to get the best results possible. Dr. Coolidge is at present experimenting with a much more powerful apparatus than the new German machine and will, in the future, let us have the benefit of his experiments. This machine is built to bring a voltage pressure on the tube of 240,000 volts. But, as I have just stated, this is an experimental machine, and Dr. Coolidge himself states that he can see no reason at present for increasing the voltage above 126,000 volts.

Like the Germans, American roentgenotherapists must increase the focal distances and the size of the ports of entry so that the secondary radiations may be increased to their maximum quantities. With our apparatus of the present day the focal distance should be about 30 cm., using ports of entry of at least 20 x 20 cm.

Conclusions.—While my experience with this new technique is limited, like that of other Americans who have tried it, the astounding results obtained with it in the patients who have been subjected to this method have led me to adopt it for all deep roentgenotherapy for malignancy.

The factors for this newer roentgenotherapy, using the present day American machine, equipped with the cross-arm type of rectifying switch (four pairs of cross-arms), are: Pressure on tube of 126,000 volts, 10 millimeters of filter, 30 cm. focal distance, with an exposure of about an hour, according to the value of the machine one is using.

The value of the machine refers to its output. Machines vary considerably, even those of the same make, therefore it is of extreme importance that the operator know the value of the machine he is to use before he attempts this newer technique for deep roentgenotherapy.

Since writing this paper it has been my privilege to examine rather closely some of the new German machines. We find that they are equipped with a spark gap having a disc on one side and a point on the other side of the gap. It is well known that it takes about 40 per cent. less voltage to break down a point and disc gap than it does to break down a point gap. The machines that I have examined are of the coil type with mercury interrupter and a valve tube for rectification of the current to the tube. This gives us rectification of the current to the tube equal to that delivered by a machine rectifying by means of a disc or by two pairs of cross arms, but not equal to the current delivered to the tube by a rectifier using four pairs of cross arms such as are found in the Snook Machine.

The Germans compute their voltages in terms of Peak voltage. It has been the custom in America to compute the voltage in terms of Root Mean Square. To obtain Peak voltage from R. M. S. voltage it is only necessary to multiply the R. M. S. voltage by 1.4. Those who have been using a 9" spark gap have been using Peak voltages of 126,000 while those who have been using the 10" gap have been using Peak voltages of 140,000.

When all these electrical conditions are taken into

consideration one can easily arrive at the conclusion that the best therapeutic machine of American manufacture has a far greater capacity than any machine yet made by the Germans.

The improvements in roentgenotherapy to date made by the Germans are: (1) Increase in size of the ports of entry thereby increasing the secondary radiations; and (2) Increase in focal distance which does eliminate many of the soft rays from reaching the skin and therefore permits us to greatly prolong our exposure over each area. This allows us to deliver a much higher percentage of hard rays to the disease and so produce a much more satisfactory result.

55 PARK STREET.

REPORT OF A CASE OF UROLOGICAL TUBERCULOSIS.*

By M. ZIGLER, M.D.

NEW YORK.

INSTRUCTOR IN GENITOURINARY AND VENEREAL DISEASE, POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL; CHIEF CLINIC, GENITOURINARY, LEBANON HOSPITAL, O. P. D.

The patient, Mrs. C. B., aged 29, housewife, born in Russia, presented herself at the Urological Clinic of Lebanon Hospital on October 21, 1916, with the following history: For the past six months, has had pain across her back, in the region of her kidneys, so severe that she was unable to stoop to lift objects from the floor. For the same period has had frequent desire to urinate, urinating as often as every half hour during the day and about five times during the night. The act of urination is associated with pain over the bladder region. This pain is not sharp nor is it radiating but rather a dull, heavy, dragging sensation. Also says that her urine is cloudy. Urine withdrawn from the bladder by a catheter showed a heavy pus cloud, macroscopically. Microscopically, large amount of pus cells, few red blood cells, and tubercle bacilli were found. Abdominal examination showed tenderness on percussion over the left kidney region behind. Abdominal palpation in front, demonstrated a slightly palpable left kidney and considerable tenderness of the same.

Cystoscopic examination on the same day, October 21, 1916, showed a loss of color of the bladder wall, the mucous membrane being of a pale, whitish hue, hemorrhagic areas being scattered throughout the bladder wall, especially in the region of the trigone and near both ureteral orifices. Left ureteral orifice considerably inflamed. I was able to introduce catheters into each ureteral orifice up into the pelvis of each kidney without finding any obstruction. From the right kidney the ureteral catheter delivered perfectly clear urine, from the left, very cloudy urine. Microscopic examination proved that the urine from the right kidney contained no pus or blood. The urine from the left kidney, however, showed many pus cells, a few red blood cells. In neither the right nor the left separated urines could tubercle bacilli be found, although in the combined bladder urine tubercle bacilli were found. Diagnosis from cystoscopic picture: left kidney and bladder tuberculosis. The x-ray picture showed marked enlargement of the left kidney. The patient remained under treatment with creosote and cod-liver oil for about six weeks, with only slight improvement in her symptoms. She then disappeared from observation until April 24, 1917, when she returned stating that she had a left nephrectomy performed about January 1, 1917. On April 24, 1917, she reports that since the operation she has felt much improved. Has no pain on urination. Urinates only twice during the night. Sinus in the left kidney region is not yet healed after four months. Weight at present is 120 lbs. At the time of the operation is was 90 lbs.

*Read on April 21, 1920, before The Bronx County Medical Society under the auspices of Lebanon Hospital.

The patient again disappeared from observation feeling that she was cured. On September 6, 1919, she returned to the clinic, stating that her pains in the bladder region had returned four months ago; that she is now obliged to urinate 20 times during the day and 5 times at night. At present she has pain during the entire act of urination. These attacks come and go, and at times radiate down the right ureter. Weight 140 lbs. Palpation on October 16, 1919, elicited right kidney enlargement. October 23, 1919, urinates every hour during the night. Creosote was again given with only moderate relief of the symptoms.

November 4, 1919, cystoscoped a second time. Ulcerations were found around the right ureteral orifice. The ulceration was so marked that it was impossible to find the opening itself.

November 6, 1919, instilled 5 per cent carbolic solution into the bladder neck.

November 10, 1919, patient returned stating that there was a marked improvement in frequency of urination and diminution of pain. Gave the second carbolic instillation.

November 12, 1919, third carbolic instillation given, with additional improvement in the pain.

November 15, 1919, fourth instillation of carbolic given. During this entire time patient has been taking cod-liver oil and a three-grain pill of creosote three times a day.

November 18, 1919, urinates about every 1 to 1½ hours without pain, 6 or 7 times a night. Relief in pain is more marked than relief in frequency. Received 6 grains creosote pill 3 times a day.

She received several additional carbolic instillations, with no beneficial effects. Since the pain of the instillations began to be out of proportion to the amount of relief obtained, they were discontinued. From that date to this patient has been receiving morphine and belladonna suppositories at night, in addition to the cod-liver oil and creosote internally. Her symptoms are practically just as severe to-day as they were 3½ years ago.

This case is reported not as the unusual but rather to portray the usual picture of urological tuberculosis. Also to show how unsatisfactory at best is the treatment of bladder and kidney tuberculosis, whether medical or surgical, conservative or radical.

Second, this case also shows that some beneficial effects from the symptomatic standpoint may be obtained from carbolic acid, but the results are not quite as wonderful as those Rovsing obtained.

The instillation method is really a modified Rovsing method, the treatment being an instillation of carbolic acid instead of an irrigation.

At best, these cases are the most rebellious and unsatisfactory from the therapeutic standpoint in all of urology.

40 EAST FORTY-FIRST STREET

Sterilization of Prisoners in Europe.—The fact that in several of the United States criminals have been submitted to sterilizing operations does not appear to appeal to European penologists. In Germany especially it has been stated before medical meetings that the moral effects are often deplorable. This propaganda seems strange because the operation is usually reserved for moral degenerates in the first place; nor is it apparent how vasectomy or ligation of the vas can entail any psychophysical change for the worse. The operation of vas ligation according to Steinach has all the value of testicular grafting in the aged (it is, of course, conceivable that the same operation on the young and robust would be a different proposition). It is also stated that during the war many of the greatest men of Germany, including several physicians of eminence, made apologies for the castration of "millions of individuals on the fields of battle." No details are given to explain this remarkable statement and the meaning of the anonymous commentator is not clear. —*Jl Polietnico.*

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THE RELATIONSHIP BETWEEN PHYSICO-CHEMICAL BLOOD CONSTITUENTS.

The development of physical and chemical methods which permitted reasonably accurate determination of some of the constituents and characteristics of the blood opened a new field to our laboratory workers. They busied themselves at first with the collection of data concerning the constitution of the blood of both normal persons and those suffering with various diseases. The results thus obtained formed a mass of individual observations which were capable of only a certain limited association with each other. They were valuable chiefly in that they increased our information concerning certain diseases and brought about some improvement in diagnosis and treatment. But conclusions as to the nature of the chemical activity of the body based upon these observations were often later found to be incorrect. Generally speaking there seemed to be but little relationship between the different factors though theoretically some interdependence should exist. This was due to insufficiency of data, imperfections in the methods used and the absence of a broad philosophical review of the whole field.

Now the hydrogen ion concentration (pH) is necessarily a resultant of the balance existing between two or more other factors and as data accumulated and were critically studied some of the governing factors could be recognized. Thus Barcroft was able to show that with known values for any two of the three variables, free oxygen, combined oxygen, and free carbonic acid, the third could be determined. Later Christiansen, Douglas, and Haldane demonstrated the same situation in regard to free and combined carbonic acid and combined oxygen, and Henderson has shown it to be true for free and combined carbonic acid and hydrogen ion concentration. More recently Henderson has extended this work and has been able to trace a close interrelation between the serum chloride concentration and any two of the five variables, free and combined oxygen, free and combined carbonic acid, and hydrogen ion concentration. On this basis he has constructed a nomogram (*Jour. Biol. Chem.*, 1921, xlii, 411) which pictures the relationships graphically. It is composed of six

series of ordinates drawn at different angles. "The relationship between the six variables is such that for a given blood, when values are assigned to any two, the values of the other four are determined and the condition of equilibrium unequivocally defined." Naturally certain reservations are made. It is probable that some of the methods used yield only approximate results. The data were obtained on defibrinated ox and human blood and it is not recorded that disease conditions were represented in the samples studied. But the chart does conform to much that is already known and may be accepted as representing substantially our present information in regard to these variables. It is true that these variables have largely to do with the subject of acidosis and the chart thus has a limited application, but the beginning having been made it is probable that further developments will come more readily. The importance of the realization of the interdependence of various factors is hardly to be overestimated. The different chemical reactions in the body are not completely isolated as if taking place in glass test-tubes; rather they seem to be separated by semipermeable membranes whose varying permeability permits one reaction to exert more or less influence upon others. With proper appreciation of this situation there will develop a better understanding of body chemistry as a whole.

DOES THE CORPUS LUTEUM OF PREGNANCY FORM CHOLESTERINE?

It is of interest to note that Schickelé of the Strasbourg obstetrical clinic, *Gynécologie et Obstétrique*, March, 1921, iii, 2-3, is a holdover from the German faculty of pre-war days, and that the work of which he was in charge as Professor Fehling's first assistant seems to be progressing along the same lines. The latter had to do with numerous phenomena of menstruation and much original work was done in this field. In continuing this work of investigation Gross has been studying the possible relation of the corpus luteum of pregnancy to cholesteroline. The great present-day interest in the substance cholesteroline was inaugurated by Aschoff in Germany and Chauffard in France. While its importance in the economy may have been exaggerated it is true that our exact knowledge of the substance is still in abeyance. The makeup of the molecule is not yet definitely known. The author classes it as a cyclic alcohol, nonsaturated, monovalent, secondary, and having a certain relationship with the terpenes. But while the terpenes are scattered freely throughout the vegetable kingdom, cholesteroline is found in the animal world and is a constituent of all of the animal tissues. Only recently has the technique developed to the point of its successful extraction.

One of the discoveries in regard to cholesteroline is its increase in the blood of the gravida. The curve of increase reaches a maximum in the latter months of pregnancy and after delivery sinks to the normal in 8 or 10 days. Many series of blood examinations make it certain that in pregnancy there

is a hypercholesterinemia. In regard to the place of manufacture of this excess Chauffard first suspected the corpus luteum of gestation. Cholesteroline is found free in the corpuscular elements and both free and bound with fatty acids in the blood serum. When cholesteroline is ingested it is the bound cholesteroline in the serum which shows most of the increase, although the free portion is also increased. The formed elements show no increase.

Cholesteroline is synthesized in the organism from vegetable food containing phytosterines. In the carnivora, the cholesteroline is obtained directly from the animal tissues. When the herbivora are artificially fed with cholesteroline they are unable to eliminate the excess promptly so that it accumulates in the liver, ovaries, adrenals, and elsewhere. But if the carnivorous mammal is made to incorporate an excess of this substance this is quickly expelled by the liver. In castrated females there is a temporary hypercholesterinemia which is soon adjusted, so that in the gravid state the persistence and increase of this substance in the blood cannot be explained by ovarian disuse. The author would explain the phenomenon as follows: The excess formation is clearly for the benefit of the fetus and any excess above fetal needs is probably eliminated by the bowel. The extra amount of cholesteroline must be forthcoming, but the author feels sure that it does not come from the corpus luteum. When the substance is increasing rapidly late in gestation the latter formation has long been in a state of regression and contains but a feeble amount of lipoids as the possible source of cholesteroline. Not in any one organ or set of organs but in the organism as a whole must we look for the source of this increase, which is due to the total metabolism.

THE SOCIAL EVOLUTION OF MEDICINE.

In all countries the practice of medicine is undergoing a change and nowhere more so than in the two great English-speaking countries—America and Great Britain. The trend of modern medicine is preventive and the change is, in fact, a social evolution. This evolution, perhaps, is more obviously apparent in Great Britain than in this country, because in the former a Ministry of Health has been established, the policy of which is naturally more in the direction of prevention than of curative or remedial treatment. The policy of the British Ministry of Health has been ably sketched by its chief medical adviser, Sir George Newman, in his memorandum entitled "An Outline of the Principles of Preventive Medicine."

In a word it might be said that the practice of medicine from being individualistic in a high degree, that is, a patient calling in a medical man when he was sick and only then, has under the altered conditions become a national affair. It is now not so much a question of the doctor bringing the individual back to health as that of maintaining the mass of the people in a satisfactory state of health by preventive means. For example, under this new conception of medical

service, a considerable portion of the British medical profession is engaged in saving infant and child life, in the care of maternity, in school medical service, in the fight against venereal disease and tuberculosis, and so on. Again domestic and industrial hygiene is occupying the attention of all those concerned with the prevention of disease, as it is beginning to be well understood by laymen as well as medical men that, unless people are properly housed and work under favorable sanitary and hygienic conditions they cannot be healthy themselves nor able to breed a healthy race. The problems of home and industrial hygiene are the most important in a campaign waged for the prevention of disease. The evolution which medicine is going through is that it is changing from individualistic to communal in character. Moreover, the principles of practice enunciated and taught by Sir James Mackenzie are preventive in that these principles are based on the early detection of diseases and treatment calculated to prevent their further development.

Large schemes for preventing disease cannot be carried into effect by the individual medical man, maternity schemes and those for saving infant life, for instance, and therefore a part of the profession must be socialized. There will always be plenty of scope for the private practitioner, although his education will have to be conducted on somewhat different lines. While there is no ministry of health in this country, in many respects the advance of preventive medicine is more marked here than in Great Britain. Industrial hygiene has made more progress by far. The Public Health Service teaches and practises preventive medicine on a wide scale and has deserved well of the country by reason of its successful efforts to prevent the dissemination of disease. It would not be too much to say that in the framing and enforcing of measures to prevent disease America is in advance of Great Britain. The main objection urged against the Ministry of Health in Great Britain is that being a department of a government, politics must sway its decisions to some extent, to the disadvantage of the members of the medical profession and the public health. Politically the medical profession is almost powerless; the members thereof working under the ægis of the Ministry of Health are by no means wholly independent, for the ministry may follow a course dictated by the Government from political motives and which may be adverse to the interests of medical men and possibly not in the best interests of national health.

So far as possible politics should be left out of health matters and the medical profession, uniting in non-scientific organizations, such as the various professional guilds now being formed throughout the country after the model of the one in Kings and Queens counties in this State, should be sufficiently powerful to protect itself against political domination arising within or without its ranks. The public health must be safeguarded by scientists and not jeopardized by politicians.

SUDDEN DEATH AT THE OUTSET OF INDUCED ABORTION.

CASES of this nature are not exceptional and sometimes occur at the instant of injecting solutions into the uterus, either when performed by a professed abortionist or by the victim herself. This type of death was named by Brown-Séquard death by inhibition, and is characterized by its calmness and complete absence of death agony, convulsions, etc. The venous blood remains red for a long time in place of turning black, and the postmortem temperature undergoes a rapid decline. According to Caraes (Thèse de Paris, 1920, reviewed in the *Journal de médecine et de chirurgie pratiques* for February 10, 1921, cviii, 3), the determining factor is apparently either puncture of the membranes or detachment of the membranes or placenta by the injection fluid. It is not necessary that there be a lesion of the ovum or uterus, for in certain cases mere dilatation of the cervix by the nozzle has sufficed. The author, however, does not accept the hypothesis of inhibition death in these cases, for thorough study has shown the important part played by air embolism. The chances are, indeed, that every one of these deaths is of this nature. To produce this embolism-death several factors are requisite. The first is the presence of numerous air bubbles in the injection fluid; in the second place, the uterine veins must be exposed by detachment of the placenta or as the result of an actual injury to the uterus; and finally a certain amount of force must have been used in making the injection. Under these conditions air is forced directly into the veins with the inevitable result. Another complicating factor is the caustic or toxic character of some of the injection fluids.

MECHANISM OF MOUNTAIN SICKNESS.

THIS subject is briefly covered by Langlois and Binet in *La Presse Médicale* for February 26, 1921, xxix, 17. Among numerous symptoms, respiratory malaise and asthenia are the most conspicuous at the outset. Later appear precordial anxiety and dyspnea which ceases on repose and is aggravated by the slightest effort. Later with increased aggravation of other symptoms there supervene violent headache, vertigo, confusion of ideas, vomiting, nosebleed, etc., death occurring in an asphyctic crisis. In regard to rationale, Bert and Jourdanet originally made this one of oxygen privation, or anoxemia. Mosso added to anoxemia acapnia or insufficiency of carbon dioxide, a certain amount of the gas being the normal respiratory stimulant. This is borne out by experiment, for whereas pure oxygen cannot give sufficient relief a mixture of O with a percentage of CO₂, which increases with the altitude, does afford relief. In addition there is a mechanical theory to the effect that rarefaction of the air in general causes in time a pulmonary congestion which overworks the right heart. This fact is also emphasized by Mosso. Heger, who is a Belgian, has been at work on the barometric theory since 1873. The main question is "Can rarefied air alone produce mountain sickness by mechanical means?" This and the entire question, in fact, depend on the effects of rarefaction on the blood

picture. High-dwelling birds possess a larger right heart than those on the plains. Altitude causes polyglobulia and increased hemoglobin. The treatment test might show the correctness or reverse of Heger's mechanical theory, for it should consist of remedies to increase the systole—oxygen, venesection, cardiac tonics, etc. The authors ignore Mosso's great work in the domain of aviation in which his theory of acapnia led to the successful use of oxygen-carbon-dioxide mixtures at a certain high level.

ANTIGANGRENOUS SERUM IN GANGRENOUS ANGINA AND PULMONARY GANGRENE.

THE results obtained by Guises from intrabronchial injections of antiseptics into the foci of pulmonary gangrene appear to be equalled by the results of serotherapy, so that a combination of the two resources would seem in theory to be able to control this condition. Houzell and Sevestre publish a case in the *Journal de médecine et de chirurgie pratiques* for March 10, 1921, cviii, 5. The subject was a man of 29 who had been suffering for a month with pulmonary gangrene of unknown origin. There was a violent pain in the side, the expectoration was characteristic, the cough was spasmodic and severe, and fever of the hectic type was present. The general condition was that of the terminal period of a cavitory lesion—the patient being apparently moribund. The serum injected comprised a mixture of the sera of the perfringens and sporogenes in physiological solution, 20 c.c. each in 500, injected intravenously and followed the next day and three days later with a mixture of perfringens, sporogenes, antivibrio, edematiens, and histolyticus sera. The symptoms were slightly aggravated at the moment of injection, but at once began to improve. In three days the temperature was down and one week later all fetor had left the expectoration. The general improvement, however, was still more striking, for in one month's time the subject had gained about 25 pounds. Tixier obtained last fall a similar cure of a case of gangrenous angina. The efficacy of these sera seems remarkable, surpassing, perhaps, that of any other form of serotherapy. The combination of the latter with direct intrabronchial injections seems at first sight to do away with the necessity of surgical intervention for gangrene of the lung.

THE OLD AND NEW CONCEPTIONS OF SCROFULA.

PROFESSOR Marfan delivered a lecture on this subject last January at the Hospital for Sick Children, Paris, an abstract of which appears in the *Journal de médecine de Paris* of March 20, 1921, xl, 8. The older view of scrofula obtained unmodified until toward 1880, its leading manifestations then comprising enlarged lymphnodes, scrofulous facies, blepharitis, keratitis, otorrhea, fungous disease of the joints, etc. The change was brought about by the introduction of bacteriology, which science soon showed that the majority of these lesions were due to the ordinary pyogenic cocci. The enlarged lymphnodes in the neck were often due to the tubercle bacillus and the tracheobronchial glands were invariably of this origin; there was a tuberculous caries

of bone and various tuberculous processes in the skin. But these tuberculous manifestations comprised under the head of scrofula were notably benign, and their presence did not indicate that the subject would be phthisical in after years. On the contrary the presence of these lesions seemed to predicate a certain amount of natural or acquired immunity to the bacillus. But under the age of five years the cuterection is positive and violent. Certain obstinate and obscure dermatoses are regarded by some observers as tuberculides while others look upon them as due to pyogenic cocci. The young scrofulous child is very apt to show the association of a slight degree of rickets and this suggests that diet should play an important role in the treatment.

News of the Week.

Pneumonia Plague in Vladivostok.—A serious outbreak of pneumonic plague at Vladivostok, Siberia, was reported in a cablegram received at the American Red Cross headquarters in Washington recently.

Plans for National Welfare Department.—Brigadier General Charles E. Sawyer, in an address before the Washington Homeopathic Medical Society on May 3, outlined President Harding's public welfare program. The welfare department which is being planned, he stated, would aim to link up education, public health, social science and soldier rehabilitation. Under the proposed plan disabled and ill veterans are promised the aid they are in need of.

Medical Society Invokes Referendum.—The Missouri Medical Society, at a meeting on April 19, adopted resolutions authorizing its Committee on Health and Public Instruction to consider invoking a referendum on Senate bill No. 433, passed by the last Legislature and signed by Governor Hyde, which modifies the law regulating the examination of applicants to practise medicine in Missouri. The bill in question is so constructed that it takes from the Medical Examining Board the authority to define the reputable medical schools, which members of the society assert would result in the licensing of graduates from what are commonly known as "diploma mills."

Louisiana Physicians Protest Against Annual License Fee.—The Louisiana State Medical Society at its annual meeting held in New Orleans April 20, 1921, adopted and forwarded resolutions to the Constitutional Convention urging it to abolish the license fee now exacted by the State for the practice of medicine. The objections to the fee are not on monetary grounds but because the principle is regarded as unjust, and not in keeping with the dignity of the profession.

Hearing on Sheppard-Towner Bill.—At a hearing on the Sheppard-Towner Maternity bill, held in Washington on May 5, emphatic opposition was voiced. Dr. Alfred H. Quessy, representing the physicians of Fitchburg, Mass., asserted that the maternity and infancy aid proposed was superfluous and described the measure as an entering wedge to State or Federal control of the practice of medicine. The bill was attacked by Dr. Charles O'Donovan of Baltimore as a contravention of the general welfare clause of the Constitution and as

an unnecessary additional burden on the taxpayer.

Bonus to French Mothers.—The French Government on April 30 announced that after May 1 a premium would be paid for all children born in France. In the provinces 300 francs, normally about \$60, will be paid for third infants, the scale being gradually increased to 650 francs for the tenth child. In Paris these premiums will be increased 50 per cent. due to the higher cost of living.

Cassel Hospital for Nervous Diseases.—Sir Ernest Cassel of London, who has devoted a large part of his fortune to the endowment of hospitals and educational institutions, has set aside £225,000 to found and endow a sanatorium for nervous diseases. He has purchased a mansion and park at Pensihurst, which will accommodate about sixty patients. It is intended for patients of the educated class who are unable to afford the expense of such special treatment.

Addition to Harlem Eye and Ear Hospital.—A campaign to raise \$50,000 has been launched to finance the construction of an addition to the Harlem Eye and Ear Hospital, New York. The addition is to provide for two children's wards, a special anesthetizing room for tonsil and adenoid cases, and rooms for nurses.

Madame Curie, who arrived in New York on May 11, will be the guest of honor at the annual meeting of the American Association of Social Sciences to be held in New York on May 19, when Vice-President Calvin Coolidge will confer upon her the gold medal of the Society.

New Bill Bans Beer for Medicinal Use.—A bill to amend the prohibition law to prevent physicians from prescribing beer for medicinal purposes was introduced into the House of Representatives by Representative A. J. Volstead on April 25. In addition to specifically prohibiting the use of beer as medicine, the bill makes more strict the regulating the prescription of wine as medicine. Section 2 of the new bill reads as follows: "Only spirituous and vinous liquor may be prescribed for medicinal purposes, and all permits to prescribe and prescriptions for any other liquor shall be void. The Commissioner may limit the number of prescriptions for liquor of any kind that physicians may prescribe and may limit the quantity and alcoholic content of vinous liquor that may be prescribed for use within any specified period."

Influenza Appears in French Camp.—An epidemic of grippe has appeared in the military barracks at Orleans and St. Etienne in a very severe form. In Orleans there are more than one hundred cases in the hospital and ten per cent. of the cases have resulted fatally. In St. Etienne an average of two deaths a day from the disease have been reported for a fortnight. Medical officers believe the disease has been carried by bedbugs in the clothing of recruits.

Child Welfare Exhibit.—The American Red Cross and French welfare societies opened a child welfare exhibit in Roubaix, France, on April 25, under the auspices of the city administration.

Physiatric Institute Opens.—The formal opening of the Physiatric Institute for the investigation and treatment of diabetes and metabolic disorders, located near Morristown, N. J., was formally opened on April 26. The speakers were Dr. Henry

S. Pritchett, president of the Carnegie Foundation; Dr. E. P. Joslin of Boston, Dr. David C. English of New Brunswick, N. J., and Dr. Frederick M. Allen, the director of the Institute.

American Hospital for Havana.—An American hospital, to cost \$300,000, is to be built in Havana through the efforts of the resident and visiting English-speaking people. A bond issue has been planned backed by a trust company which has promised to act as trustee.

New Health Resort and Sanitarium in Florida.—Announcement is made of a projected health resort near Jacksonville, to be called Healthsport. It will have a large hotel with detached bungalows, sanitarium and hospital buildings, club and casino, and churches of several denominations. The president of the association is Dr. C. C. Collins of Jacksonville; secretary, Dr. R. M. Baker, and treasurer, Dr. Theo. G. Craft.

Dr. W. S. Dixon of Metropolis, Ill., is a candidate for the office of Mayor in that city.

Dr. Frank Hunt has been re-elected Mayor of the City of Gibson, Ill.

New Hospital for Mediad, India.—A new hospital building with modern equipment has been presented to the Thoburn Mission Hospital, Mediad, India, by the Mohammedan merchants of the city. Dr. Alexander Corpron of Medford, Ore., is superintendent of the Thoburn Hospital.

Date of State Meeting Changed.—The date of the Missouri State Medical Association, which was to have met in St. Joseph, May 17-18-19, 1921, has been changed to May 24-25-26. The change was made necessary because another convention was scheduled to meet in St. Joseph during the week of May 17.

Medical Society Elections.—THE SOUTH PIEDMONT (VA.) MEDICAL SOCIETY, at its thirty-second meeting held April 19, 1921, elected the following officers for the ensuing year: *President*, Dr. Elisha Barksdale, Lynchburg; *Vice-Presidents*, Dr. E. J. Gregory, Keyesville; Dr. C. L. Bailey, Danville; Dr. R. H. Fuller, Clover; Dr. D. P. Scott, Lynchburg; *Secretary and Treasurer*, Dr. George A. Stover, South Boston.

THE ALABAMA MEDICAL ASSOCIATION, at its meeting held in Montgomery, April 21, 1921, elected the following officers for the ensuing year: *President*, Dr. D. F. Taller, Birmingham; *Vice-Presidents*, Dr. J. A. Howle, Eclectic; Dr. H. S. Ward, Birmingham; Dr. W. R. Jackson, Mobile; *Secretary and Treasurer*, Dr. H. G. Perry, Montgomery.

THE SOUTH CAROLINA MEDICAL SOCIETY at its annual meeting held in Columbia, April 19, elected the following officers for the ensuing year: *President*, Dr. H. L. Shaw, Sumter; *First Vice-President*, Dr. D. M. Crosson, Lexington; *Second Vice-President*, Dr. H. W. Rice, Columbia; *Secretary and Treasurer*, Dr. E. A. Hines, Seneca.

THE LOUISIANA STATE MEDICAL SOCIETY, at its annual meeting held in New Orleans, April 21, elected the following officers for the ensuing year: *President*, Dr. J. E. Knighton, Shreveport; *First Vice-President*, Dr. W. H. Hardy, New Orleans; *Second Vice-President*, Dr. R. Bruce Wallace, Alexandria; *Third Vice-President*, Dr. T. A. Roy, Mansura; *Secretary-Treasurer*, Dr. P. T. Talbot, New Orleans.

THE WEST BALTIMORE MEDICAL ASSOCIATION, at its annual meeting held April 19, 1921, elected the following officers for the ensuing year: *President*, Dr. Arthur Barrett; *First Vice-President*, Dr. W. J. Sullivan; *Second Vice-President*, Dr. F. L. C. Helm; *Treasurer*, Dr. Joseph N. Zierler; *Secretary*, Dr. Gustav Goldman.

THE MCLEAN (ILL.) COUNTY MEDICAL ASSOCIATION, at its regular meeting held in Bloomington, Ill., April 12, elected the following officers for the ensuing year: *President*, Dr. E. L. Brown, Bloomington; *Vice-President*, Dr. William McIntosh, Colfax; *Secretary*, Dr. Ralph Peairs, Normal.

THE WARREN COUNTY (MISS.) MEDICAL SOCIETY, at its annual meeting held in Vicksburg, April 28, elected the following officers for the ensuing year: *President*, Dr. Gus Street; *Vice-President*, Dr. H. C. Denson; *Secretary and Treasurer*, Dr. J. A. K. Birchett, Jr.

THE WINDHAM COUNTY (CONN.) MEDICAL SOCIETY, at its annual meeting held at Putnam, April 26, elected the following officers for the ensuing year: *President*, Dr. E. F. Smith, Willimantic; *Vice-President*, Dr. G. T. LaMarche, Putnam; *Secretary and Treasurer*, Dr. R. C. Paine, Thompson.

THE NORTH CAROLINA STATE HEALTH OFFICERS, at their meeting held in Wilson, April 26, elected the following officers for the ensuing year: *President*, Dr. L. J. Smith, Wilson; *Vice-President*, Dr. A. C. Bulla, Winston-Salem; *Secretary*, Dr. F. M. Register, Raleigh; *Secretary of the State Board of Health*, Dr. W. S. Rankin, Raleigh.

Obituary Notes.—Dr. CORDELIA WILLIAMS of New York City, died at the home of her son in this city on April 29, at the age of eighty-nine years. She was a graduate of the New York Medical College and Hospital for Women in 1878, and a vice-president of that institution up to the time of her death.

Dr. JULIUS C. BIERWIRTH of Brooklyn, N. Y., a graduate of the College of Physicians and Surgeons, New York, in 1885, died suddenly from an attack of heart disease at his summer home at Long Beach, L. I., on May 1, at the age of sixty-four years.

Dr. JOHN A. SHAFMEISTER, health officer of Ossining, N. Y., died there on May 1, at the age of sixty-three years. He was graduated from the New York Homeopathic Medical Society in 1889.

Dr. JOHN KEPKE of Brooklyn, N. Y., a graduate of Bellevue Hospital Medical College in 1890, died on May 1 at the age of sixty years. He was a member of the staff of St. Catherine's Hospital.

Dr. HILLEL SOLOTAROF, a graduate of New York University Medical College in 1891, died at his home in New York City on May 1, at the age of fifty-four years.

Dr. K. M. FERGUSON of Indianapolis, Ind., a graduate of the College of Physicians and Surgeons, Baltimore, died of cerebral hemorrhage on April 24, at the age of fifty-eight years. He was a member of the American Medical Association and assistant superintendent of the Central Hospital for the Insane at Indianapolis.

Dr. ROBERT M. BROWN, chief surgeon at the General Hospital at Saranac Lake, N. Y., died of septic poisoning from a cut on the hand received in the course of an operation on April 30, at the age of

forty-three years. He was graduated from the College of Physicians and Surgeons, New York in 1905 and was a member of the American Medical Association.

Dr. GEORGE HALBERSTADT, chief surgeon for the Philadelphia and Reading Coal and Iron Company, died at his home in Pottsville, Pa., on April 23, at the age of sixty-four years. He graduated from the Department of Medicine of the University of Pennsylvania in 1878. He served in the National Guard and retired as a brigade surgeon.

Dr. A. MCCLINTOCK of Springfield, Ohio, a graduate of the Columbus (Ohio) Medical College in 1887, died following a stroke of apoplexy on April 21, at the age of sixty-seven years.

Dr. JOHN MCLEAN for many years chief surgeon of the Pullman Company, died in St. Mary's Hospital, Centralia, Ill., on April 25 at the age of eighty-four years. He was a graduate of Rush Medical College in 1863, and a Civil War veteran.

Dr. FREDERICK E. WALKER, a graduate of the University of Iowa College of Medicine in 1898, died at his home in Long Beach, Cal., on April 25, at the age of forty-nine years.

Dr. GEORGE A. CARTWRIGHT of McKees Rocks, Pa., a graduate of the University of Pittsburgh Medical College in 1909, died of pneumonia at a local hospital on April 26, at the age of forty-two years.

Dr. CHARLES H. MCILWAINE of Newark, N. J., a graduate of University of Pennsylvania Department of Medicine, in 1877, died April 29.

Dr. JAMES A. MCKEE of Sacramento, Cal., a graduate of Rush Medical College in 1886, died after a lingering illness on April 19, at the age of sixty-seven years.

Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent)

LONDON, April 18, 1921.

Work of the London Cancer Hospital.—At the annual meeting of the governors of the London Cancer Hospital held recently, the seventieth annual report was presented. This recorded that the new in-patients in 1919 numbered 631 and 810 in 1920, and new out-patients 811 in 1919 and 1,127 last year. The total attendance of out-patients last year was 22,821, compared with 25,728 the previous year, and the daily average number of beds occupied was 82 in 1919, against 93 in 1920. Three new departments had been opened, one for intermediate cases, a dental department, and a medical out-patient department, and during the year the pathological and research departments had been recognized. In the electrical and radiotherapeutic department, under the direction of Dr. Knox, there is provided a substantial quantity of radium, which is constantly in use with excellent results in the treatment of the patients, and the committee are facilitating research with a view to the development of the possibilities of radiotherapeutics.

Effect of the Development of the Thumb on the Eye of Modern Man.—Lieut.-Colonel R. H. Elliott, lecturing on "The Eye in Health" at the Institute

of Hygiene a few days ago, said that reading in bed was considered a vicious habit, but that was because it was so often done with a light behind the shoulder and the eyes turned up. It was the position that did the mischief. If you sit up, he said, and look down at the print and have a good light, there is no reason why reading in bed should be any more harmful than reading at a desk. Long ago, Dr. Elliott said, "the ancestor of man and the higher apes developed the use of the opposing thumb and on this hung the whole future of civilization. The thumb, which could be used in opposition to the fingers, enabled its possessor to pick up and study the objects that lay around him. The objects studied were always held below the level of the eyes, and thus, all through the ages the muscles that depress the eyes have been more called upon than those which raise them. To-day the latter are weaker than the former and are much more liable to tire when the eyes are directed upward. Hence the evil of lying on the back in bed reading a book. If we go to the Royal Academy and look up at the pictures for two or three hours we come away with a headache. Many find the same effect after sitting in the stalls of a theater or a cinema. It would be much better if the picture galleries could be arranged so that we could look down at the pictures from above." On the question of short-sightedness the lecturer said that it was rubbish to say that using the eyes abundantly in an active business life was harmful. He also declared that the majority of shortsightedness begins in influenza, measles or other epidemics; the myopic class are the most intelligent in the community, shortsightedness is hereditary, though no child is born shortsighted. The tendency to acquire it is greatest in the years of growth.

A New Malady.—Recently a considerable number of persons have consulted their medical men with regard to an affection which does not seem to conform to the accepted categories of disease. According to newspaper accounts this malady has puzzled the medical profession with its unaccounted manifestations. While not especially violent in its onset, it raises the temperature for a few days and although not prostrating at first, there is yet a good deal of resulting weakness. It is not in the first instance a skin disease, but is nevertheless characterized by an alarming rash. As the medical correspondent of the *Daily Telegraph* points out, the new ailment breaks most of the rules of a well ordered disease and the only thing that seems certain is that this strange affection represents the efforts of the system to get rid of a poison, but as for the origin of the latter expert opinion is divided. Some aver that it is no more than a variation of the homely measles, or of its imitation, German measles; others confess to witnessing in it the work of a new germ. And, as of course was to be expected, that insidious progenitor of most of the ills to which human flesh is heir has been declared to be at the bottom of this mysterious malady. Granted, that influenza may be the fons *et origo* of such cases, it is practically impossible to place the blame on influenza until the germ of that pernicious disease has been shown to be present. Recent research

in various parts of the world appears to have demonstrated more or less conclusively that influenza is a mixed infection, that is to say, that the disease is not dangerous until Pfeiffer's bacillus has allied itself with other germs rightly notorious for their powers for evil. In the same way, all the ordinary catarrhal troubles which commonly afflict the human race are the outcome of mixed infections, but unlike influenza, of a mild nature. It is likely that the supposed new disease will turn out to be of a catarrhal character. However, it may be due to alimentary toxemia brought about by disturbance of the digestive tract or intestinal stasis. No decision can be arrived at until further and more extended observations have been made.

The Queen and the Royal Free Hospital.—The Queen has announced her intention to visit the Royal Free Hospital, situated in Grey's Inn Road, London, on May 11, 1921. Her Majesty's intention has given great satisfaction to medical women, as the students of the London School of Medicine for Women receive their clinical instruction in the wards of the Royal Free Hospital. The especial object of the Queen's visit is to inaugurate the Unit of Obstetrics and Gynecology which marks an extremely important development in education, the unit on group system which has been introduced on trial in some of the more important London and provincial hospitals. The Unit of Obstetrics and Gynecology is among the first innovations of the kind to be opened in London. Moreover, this hospital is the first to be recognized by the British Treasury as eligible for a grant for a unit in these subjects. The Senate of the University of London appointed recently Dr. A. Louise McIlroy as director of the unit, a tribute to the exceptional ability and organizing powers of Professor McIlroy and a remarkable recognition in itself of the position that women have gained in the medical profession here. With her will be two full-time resident medical officers as assistants. There will be sixty-eight beds under the direction of Professor McIlroy and her assistants, and they will also take charge of the maternity work in the large poor and populous district in which the hospital is located. In addition, there is a branch of the Royal Free Hospital situated near by the main hospital and given by the Duchess of Marlborough. This subsidiary hospital accommodates twenty-six obstetric beds, a few venereal obstetrical cases being included. It is conducted on the lines of a nursing home, being made up of small wards and nicely furnished. It consists of labor, isolation wards and so on. Patients in this department pay for their maintenance according to accommodation. It should be mentioned that research work is to be made a feature of the Royal Free Hospital Unit and with this end in view is being equipped for research work upon antenatal pathology and also upon the physiological aspects of child birth and pregnancy. Special researches will be made into economic questions involved in women's work, and into its influence upon the child and the influence of venereal and other toxic diseases upon pregnancy. The Queen has always taken keen interest in the medical education of women.

Industrial Colonies and Village Settlements for the Consumptive.—In these days when views as to the treatment and care of consumptives are undergoing revision it is both interesting and instructive to read a book dealing with the subject written by men who have made of it a lifelong study and have had practical experience of the working of a system calculated not only to treat and care for those suffering from the disease in all stages, but to render a goodly proportion of them self-supporting. *Industrial Colonies and Village Settlements for the Consumptive* is written by Sir German Woodhead, Professor of Pathology in the University of Cambridge, and Dr. P. C. Varrier-Jones, the honorary medical officer of the Cambridge Tuberculosis Colony at Papworth with a preface by Sir Clifford Allbutt, Requis Professor of Physics in the University of Cambridge. This book gives a description of the manner in which the tuberculosis problem is tackled at Papworth, that is by a combined system. There is a sanatorium, agricultural and industrial colonies and a village settlement. The sanatorium by itself has been a failure, or a partial failure, partly because too much was expected of it and partly because in the great majority of cases it did not cure but turned out men who were unable to hold their own in the rush and tumble of the world, but soon fell again by the wayside and too often the last state of those men was worse than the first. The industrial colonies and village settlements are more or less essential complements to the sanatorium, providing means whereby the consumptive man can be to some extent self-supporting and can live if needs be with his family, without being compelled to encounter the rude shocks of the ordinary workaday world. The book shows that Dr. Varrier-Jones has met with very considerable success in the carrying out of the combined system idea and makes encouraging reading from all points of view.

LETTER FROM GENEVA.

(From Our Own Correspondent.)

GENEVA, April 1, 1921.

Phenylcinchoninate of Allyl.—Some Geneva physicians, among others Prof. M. Roch and Dr. Vallett, have been experimenting clinically with a new Swiss product, namely, phenylcinchoninate of allyl. Starting from the experimental and clinical fact that the substitution of the allyl group for the methyl or ethyl radical has a favorable influence on the therapeutic activity of a drug, researches have been carried out in this direction with phenylcinchoninic acid with the result that an allylic ether of this acid has been produced. This product is composed of yellowish crystals, melting at 30° C., very soluble in ether and fatty oils, slightly soluble in alcohol, and insoluble in water. It is odorless and aromatic in taste. Experimental and clinical researches have shown that this product energetically stimulates the elimination of uric acid; it is likewise endowed with analgesic, antiphlogistic, and antipyretic properties. Given in ordinary doses of twenty-five centigrams four or five times daily, it does not appear to have any irritating action on the

circulatory, respiratory, renal, or digestive tracts.

Clinically, uricemia is quickly diminished by the use of this drug, and it would seem clearly indicated in cases of typical uric acid arthritis. This is the impression derived from its use by Prof. Roch and Dr. Vallett. The therapeutic action of the drug is clear in certain affections of the mucosæ, especially when of an arthritic or gouty nature and in catarrhal inflammation of the respiratory tract.

Swiss Society of Hygiene.—Under this name a new society has recently been founded whose aim is to develop hygiene in Switzerland. In order to better attain this end the society will undertake a general propaganda in order to make the notions of hygiene better understood among the masses. It will suggest the necessary ameliorations, particularly in the domain of social hygiene and working classes. It intends to cooperate in solving the problems relating to the improvement of lodgings and alimentation, the prevention of epidemics and, in a general way, to introduce measures of a prophylactic kind which contribute to assure the health of the public generally and individuals in particular. School hygiene, comprising not only inspection of buildings and school furniture, but the methods of teaching also is one of the problems before the society, and the special aptitude of the scholars as well. The physical development of children and the creation of offices of protection and prevention are also to be considered. Medical inspection of schools and dental care are two important problems to be studied. The hygiene of the worker and the factory, especially of female workers will be thoroughly examined by the new society, as well as the salubrity of cities, towns, and rural districts, while the study of demographic questions, which should give important data as to the future of the population, will not be neglected.

To attain these various ends the society proposes the following means: (1) meetings of the society for the purpose of discussing the questions related to the proposed program of work; (2) the publication of a journal, and (3) the organization of public lectures, courses of instruction and expositions of hygiene and social prophylaxis as well as other manifestations susceptible of contributing toward the aims of the society.

Osteomalacia and the Endocrines.—The attention of pathologists as to the frequency of endocrine changes during the evolution of osteomalacia has not been devoted to this subject for sufficient time to have as yet resulted in obtaining any precise data, but the presence of goiter in senile osteomalacia has been encountered sufficiently often to justify the study of this problem. Dr. Askanazy, professor of pathology at the University of Geneva, has performed within the last few years autopsies in thirty cases of senile osteomalacia, namely, twenty-eight females and two males. In the female cases the presence of goiter or some change in the thyroid gland was noted in seventeen, and it must be remarked that in some autopsies this gland was not examined. But as cases of osteomalacia became more frequent, the indications relating to the state of the thyroid have increased both in number and precision.

For the past few years Professor Askanazy has weighed the thyroid at each autopsy; the two following tables show the average weight of the gland for each decade:

1917		1918	
From—	Number of Grams	From—	Number of Grams
0 to 10 years.....	17	0 to 10 years.....	9
11 to 20 years.....	43	11 to 20 years.....	45
21 to 30 years.....	59	21 to 30 years.....	52
31 to 40 years.....	71	31 to 40 years.....	54
41 to 50 years.....	66	41 to 50 years.....	49
51 to 60 years.....	62	51 to 60 years.....	54
61 to 70 years.....	80	61 to 70 years.....	67
71 to 80 years.....	86	71 to 80 years.....	72
81 to 90 years.....	89	81 to 90 years.....	66
91 to 100 years.....	130	91 to 100 years.....	55

It should be remarked that the decrease observed between the age of forty and fifty years corresponds with the variations of sexual activity, so frequently disordinate, and that after this epoch the size of the thyroid usually increases, perhaps because it plays a part in pathological corruption of the organism. Let it also be recalled that the average weight of the thyroid is given by many observers as between 22 to 25 grams in the adult, but it is also quite true that the average varies according to the country. However that may be, the thyroid tends to increase in size with age, as Askanazy's tables show, and he also states that in old subjects with goiter calcification of the cartilages of the larynx is not always observed.

Diseases of the Circulation in Soldiers.—Some interesting work has been done by Dr. E. Thomas, privatdocent at the University of Geneva, on diseases of the circulatory system of soldiers during the war. He is of the opinion that political circumstances that will follow the war will probably not change the conclusions he has come to. He found that the proportion of organic diseases of the circulatory system did not appear to increase during the war to any extent and those who had preexisting lesions supported both fatigue and emotions very well.

Arteriosclerosis has certainly increased, especially as older and less resistant men were drafted to fill up the ranks. The clinical signs of the process were generally absent, but the frequency of anatomic changes even when very trifling, was very evident. Thomas has found that the number of so-called functional disturbances was especially large at the beginning of hostilities, forced marches, power of the artillery fire, commotions having largely contributed to this, especially in those predisposed. The distinction between an affection *sine materia* and a more or less concealed organic change is very difficult to make. The methods of examination of the functional capacity of the heart are all defective, and Thomas considers that Lian's procedure is the best.

All subjects with organic heart or vascular lesions are to be reformed, while what is known of the nature and origin of functional disturbances should lead to the same decision when tachycardia and high blood pressure persist and when arrhythmia is pronounced. When organic murmurs are not accompanied by important disturbances they are not to be looked upon as a condition for exemption of military service, and when it is clear that functional disturbances have no organic basis, to inform the subject is the worst thing one can do.

THE TONSIL AND ADENOID SITUATION IN NEW YORK CITY.

REPORT BY THE PUBLIC HEALTH COMMITTEE OF THE NEW YORK ACADEMY OF MEDICINE.*

1. *The Problem.*—One of the functions of the Bureau of Child Hygiene of the Department of Health of the City of New York is to give a cursory physical examination to children in public and parochial schools with a view to detecting defects and urging an early correction of the same. Hypertrophied tonsils and adenoids constitute one of the important findings. The accompanying table gives statistics of results of examinations by medical school inspectors of the Department of Health for the 10 years ending 1919.

TABLE I.—RESULTS OF PHYSICAL EXAMINATIONS MADE IN THE SCHOOLS OF NEW YORK CITY BY MEDICAL INSPECTORS OF THE DEPARTMENT OF HEALTH

Year	Physical Examinations Number	Children with Hypertrophied Tonsils and Adenoids Number	Per Cent
1910	266,426	50,012	18.9
1911	230,243	34,639	15.4
1912	237,469	30,021	10.4
1913	330,179	36,958	11.1
1914	308,595	36,153	11.3
1915	278,154	32,356	11.6
1916	276,611	39,731	14.3
1917	328,190	45,947	13.0
1918	347,739	49,475	13.5
1919	348,978	38,151	15.0

From the above table it will be seen that tonsil and adenoid defects are found in from ten to nineteen per cent of the children examined. During the last four years the examiners report these defects in a larger relative proportion than in the four years immediately preceding. Although not all of the cases designated as defective tonsils need surgical treatment, probably a large majority of them do.

Two factors are involved in securing the necessary operative treatment, first, available facilities for performing the operation, and secondly, a willingness on the part of parents to have the operation performed. Through the follow-up work of the Division of Child Hygiene and other agencies, efforts are being made and successfully, to stimulate parents to obtain for their children the proper relief in operative treatment. The complaint, however, is often made that existing facilities are insufficient to meet the demand. Available accommodations have become diminished since greater care is being exercised in connection with tonsil operations and since the dispensaries have practically given up performing them except under hospital conditions. Tonsillotomy is very seldom done and tonsillectomy has come to be regarded as a major operation in connection with which general anaesthesia is usually employed.

2. *Operative Facilities.*—A recent canvass made by the Babies' Welfare Federation brings out the extent to which hospital facilities are available for tonsil and adenoid operations. The total number of operations performed in 1920 is reported as approximately 47,000. This figure is greater by several thousand than the number of children suffering from enlarged tonsils and adenoids, as discovered in the annual school inspection covering each year one-fourth of the school population. There are, of course, the leftovers from former years as well as the pre-school children to be considered in this connection. On the basis of the 1920 census figures there are 455,000 children from 2 to 6 years of age of whom at least 15 per cent. have tonsil and adenoid defects. If one one-fourth of the pre-school age cases should apply for treatment, the annual demand from this source would amount to over fifteen thousand. In that event the annual demand for surgical facilities of the type under consideration would be in excess of the available supply. If systematic follow-up effort, sim-

ilar to that of the Health Department nurses, could be instituted in connection with the pre-school age children, and if one-fourth of both the school and pre-school age children needing treatment should apply, the annual demand for the first few years would be for 55,000 operations. Gradually as the pre-school age children who have had nose and throat defects attended to, enter school, fewer defects of that kind would be found on examination and the demand eventually would resolve itself to the needs of the annual increment of child population. For the time being, however, and for a number of years to come, the annual demand will remain about the same. Hospital authorities should realize this situation and endeavor to meet it. From the estimated potential capacity of the hospitals, as ascertained by the Babies' Welfare Federation, it would seem that the required number of cases can be handled without any great disarrangement of present hospital policy.

As a result of the existing shortage of facilities and the lack of a regulatory system with regard to the distribution of patients, there exists a long waiting list in many of the hospitals. Appointments for operations are made from a week to nine months ahead of time. The Manhattan Eye and Ear Hospital reports from 700 to 800 patients on its waiting list. Bellevue has in the neighborhood of 500. An important fact in this connection is that while some hospitals have long waiting lists, as many as fifteen hospitals in Manhattan, four in Brooklyn and one in the Bronx report no waiting lists at all. Some of these institutions have very limited facilities but a few of them report that they are being able to take care of as many as from twenty to thirty-six cases a week. The fees, higher than the average, charged by some of these institutions may account for patients' seeking treatment elsewhere, although some of the hospitals, like the Gouverneur, charge no fee, and some among those with a constant waiting list charge as much as \$10. It would seem that the established popularity and reputation of certain hospitals are responsible for this uneven distribution of cases. This condition suggests the need of a reference bureau for advice and guidance as to where facilities are available at any given time, such bureau steering patients to the various institutions in order that all available accommodations may be utilized and the average waiting time reduced.

A long waiting period is unsatisfactory from the point of view of the patient as well as of the institution. The patient may not be in a condition to undergo an operation when the appointment falls due, or may fail to appear at the appointed time altogether. At times it is not possible to obtain another patient to fill the vacancy, and for that reason available beds are not utilized. A reference bureau or a district system of admission would obviate this.

A tabulation of the data regarding the number of cases cared for during 1920 in the hospitals of the city shows that the Manhattan Eye and Ear Hospital, Bellevue, Mt. Sinai, and the Brooklyn Eye and Ear are able to take care of a considerable number of patients and a large number of other institutions can accommodate from 20 to 30 tonsil cases weekly. The facilities for tonsil and adenoid work could probably not be increased very materially beyond the stated potential capacity and it may be unwise perhaps to attempt to do so. In order that an unduly large number of beds be not utilized for this work, it is suggested that the hospitals make it a practice to accept larger numbers during the summer when the demands upon the hospitals are not as heavy as at other times, and when the children are free from their school duties.

In view of the demand for facilities, a special institution known as the Tonsil Hospital has been recently established in the city. In addition to private and semi-private patients, the hospital has facilities to receive ten ward patients daily. A fee of \$10 is to be charged, which is, however, remitted when the applicant is really unable to pay.

3. *Pre- and Post-operative Procedures.*—Ever since the Public Health Committee of the New York Academy of Medicine, the Associated Out-Patient Clinics of the City of New York and the State Charities Aid Association, in 1913, took up the matter of procedures in tonsil operations and warned against the performance of such

*Committee: John S. Billings, Chairman; N. D. E. Brill, Samuel A. Brown, Robert J. Carlisle, James B. Clemen, Rufus L. Cole, Charles Loomis Dana, Arthur B. Ducloux, Haven Emerson, Lewis Fox Friedman, Arnold G. Gerster, S. E. Goldwater, John A. Hartwell, Ward A. Holden, L. Emmett Holt, Walter B. James, James Alex. Miller, Charles E. Nammack, Walter L. Niles, Bernard Sachs, Thomas W. Salmon, Charles Hendee Smith, Frederic E. Sondern, M. Allen Starr, Howard C. Taylor, W. Gilman Thompson, Philip Van Ingen, Karl M. Vogel, George B. Wallace, Cassius H. Watson, Herbert B. Wilcox, Linsley R. Williams, E. H. Lewinski-Corwin, Executive Secretary.

operations in dispensaries not properly equipped for the task, the number of institutions undertaking operations without bed facilities for pre and after care of the patients has decreased materially, only a few dispensaries having reported tonsil operations in reply to a recent questionnaire.

In April, 1913, the Section on Laryngology and Rhinology of the New York Academy of Medicine took a census of opinion among its members as to whether tonsillectomies and tonsillotomies ought to be attempted in out-patient clinics. The majority of the members expressed themselves as of the belief that both operations require the facilities of a hospital.

In the same year, on behalf of the State Charities Aid Association, Dr. G. H. Cox examined a number of children who had their tonsils taken out and found that a large number of operations were poorly performed, particularly those that were done without general anesthesia. The conclusions of this study, which were endorsed by the Public Health Committee, were:

That all adenoid and tonsil operations on children should be done under general anesthesia;

That hospitals which undertake these operations should keep the patients for a certain length of time after the operation;

That school physicians and nurses should exercise more care in seeing that only the proper cases for operation be referred to hospitals, and that the children carry out the instruction given.

The Public Health Committee also recommended that private hospitals be requested to cooperate with the Health Department in its efforts to obtain adequate operative treatment for children, that the city compensate private hospitals for this special service when the patients are unable to pay, and that the municipal hospitals be requested to provide similar facilities for the treatment of indigent cases without compensation.

As a result of the pressure brought to bear upon the institutions, conditions have improved considerably. The clinics maintained by the Health Department have been abandoned as being excessively expensive and as involving the department in a therapeutic service which could be provided through other agencies.

A recent canvass by the Babies' Welfare Federation referred to above gives information with regard to certain of the prevailing practices relating to the pre- and postoperative care of tonsil cases in hospitals. In 18 institutions the patient is kept for a day under observation before the operation is performed. In the other institutions the observation period varies from several hours to over-night.

Almost invariably patients are kept for twenty-four hours after the operation although there are some institutions which do not observe this rule. A number of the other institutions keep the children for forty-eight hours after the operation.

In only one of the institutions reporting is no anesthesia given. Almost all of the institutions report that directions for after care are given as to rest in bed, gargle and the return to the clinic for further advice.

The amount of care taken at the various hospitals in ascertaining the condition of the child before operation differs considerably. There is no complete information available with regard to this. Some of the institutions follow wise rules in the conduct of this type of operation. At Mt. Sinai, for instance, the regulations are that no child be admitted for operation whose afternoon temperature exceeds 100°, except when the tonsils are the cause. In such cases, where cardiac and renal lesions may be present, the operation is to be performed by the chief in charge. A complete physical examination, including the examination of the urine and coagulation of the blood, is to be given to each child before the operation. The chief surgeon in charge determines the nature of the operation to be performed and designates the operator. Cases requiring the application of ligatures to stop hemorrhage during the operation remain under observation in the hospital for at least forty-eight hours.

At Bellevue the rules are that every child shall receive a careful examination before admission and that due consideration be given not only to the indications for operating on the tonsils but also to the general physical condition and ability to stand the

operation. Cardiac cases and markedly undernourished children remain in the hospital for several days or a week, if necessary. The desirability of several days' stay in bed following the operation has been demonstrated by studies of the rapidity with which children regain weight after the operation. The loss of weight following the operation stands in inverse ratio to the number of days in bed after the operation, and the regaining of weight is much more rapid in cases which have had a few days' rest.

It is important that the need of careful examination of patients prior to the performance of the operation be impressed on all concerned with these cases in the hospitals; it is also important that post-operative care of a recognized standard should be generally followed.

4. *Summary*.—1. The present annual demand for tonsil and adenoid operations can be estimated as of over 55,000. The existing facilities when fully utilized can probably be made sufficient to meet this demand, but the number of operations performed in 1920 was eight thousand below the estimated demand.

2. There is need for a regulatory system to secure a more uniform distribution of patients among the hospitals and to reduce the excessively long waiting lists in some hospitals.

3. The standards of operative procedure, as well as the care of children, before and after tonsillectomy, differ considerably in the several hospitals. There is a need of stimulating the institutions to an appreciation of the importance of a thorough physical examination of the patients before operation and of provision for adequate care after operation, as well as for more effective methods of instruction as to care to be taken after the patients leave the hospital.

4. A longer period of pre- and post-operative care would reduce the number of cases which can be accommodated in hospitals, and an extension of facilities in certain directions or during certain periods of the year might, therefore, be required.

5. *Recommendations*.—1. That the Babies' Welfare Federation, in view of its function and its close association with the Bureau of Child Hygiene of the Department of Health, be requested to act as a clearing house of information with regard to available facilities for tonsil and adenoid operations in the city; and that the feasibility of districting the city to secure a more even distribution of cases among the hospitals be considered;

2. That the rules governing the care and treatment of tonsil cases before and after operation be standardized in accordance with the best recognized experience;

3. That at each hospital a system be devised whereby the cases most needing the operation should receive preference over less urgent ones, irrespective of whether these cases are able to pay or not;

4. That recognition be made of the large relative expense associated with tonsil and adenoid operations, and that the city be urged to make adequate payments to the hospitals for the care and treatment of cases unable to pay;

5. That the surgeons in hospitals who perform operations as a routine should be compensated for their work; and

6. That, in view of the existing demand, hospitals should allow during the summer months the use of beds outside of the nose and throat wards for tonsil and adenoid cases, provided other demands upon the hospital are not more pressing.

Pulsating Exophthalmus Cured by Ligature of Both Common Carotid Arteries.—The condition resulted from a severe fracture of the skull and was right sided. The common carotid of that side was tied, but no permanent benefit resulted. Greatly annoyed by intracranial noises, the patient consented to the ligation of the opposite common carotid. Thus far the cure has been complete, but there is some slight reason to fear a recurrence. The ligation of the ophthalmic vein for this condition is hardly known in France, but has been done a total of 13 times in the world at large. In most cases, however, one of the carotids was also tied. The thirteen cases have all been successful, eleven having resulted in permanent cure. The route has usually been the palpebral.—*La Presse Médicale*.

Progress of Medical Science.

Boston Medical and Surgical Journal.

April 28, 1921, clxxix, 17.

1. Symposium of Dental Infections: (1) The Viewpoint of the Roentgenologist. Frederick W. O'Brien. (2) The Viewpoint of the Dentist. Frederick A. Keyes. (3) The Viewpoint of the Bacteriologist. Percy Howe. (4) The Viewpoint of the Oral Surgeon. Kurt H. Thoma.
2. The Energy Content of Extra Foods. Cornelia Golay Benedict.
3. Stem-Length and Trunk-Length. H. Gray and H. F. Root.
4. Impressions Concerning the Etiology of Rickets among the Italians. Bessie Talbot Strongman and Ingersoll Bowditch.

4. Impressions Concerning the Etiology of Rickets Among the Italians.—Bessie Talbot Strongman and Ingersoll Bowditch base this contribution on information gleaned from homes by personal observation and with the aid of interpreters. If large families, crowded and dirty living quarters, lack of sunshine, or diet of low energy quotient, were either collectively or individually responsible for rickets, other races would presumably be equally afflicted. But the Hebrews and Poles, for example, in spite of these very things, are remarkably free from rickets. There must be some racial way of life in the case of the city-dwelling American-Italian, to account for the incidence. But little rachitic deformity is found among the Italians of rural and suburban communities compared with the urban population. Early marriages, with a maximum of childbearing period, little attention to prenatal care, puerperium of the ambulatory type, prolonged nursing, added to vitamin-poor diet and generally defective hygienic surroundings are contributory causes to the condition in question. One should learn to advise diets for the children which are known to Italian cooks and palatable to them. This would not be difficult for trained workers. The domestic science course in the schools will be of inestimable value in the next generation. Over the whole, one cannot but feel a subtle process of Americanization—possibly the feministic movement. The writers believe the Italians will adapt themselves to conditions as they exist here, that families will be limited by income and that eventually one will no longer see the rolling, rachitic gait; but the utmost should be done to tide them over until they have adapted themselves.

Journal of the American Medical Association.

April 30, 1921, lxxvi, 18.

1. Diagnosis of Chronic Valvular Disease. Paul D. White.
2. Etiology of the Cardiovascular Affections. Joseph H. Baruch.
3. The Equivalent of Ordinary Exertion. May G. Wilson.
4. Injuries of the Feet. C. V. Portmann and F. C. Warnshuis.
5. Resistance to Tuberculosis: A Non-Immunologic Chemical Factor Worthy of Consideration. H. J. Corper, Harry Gauss, and O. B. Rensch.
6. Cholesteatomatous Cystic Tumor of the Pituitary Gland: Report of Case, with Discussion of Diagnosis of Pituitary Disease. Bruce C. Lookwood.
7. Cardiac Standstill with Syncope Following Pressure on Right Vagus Nerve. Wyndham B. Planton and H. Wallace Blanton.
8. Roentgen-Ray Treatment of Cutaneous Cancer. H. H. Hazen.
9. Auricular Flutter and Fibrillation in Pregnancy: Report of Case. Clarence P. Thomas.
10. Percussion Note of the Back in the Lateral Position. Tasker Howard.

t. Injuries of the Feet.—U. V. Portmann and F. C. Warnshuis, in an effort to stimulate a better plan of treatment of injuries of the feet based on a better conception of physiological functioning and reaction, draw attention to the following facts: (1) The structure of the foot is complex, and there is a difference in the reaction of the tissues. (2) Injury to an integral part has a large incapacitating influence on the whole member and the individual. (3) The integral part affected must be accurately determined, and roentgenograms made a routine procedure in examination. (4) The site of injury should not be treated exclusively. The whole part and its anatomical and physiological relationship should be considered. (5) Rest in elevation should be instituted at the beginning of treatment. (6) Improper hot bathing is more productive of harm than of bene-

fit. (7) One is always dealing with infected areas. (8) Incisions should be made at sites of election, never on plantar surfaces, and all wounds must be carefully debrided and coapted. (9) Anatomically correct adjustment of footwear merits greater attention and frequently accomplishes the complete eradication of the final results of traumatism.

5. Resistance to Tuberculosis: A Non-Immunologic Chemical Factor Worthy of Consideration.—Corper, Gauss and Rensch hold that humoral antibodies have failed to explain resistance to tuberculosis; the lymphocyte as the important factor is rapidly being discarded; allergic phenomena require further elucidation, and the phagocytic action of the wandering endothelial cell is recognized as important. But both humoral and cellular mechanisms of resistance leave much to be explained. Weber's (1889) empiric reasoning that the deficiency of carbon dioxide in the body favors tuberculosis, while an accumulation retards it, seems to be highly significant and appears to be substantiated by the experimental work thus far conducted by the writers. Three per cent. carbon dioxide inhibits the growth of tubercle bacilli in the test tube, and 15 per cent. is tuberculocidal. Cultures of tubercle bacilli buried in the tissues of animals and permitted to acquire the carbon dioxide concentration of the body are definitely inhibited in their growth, while other cultures similarly buried, except that ingress of atmospheric air is permitted, show no inhibition. It appears that carbon dioxide may play a significant rôle in the resistance to tuberculosis. This reopens the consideration of the influence of fatigue exhaustion, exposure, metabolic diseases, etc., as probable etiologic factors in the causation of tuberculosis in view of their ability to alter the carbon dioxide content of the body.

9. Auricular Flutter and Fibrillation in Pregnancy.—Clarence P. Thomas found no report of cardiac arrhythmias in pregnancy. The case which he reports illustrates the possibilities of treatment in such cases when they occur or are discovered late in pregnancy. It shows the advantages of a prompt and accurate diagnosis followed by digitalis therapy. He does not recommend similar treatment for all such cases, since the handling of these patients must depend upon the advisability of allowing the pregnancy to go to term, considered, of course, in conjunction with the purely obstetric aspects of the case.

The Lancet.

April 9, 1921, cc, 15.

1. An Address on the Colonial Medical Service as a Career. Sir James K. Fowler.
2. A Clinical Lecture on When to Open the Mastoid Antrum in Acute Ear Disease. T. E. Layton.
3. The Toxic Stage of Diphtheria with Special Reference to Pathology and Treatment. M. Esther Harding.
4. Some Notes on the Proxiphylaxis of Typhus Fever. J. M. Mitchell and G. Y. N. Richardson.
5. A Fatal Case of Colic Infantilis with Comments on the Morbid Anatomy. Reginald Miller.
6. Recurrent Hernia: The Operations for Its Cure. A. W. Sheen.

5. A Fatal Case of Colic Infantilis, with Comments on the Morbid Anatomy.—Reginald Miller gives the details of a fatal case of colic infantilis in which postmortem examination failed to show any chronic changes in the pancreas, liver, intestine, or elsewhere to account for the prolonged failure in fat-digestion. The only autopsies hitherto recorded in cases of at all a similar nature have been discussed in detail and it has been argued that the intestinal changes found in them do not prove that the excessive fat-loss in colic disease is due to an enteritis. Other reasons against the view that colic disease is essentially an enteritis have been given. From these arguments it is concluded that colic disease is independent of organic changes and thus must be due to a digestive fault (probably a defective action of the bile on fat-absorption).

British Medical Journal.

April 9, 1921, i, 345.

1. A Clinical Lecture on the Orthopedic Treatment of Polymyositis. H. A. T. Fairbank.
2. Metral Stenosis, Auricular Fibrillation, and the Action of Digitalis. C. H. Cottle.

3. The Treatment of Sciatica by Galvanic Acupuncture. E. A. Goulden.
4. The Pressure on the Renal Portal and Glomerular Capillaries of the Frog's Kidneys. Leonard Hill.
5. A Case of Complete Pneumothorax in an Infant Due to Pulmonary Tuberculosis. Geoffrey Bourne.

1. A Clinical Lecture on the Orthopedic Treatment of Poliomyelitis.—H. A. T. Fairbanks follows the customary division of poliomyelitis, for purposes of treatment, into the early acute stage, which lasts while there is pain and tenderness in the muscles; the second, or convalescent stage, during which the recovery of power is taking place—it lasts to the end of the first and sometimes the end of the second year; and the third stage, which begins after the lapse of two years. Until the third stage all reconstructive surgery is delayed. During the first stage the first essential of treatment is rest, both for the spinal cord and for the affected muscles. Steps should be taken to provide rest for all the affected muscles, and this involves rest for all their opponents as well, should these not be paralyzed. Splints or other fixation apparatus should be applied at the earliest possible moment, the limbs being fixed in the neutral position. Without fixation deformities are certain to occur. As regards the correction of deformity at this stage, it will be found easy to stretch contracted muscles. When the muscles are still tender, except in cases where this tenderness is unduly prolonged, very gentle persuasive manipulations with fixation on a splint which is slightly altered in shape each day will achieve correction of the deformity. The stretching is painful, and must be done with the greatest gentleness; if the foot is fixed in the position which is the best possible one day, it will usually be found possible to improve this slightly the next. Massage should be carried out with the greatest gentleness, and one must be guided by its effects in each case. Electricity is useless in this stage. The writer sounds a note of caution with regard to the spinal muscles. He urges the advisability of raising the child to a sitting position slowly and gradually by means of a bed rest and pillows. The spinal muscles should be massaged, and any paresis and tendency to curvature looked for. In a case well treated throughout, a muscle which is absolutely paralyzed after twelve months must be regarded as hopeless. During the second year further recovery may take place in all those which have to some extent recovered, but a muscle which remains paralyzed for many months before showing any return of power will never be of much use to the patient. The treatment during the second stage comprises keeping the part warm, relaxation of the paralyzed or weak muscles, massage and reeducation of muscles, to which must be added correction of deformity, if such has been allowed to occur. Without adequate support recovery is bound to be far from complete, and will be coupled with deformity. Splints are more efficient correctors of a tendency to deformity than any walking apparatus. The avoidance of overstretching a paralyzed muscle, particularly in the early stages of its recovery, is essential for good recovery. Whether this prevention of overstretching should be carried to the extent of absolute relaxation—or, in other words, whether the neutral position is sufficient—or whether the limb should be put in a position to relax the paralyzed muscles at the expense of their unparalyzed opponents, is still an open question. In the case of the leg, bandages or straps used to hold the limb in the splint should encircle the foot and ankle and, at the most, the lower third of the leg; the muscles themselves should be free of all pressure. The splints must be left on day and night, and removed only for washing, massage, etc., when the position of the limb should be maintained by the hand of the attendant so long as any marked degree of weakness persists. As soon as recovery has progressed sufficiently walking should be encouraged, suitable apparatus being employed. Reeducation means nothing more than exercise carried out with a minute regard for the development of individual muscles. Operative treatment during the second stage should be confined to the correction of deformities. The operative procedures are practically limited to tenotomies, fasciotomies, wrenching, and tendon lengthening. Having corrected deformities, the parts should be retained in over-corrected position so as to relax as much as possible the weak muscles and stretch the strong, while re-

education, massage, etc., are carried on vigorously. In the third stage various problems are presented, when further recovery of muscle power is impossible. Tendon transplantation and arthropodesis are discussed somewhat in detail in this connection.

Annals of Surgery.

March, 1921, lxxiii, 3.

1. Ligation of the External Iliae Artery and Vein Above and Below a Communicating Bullet Wound. G. Paul La Roque.
2. Preliminary Ligation of Common Iliae Artery in Hip-Joint Excarticulation. Fred W. Bailey.
3. Cancer Infection. Albert J. Ochsner.
4. Carcinoma of the Kidney. James Taft Pilcher.
5. Carcinoma of the Pelvis of the Kidney. Alexius McGlannan.
6. End-Results of Operations for Bony Ankylosis of the Jaw. William Phillips Carr.
7. Laryngeal Function in Thyroid Cases. Edward Starr Judd.
8. Gastric Duodenal Ulcers. Charles H. Mayo.
9. Subphrenic Pyopneumothorax—Subphrenic Abscess. Randolph Winslow.
10. The Technic of Hepaticoduodenostomy. Donald C. Balfour.
11. Study of Fifty Cases of Ureteral Strictures and Pyelitis. James Norment Baker.
12. Extrophy of the Urinary Bladder with Carcinoma. William E. Lower.
13. Operative Treatment of Gonorrheal Epididymitis. Charles S. Vivian.
14. Compression Fracture of the First Lumbar Vertebra with Delayed Symptoms (Kummel's Disease). Rudolph V. Gorsch.
15. Röntgenographic Studies of Bronchiectasis and Lung Abscess after Direct Injection of Bismuth Mixture. Henry L. Lynch and William H. Stewart.
16. Removal of Foreign Bodies under Fluoroscopic Guidance. L. W. Grove.

3. Cancer Infection.—Albert J. Ochsner reviews this question, and urges the importance of taking every precaution against cancer infection, notwithstanding the fact that its infectiousness has not been proved. Wise precaution can do no harm, while it may do an endless amount of good, because, in case the disease is due to infection, every additional case is a menace to others. He considers the most convincing argument of the infectiousness of cancer to be found in the studies of Smith, who claims that cancer in plants is due to a microorganism which he has been able to isolate and cultivate, and which produces cancer when inoculated upon healthy plants. In human cancer further studies are needed, and the writer expresses the hope that these will be continued vigorously and that in the meantime healthy persons be not exposed unnecessarily to cancer infection. The fact that many competent observers have been unable to prove to the satisfaction of others that they have found the microorganism causing cancer must not be construed to prove that such an organism does not exist, because precisely the same failures were experienced before the tubercle bacillus, the bacillus of leprosy, the spirochete of syphilis, the plasmodium of malaria, and many others were finally discovered. Clinically all these diseases were infectious, and it was only a matter of patient labor to find the living cause.

7. Laryngeal Function in Thyroid Cases.—Edward Starr Judd was prompted to make the study on which this paper is based by a small group of cases of bilateral abductor paralysis (twelve cases). The voices of these patients are usually normal or may be very slightly impaired; the principal disturbance is in respiration. In approximately 25,000 thyroidectomies Judd and his associates have had nine patients with this trouble, and three others were observed who were operated on elsewhere. Temporary disturbance in the voice and respiration is not uncommon following thyroidectomy. The factors involved are: (1) A change in the position of the muscles and cartilages because of the shifting of a misplaced larynx back into its normal position; (2) edema of the tissues; (3) a true myositis; (4) trauma to the recurrent laryngeal nerve; (5) prolonged interference with function. Under the last category, bilateral abductor paralysis, cases are extremely rare. They are so serious, however, that they deserve a great deal of consideration. The condition progresses until there is considerable difficulty in breathing, especially on exertion, and from then changes are slow. In none of the writer's patients has phonation been affected except from dyspnea. After a long time the tendency seems to be toward improvement.

Tracheotomy may be necessary because of the small margin of safety, although so far as it has been possible to determine, there is no danger of acute suffocation. The cords are held in adduction by the contraction of the adductor muscles, and it is probable that these muscles would relax enough to allow the entrance of air in case of any suboxidation. For the treatment of these cases other than tracheotomy he suggests the advisability of dissecting the recurrent laryngeal nerves from the scar tissue, in the hope that by freeing them the pressure of the contracting scar might be relieved and enable the nerve to functionate normally. The performance of a plastic operation on one vocal cord in order to give more breathing space has been considered, but has not been attempted because of the fear of interfering with the voice. It may be said in conclusion that (1) the functional results following thyroidectomy, both as concerns phonation and respiration, are extremely good; (2) the disturbance which sometimes follows immediately after the operation is temporary, and normal function will be restored in from a few days to a few weeks; and (3) there is a very small group of patients who, following thyroidectomy, have a bilateral adductor disturbance which is slow in onset but is very persistent. The cause of the condition has not been worked out, but it is believed that it may be due to the contraction of a scar, to a peculiar type of trauma to the nerve, or to some form of toxemia.

15. Röntgenographic Studies of Bronchiectasis and Lung Abscess After Direct Injection of Bismuth Mixture Through the Bronchoscope.—Henry L. Lynch and William H. Stewart summarize their experience and observation on this subject as follows: (1) Bismuth mixtures can be injected into the bronchi and lungs of a living patient without danger. (2) The injection of an opaque substance into the lung of the living patient will open an enormous field of usefulness in the study of cough, the expulsion of substances from the lung, and lung drainage. It will also aid in localizing bronchial strictures in the same manner as in the esophagus. Furthermore, it will be of the greatest aid to the thoracic surgeon by mapping out the abscess cavity in the respective lobe of the lung. (3) A definite lung abscess cavity is seldom seen bronchoscopically. Pus is usually seen coming from a branch bronchus, although the abscess may be well around the corner, and not in that portion of the lung from which the pus is oozing. An injection of bismuth mixture or some other opaque mixture will "clear up" this error. (4) Bismuth when it enters the abscess cavity is recognized by its metallic luster, whereas, when it is in the lobular lung structure, it is discerned as a dull, opaque area. Pus diffuses and soaks the lobular structure in a manner similar to bismuth; this often makes the involved area appear many times larger than it really is. (5) The bismuth mixture injected in these patients was 8 c.c. of bismuth subcarbonate in pure olive oil (1-2). The mixture is rendered sterile by boiling before injection. (6) The injection should be made slowly and not with a "squirt," or else the röntgenographic observations may be spoiled by bismuth soaking the lung structure surrounding the diseased area. (7) It seems from these preliminary studies that cough and action of cilia are not the only means of expelling secretions. (8) While bismuth mixtures were originally injected for the purpose of lung mapping in cases of lung abscess cavities, they seem to have been of therapeutic benefit to the five patients upon whom they were tried. So far the procedure has done no harm. (9) While the fluoroscopic examination is important, stereoröntgenographic examination is the best means of localizing the cavitations. (10) Experience has shown that the Röntgen examination should be made almost immediately after the removal of the bronchoscope, otherwise the patient, in a fit of coughing, will remove much of the bismuth from the involved lung.

Indianapolis Medical Journal.

March, 1921, xxiv, 3.

1. The Use of Mercurochrome in Ophthalmic Therapy, with Report of Cases.—M. Ravadin.
2. Clinical Report of a Case of Tuberculous Meningitis. Edward Blitzer.
3. A Case of Double Uterus and Vagina. Scott R. Edwards.
4. Chronic Leukorrhea. Carl Habich.

1. The Use of Mercurochrome in Ophthalmic Therapy, with Report of Cases.—M. Ravadin finds in mercurochrome-220 a germicide possessing the triad of virtues sought in the ideal germicide—high germicidal power, low toxicity, and slight irritating action. A 1 per cent. solution dropped into the conjunctival sac gives no evidence of irritation, while 2 to 5 per cent. solutions are followed by smarting sensations lasting no longer than a minute. A 1 per cent. solution is as potent a germicide as a 25 per cent. solution of argyrol. It seems to act equally as well on all bacterial flora of the conjunctiva. Mercurochrome is also valuable in all types of corneal ulcer. In ulcer serpens, when used in conjunction with pasteurization, it seems to inhibit the growth of the pneumococci, cleanses the ulcer of microorganisms, and enhances the healing of the ulcerated area.

La Presse Médicale.

February 12, 1921, xxix, 13.

Hemoclastic Crisis from Ingestion of Sugar by the Diabetic.—Widal, Abrami, and Iancovescu begin with the statement that when a healthy subject ingests sugar in any amount, however large, the blood never shows a hemoclastic crisis. But if a diabetic takes more than 20 grams of glucose he will show a hemoclastic crisis in 85 per cent. of cases. Some of the negative subjects will show the crisis if the dose is increased to a certain extent and it is not mentioned that any diabetic is universally refractory. To make the test have the patient begin a short fast on a given evening and then on the next day make a blood test before the special procedure in order to determine the normal leucocytosis. The sugar is then swallowed in water solution (200 c.cm. water), and every twenty minutes for an hour and a half tests for leucocytosis are maintained. The first test made twenty minutes after the ingestion will show leucopenia such as is characteristic of the hemoclastic crisis. By comparison with the fasting leucocytosis it may often be seen that the mere taking of 20 grams of sugar will cut the white blood cell count in half. In other cases this is seen in but a slight degree. If leucopenia were the only phenomenon produced we might not speak of a blood crisis, but other behavior accompanies the fall in the white cell count, such as lowered blood tension and hyper-coagulability; but for practical purposes the cell count suffices. The reaction is not limited to glucose, for saccharose, lactose, and levulose also cause it. The discovery is regarded by the authors as highly important in a biological sense, although in the clinic its importance is not yet fixed.

La Presse Médicale.

February 16, 1921, xxix, 14.

Cesarean Section for Penetrating Wounds of the Gravid Uterus.—Constantinesco reports a case of this very rare accident. The cesarean operation for the relief of such cases is still more infrequent because the wound may not be serious enough to merit the intervention. In the author's case the woman was nearly at term, when she was gored. She was at once carried to the nearest hospital. The child was living and the head was presenting with occiput to the left acetabulum. The waters had ruptured, but there was no sign of labor. The wound ran from the left flank toward the umbilicus, and in it could be seen the pulsating cord. Neither hemorrhage nor pain was marked but there had been considerable internal bleeding. The wound was enlarged and clots scooped out, while all lacerated tissues were excised. The fetus was extracted through the wound and was in good shape when handed to the attendant. After slight delay the placenta was readily extracted. The uterus, allowed to retract on itself, ceased to bleed. It was packed with gauze, which was allowed to project into the vagina. The uterus and abdomen were then sutured, gauze being used also for external drainage. The double use of gauze externally and internally was maintained for many days. The abdominal gauze was filled with pus when the dressings were first changed at the sixth day, but there were no evidences of infection. Convalescence lasted 45 days.

Book Reviews.

STUDIES IN NEUROLOGY. By HENRY HEAD, M.D., F.R.S. In Conjunction with W. H. R. Rivers, M.D., F.R.S., Gordon Holmes, M.D., C.M.G., James Sherrin, F.R.C.S., Theodore Thompson, M.D., George Riddoch, M.D. In two volumes. New York: Oxford University Press, American Branch, 1920.

THESE two volumes of the Oxford Medical Publications consist mainly of papers which have appeared in *Brain* between the years 1905 and 1918, inclusive. Volume I, in two parts, deals with methods of examination, and the peripheral nervous system. Under the latter is given, in eleven chapters, an interesting "human experiment in nerve division," with general theoretical conclusions. Volume II, also in two parts, includes the grouping of afferent impulses within the spinal cord; the automatic bladder, excessive sweating, and some other reflex conditions in gross injuries of the spinal cord; sensory disturbances from cerebral lesions; sensation and the cerebral cortex; an epilogue; an appendix, with criticisms of the authors' work; a bibliography, and an index for the two volumes. There are 182 illustrations. Readers of *Brain* will find this work familiar, since it has been deemed expedient to make no material change in the arrangement of the articles as they appeared in that periodical. Each deals with a definite theme and is concerned with some aspect of the functions of the nervous system. In the course of the work recounted in these volumes an effort was made to trace the physiological processes produced by various stimuli from their origin at the periphery of the nervous system to the moment when they excite sensation. It has been shown that they are subjected to far-reaching changes during their passage through this zone of physiological activity, which in many cases give the key to the evolution of function in the nervous system. The observations recorded have both a practical and a theoretical bearing, for example, the discovery of the nature of protopathic sensibility and of the significance of the mass-reflex are some aid to clinical diagnosis. The wider theoretical bearing of the work is discussed in the epilogue. Like others of the Oxford series, these volumes are excellently well printed on good paper. Whether one does or does not agree with all the findings, the work of the contributors brought together in this form, must prove a valuable addition to modern neurological literature.

LOCAL SHOCK AND THE SHOCKLESS OPERATION THROUGH ANOCI-ASSOCIATION. By GEORGE W. CRILE, M.D., Professor of Surgery, School of Medicine, Western Reserve University; Visiting Surgeon to the Lakeside Hospital, Cleveland; and WILLIAM E. LOWER, M.D., Associate Professor of Genito-Urinary Surgery, School of Medicine, Western Reserve University; Associate Surgeon to the Lakeside Hospital, Cleveland; Surgical Director, Mount Sinai Hospital, Cleveland. Second Edition of Anoci-Association, Thoroughly Revised and Rewritten. Edited by ARY F. ROWLAND, B.S. Philadelphia and London: W. B. Saunders Co., 1920.

ACCUMULATING experience in civilian and war work has added so much corroborative evidence of the soundness of the fundamental principles of anoci-association and of its practical application, that Crile and Lower have rewritten and enlarged their former volume. As in the first edition, their purpose is to present as concisely as possible the principles upon which the doctrine of anoci-association is based and their practical application. To this end they have omitted any discussion of the various other theories of shock and proceed at once to elucidate the evolution of their theory of shock (which they call the kinetic theory) and establish the identity of shock with cell exhaustion, since they find the histological changes in shock and exhaustion from any cause are identical. They state that surgical shock may be produced by many factors—emotional, such as fear and worry, physical injury, infection—and nerve stimuli of sufficient number or intensity inevitably cause exhaustion and may cause death. With rest, warmth, and sleep there is partial or complete cell repair; hence to avoid or minimize shock in operations the brain must be protected from harmful stimuli not only before and during, but also after operation. The authors

state that the complete exclusion of both traumatic and emotional stimuli will wholly prevent the shock of surgical operations. The ideal is practically unobtainable; but through a preoperative narcotic and an odorless, non-suffocating anesthetic, together with nerve blocking, gentle handling of tissues, and sharp dissection, the patient is protected to a very great degree.

After detailing their conception of the cause and pathology of surgical shock, the clinical phenomena of shock and its treatment, the authors discuss "anociation," by which term they mean the development of a technique which protects the patient from the various harmful stimuli. General technique is first described, then its application to operations in various regions and on various special organs. Since the authors and their associates have performed nearly 3,000 abdominal operations under anociation at the Lakeside Hospital and have noted a striking improvement in their results since that method was inaugurated, this book should be of the greatest interest to all surgeons.

REGIONAL ANAESTHESIA (Victor Pauchet's Technique).

By B. SHERWOOD-DUNN, M.D., Officier d'Académie; Surgeon (Colonel) Service de Santé Militaire de Paris; Physician to the Cochin Hospital. Philadelphia: F. A. Davis Company, 1920.

IN the preface the author calls attention to the difference between the infiltration anesthesia of Reclus, where the anesthetic is applied to the nerve endings in the operative field, and regional anesthesia, where the anesthetic is injected at the point of origin of the nerve or along the trunk near the point of origin, so that the whole region supplied by the nerve and its branches is anesthetized. He states that Pauchet is acknowledged to be the leading exponent of regional anesthesia in France, and this book constitutes a résumé of his writings upon this subject, together with those of Sourdat and Labouré. In addition there is included the latest experiences of Pauchet and the author, together with Pauchet's recommendations inserted during his revision and amplification of the manuscript just before publication.

The book is divided into seven chapters. The first, on general considerations, discusses the advantages and disadvantages of regional anesthesia; the second covers the armamentarium, the anesthetics and general technique; while the remaining chapters cover the special technique in connection with operations on the various regions and special organs of the body.

Regional anesthesia is applicable to 80 per cent. of surgical operations in the author's opinion; but it is usually combined with infiltration anesthesia and often, particularly in the case of beginners, must be supplemented by a slight to moderate amount of inhalation anesthesia, for which he generally uses ethyl chloride. The directions for nerve blocking in general and in special operations are clearly and concisely given and well illustrated by numerous diagrams, most of which are excellent. Some of the reproductions of photographs are, however, very poor. The author does not hesitate to point out what he considers unsuitable cases for regional anesthesia. Although the technique he much harder to acquire than one would suppose from reading some parts of this book, there is certainly a field for this type of anesthesia and Sherwood-Dunn has covered the subject conservatively and well.

DIE BEHANDLUNG SCHWACHLICHER KINDER IN OFFENTLICHER FÜRSORGE. Von Dr. JULIUS RITTER. Berlin: S. Karger, 1920.

THE author gives a series of interesting data concerning the necessity for rebuilding and strengthening the weakened children in middle Europe. The value of sunlight in destroying virulent bacteria is dwelt upon, likewise the necessity for sufficient perspiration to aid in the elimination of toxins through the skin. An interesting point given regarding anemic and chlorotic children is that despite the feeding of fat, carbohydrates, and proteins, the requirements of metabolism were not fulfilled until mineral salts were added to the dietary. His plea is for the addition of fruits and fresh vegetables to encourage growth. Gymnastics or massage, and the use of cold water for hardening the body are recommended. This little pamphlet is filled with such practical data that it affords very interesting reading.

Society Reports.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

One Hundred and Fifteenth Annual Meeting, Held in Brooklyn, May 3, 4, and 5, 1921.

SECTION ON SURGERY.

Tuesday, May 3—First Day.

Dr. LEDRA HEAZLIT, of AUBURN, IN THE CHAIR

Tumors of the Kidney.—Dr. THOMAS F. LAURIE of Syracuse made this presentation. He said that a very small percentage of these tumors were benign. Clinical manifestations and urological study showed that a great majority of these tumors were hypernephromata. The nature, source, and pathology were obscure. In malignant cases metastases were distributed through the blood stream. Early manifestations were not common and the growth was slow, so that if once a diagnostic clue could be obtained, early operation should be possible. The most common type, hypernephroma, was very malignant, and recurrence common. The older papers on this subject were based on clinical symptoms and signs, without resort to the exact diagnostic methods now in vogue, so that nowadays there should be better promise of cure in these cases. Three cardinal points of symptomatology should be noted: hematuria, tumor, pain. Hematuria was the most important symptom and occurred in 38 per cent. of the cases. It should be sufficient to attract the patient's attention in order to be noticed, but often was so profuse that it caused a clot formation in the ureter, with resulting renal colic. The speaker said that this symptom might last but a short time and recovery occur without the patient having noticed it. Later the surgeon would be confronted with an inoperable, malignant mass. In 42 per cent. of cases hematuria was the initial symptom. It was difficult to determine the difference between tumor of the kidney and that of other viscera; also tumors might be so small that they might not be palpable. When palpable it might be too late for surgical intervention. Pain occurred in 32 per cent. of the cases. The character and location of the pain might vary so much that it was often misleading. Other symptoms might be dilatation of the superficial blood vessels, caused by pressure from the growth, and perhaps toxins entering the vessels. The diagnosis of these lesions was very important, and if there were symptoms pointing to the urinary tract cystoscopy and x-ray examination should be carefully and fully carried out, the former, when the patient was still bleeding. The urine should be examined by microscope and by culture, and the bladder capacity and amount of residual urine tested. The kidney function should be determined by phtalein and urea and also careful search made for tubercle bacilli. A pyelogram should be made of the affected side, as a positive pyelogram was the most certain evidence of renal tumor. If the pelvis were involved the symptoms depended on the size and location of the tumor. The position of the pelvis might be changed, there might be changes in the drainage, and there might be slight evidences of early encroachment, palpable in early diagnosis. The only treatment was nephrectomy, provided there was enough kidney tissue on the other side to maintain the life of the patient, and when there were no metastases. Such removal could be supplemented by treatment by radium or the x-ray.

Tumors of the Bladder.—Dr. JAMES N. VANDER VEER of Albany presented this communication. He said that Kelly had enunciated three maxims relative to tumors of the bladder: "Extreme watchfulness is necessary at three stages: (1) cases must be brought for examination at the earliest possible moment in order to trace urinary hemorrhage; (2) they must be watched over a period of several months or longer; (3) they must be watched at first at intervals of several weeks, then several months, then for several years, to guard against recurrence." Very many urologists, the speaker said, were prone to neglect these maxims. Surgeons were apt to operate without due observation. Warner stated

that "Tumors of the bladder form 3 per cent. of all tumors and that 78 per cent. of them are in the male sex." Early disturbance of urination was often neglected, but the surgeon should be on the lookout then. Even urinary disturbance of a few days, such as burning, heaviness, interruption in evacuation, pain, pus, or sediment or microscopical blood should be noted; the latter often escaped the notice of the physician. No delay could be excused in these cases. Any condition beyond the meatus was a sealed book; the pages must be cut and the condition brought to light. One must have the necessary instruments, skill and resourcefulness in order to deal with these cases. Provided with the training and equipment the work should be successful. The cystoscopist should be the operating surgeon, or at least his right hand man. Some cases were impossible to cystoscope, (1) on account of severe pain; (2) because of malformations of the tract; (3) by reason of hemorrhage; (4) on account of the objections of the patient; (5) because no cystoscope was at hand; (6) through incompetence of the cystoscopist; (7) because of lack of instruments; (8) on account of previous operations. To make a proper examination, an anterior and a posterior plate should be made; a large sterile catheter should be passed and the bladder filled with air, till the patient complained of distention. Shadows of tumors should be properly interpreted. Radiography was easier than cystoscopy for many physicians. The speaker believed that opening the organ in cases of tumor gave more room for examination. Sometimes it was very difficult to determine whether a bladder growth was benign or malignant, and pathologists were often puzzled. Bryce stated they bled more easily when malignant, tended to necrosis and incrustation; they were meaty with thick pedicles; and cystitis was apt to be present. The pathology of the growth could be determined by frozen section in the laboratory and that would decide the amount of surgical intervention required. One worker had classified these tumors into three classes: (1) primary cytoplasia (disappearance of the first layer of cells; perhaps benign); (2) secondary cytoplasia with change of cells (precancerous); (3) metastasizing growths or tertiary cytoplasia (cancerous). **Operation:** No tumor should be operated upon except in a modern and fully equipped hospital. Intervention should now be accompanied with raying by the x-ray, or radium by the cross-firing method. In radium treatment of bladder should be washed frequently to remove bacteria, as the rays tended to destroy phagocytic cells. The Widal current could be applied through the cystoscope for the treatment of papillomata, and the operation could be combined with the partial snaring off of the tumor. If the tumor did not react well to this treatment the bladder must be opened and examined. The patient should be recalled frequently and watched. The rapidity of disappearance was in proportion to the degree of malignancy. Some operators made use of diathermy by the electric current. Radium therapy, while useful, had the disadvantage of being costly and not always available. Opinions differed very much as to the dosage but the consensus of opinion seemed to be that from 2 to 5 hundred mg., screened with a 2 mm. lead or silver screen for 12 hours was safe. The substance acted in inverse proportion to the square of distance from the tissues. It would be well at the present time to harmonize the difference in methods and fix on a definite milligram dosage for a certain number of hours and compare results by this method.

Dr. Cross of Buffalo said that early diagnosis was of the greatest importance. In bladder tumors hematuria was the initial symptom and always pathological. Bladder tumors were apt to metastasize slowly due to the small number of lymphocytes. He recalled one patient who was operated on in 1907, 1911, and 1914, and was seen in 1919 with the bladder full of papillomatous masses. The man was given radium treatment, but the growth recurred within four months. The fulgurization method gave better results and he was free one year from disease, then there was a small recurrence, which yielded to fulgurization. Fourteen years ago the process was reported as malignant at the first operation. Those tumors that did not respond to fulgurization were probably malignant. The difference

between clinical and pathological findings was frequently noticeable. One type clinically benign was reported by the pathologist as malignant. Other tumors reported benign, and looking benign, later turned out to be malignant. It was best to take a portion near the base of the tumor, and the pathologist was less likely to make a mistake by this means. A new form of treatment was by the injection of millicurie seeds into the tumor through a hollow needle. These were allowed to remain, being so small that they passed off, without the danger of starting the nucleus for a stone. Dr. Vander Veer had mentioned the difficulty of cystoscopy. The minimal amount of discomfort could be obtained by opening a tight meatus, and then, by anesthetization of the posterior urethra with a half ounce of 1 per cent. solution of cocaine reaching the trigon, and later a half ounce of a half per cent. cocaine solution, freedom from discomfort could be obtained.

Dr. A. VANDER VEER of Albany said that in regard to Dr. Laurie's paper, one patient was under observation for pain in the right side of the abdomen which was thought to be gall-bladder condition. There were no kidney symptoms. He had made a mistake in the diagnosis, because somebody did a nephrectomy later at Johns Hopkins, although the patient had nothing to indicate that the trouble was renal. The urine was negative. Pyelograms were made and the report stated that there was a perfect pelvis. The patient later said that the surgeon at operation found a hypernephroma the size of a hickory nut at the upper pole. Another case was recalled which the speaker said amounted to medical malpractice in which the patient was allowed to go three months with a large mass as big as a baby's head, in the left side of the abdomen; the physician who saw it said that it was a big kidney and that the patient probably had only one kidney. Then there was a profuse hemorrhage and the patient, suffering intense pain, came to see the speaker. A nephrectomy was done and the patient was free from pain one year and a half; then he died suddenly. This was the type of case usually considered inoperable, so that it showed that in some of these cases some good could be accomplished by operation. That man was a salesman and he was able to work for more than a year. In other cases with negative diagnosis and pain in the lumbar region, one should operate, for there was a small type of hypernephroma involving the capsule, and not invading the pelvis, which did not cause hemorrhage, and which called for operation.

Dr. ABRAHAM HYMAN of New York said that last year a series of 40 tumors of the kidney were reported on Dr. Beer's service at Mt. Sinai. There were 28 hypernephromas. A few points of interest should be brought out. Cases were examined too little. The laity, and physicians also, were not alive to the seriousness of hematuria. The Public Health Service issued a pamphlet dealing with early symptoms of carcinoma of the cervix and of the breast, but it was surprising that such an important symptom as hematuria was not mentioned. Many physicians took the same attitude. The doctor was apt to tell the patient that the hematuria did not amount to much because it stopped spontaneously. Of the 28 hypernephromas some were treated for nephritic hematuria. In some cases no known factor could be found. One man had several attacks of bleeding and a large number of hyalin and granular casts, blood casts. The function of both kidneys was identical and x-ray negative. By forcible manipulation of the catheter in the renal pelvis a profuse hematuria was produced on the affected side, and this gave the clue. The pyelogram showed merely some irregularity in the pelvis. At operation a large hypernephroma was found which had broken into the pelvis. Three or four cases had been detected by this sign alone. A bimanual rectal examination, with one finger in the rectum and the other on the abdomen, was useful to make a diagnosis of malignancy. Twenty-five per cent. of tumors were probably malignant. The high frequency current could be used in some cases, but not in fleshy growths or multiple papillomata. Dr. Beer had elaborated an operative technique directed to avoid implants of tumor on opening the bladder.

Dr. THOMAS F. LAURIE of Albany, in closing, said that in recalling Dr. Vander Veer's early cases, he

thought that after all methods of examination had been used, exploratory operation was justifiable. If the tumor did not invade the pelvis, the pyelogram would be worthless. He could not say whether Dr. Hyman's manipulation of the catheter was diagnostic or not. He thought that in the normal kidney or ureter, a forcible manipulation might well provoke bleeding. If bleeding were found on both sides it would prove nothing. In regard to the fulguration method, recurrences were seen sometimes. He had one man, a Russian, operated on at 14 years of age for single papilloma. At 28 years he had a recurrence and radium was suggested, but the patient thought fulguration had given good result before, and decided to keep on with it. These patients should not be allowed to drift. Where radium could be used it should be. He had one patient alive after five years, with one-third of the bladder removed. Somebody would probably say "Why don't we snip off portions of the papilloma and send it to the pathologist?" That reminded him of what Dr. Pick used to say in Berlin, when Israel sent him specimens. He said that "Israel sent him the top of the house, and expected him to know what was in the cellar."

Surgical Aspects of Disease of the Gall-Bladder and Biliary Passages.—Dr. ABRAHAM O. WILENSKY of New York City presented this paper. He stated that cholecystitis and cholelithiasis were diseases of middle age, more common in women, especially in multiparae. Probably the disease began early in life and showed symptoms later. In one type gallstones occurred, in another not. In the first, at operation various pictures were seen: (a) Normal gall-bladder, with light bile and varying number of stones; (b) slightly dilated bladder with single stone; (c) large distended bladder, atrophic mucous membrane, numerous stones; (d) neglected gall-bladder, thickened, gangrenous mucous membrane, numerous stones, cystic duct often shut off; (e) gall-bladder shrunken, varying amount of pericholecystitis, cystic duct sometimes obliterated; (f) gall-bladders corresponding to a, b, and c, and (g) corresponding to e and f with stones, (h) corresponding to f, without stones. Infection might begin in two ways, (1) acute catarrhal cholecystitis, or empyema of the gall-bladder, (2) disturbance of cholesterolin function, often beginning in pregnancy, corresponding to the hypercholesterinemia of pregnancy. The stones would act as foreign bodies and the infection accompanied disturbed metabolism. The complicating factors caused pathological pictures of wide variation. Once infection sets in mechanical means must be taken to remove it. Anatomical healing only increased the deformity. Often the liver itself was affected; and there was leucocytic infiltration of the portal sheaths. The liver had an appearance of early cirrhosis, suggesting the idea that continued diseased foci could start cirrhosis. Pancreatitis set up as a response to bacterial infection. Other important lesions could rise from neglected gall bladder disease. There was no method or process, at present, by which gall-bladder disease could be ascertained at an early date. The history gave the most important data. The clinical types were varied: (1) One or more attacks separated by healthy periods; (2) attacks accompanied by pain and ill health; (3) dyspepsia and gastric symptoms; (4) right-sided abdominal pain, suggestive of dislocated kidney, or chronic appendicitis (the presence or absence of biliary colic should be diagnostic); (5) single acute inflammatory condition with pain in the upper right quadrant, with nausea and vomiting, with tenderness near the gall-bladder (the acute empyema cases, not necessarily associated with stones). The treatment in gall-bladder cases should be surgical. Medical treatment was simply palliative, and operation should be done as soon as the diagnosis was established. The question of cholecystectomy versus cholecystotomy should be discussed. The former should be done whenever possible, and the latter only when nephritis, or myocarditis, or some similar complication precluded the added risk. Drainage was simply a palliative measure. In cases where there was disturbance of cholesterolin metabolism, bile drainage relieved the excess of cholesterolin in the body, as in pernicious vomiting of pregnancy. In some cholelithiasis cases it was difficult to determine whether the stones accounted for the symptoms and whether some reurred or were overlooked. Deaver advised opening

wide the common duct and draining to avoid overlooking small stones.

Cholecystitis.—Dr. MARSHALL CLINTON of Buffalo read this paper. He said that there was a disparity of numbers in the cases of gall-bladder diseases occurring in the sexes; four-fifths of the cases were in women, and 80 per cent. of these had borne children. It was found that regurgitation of trypsin through the sphincter of the ampulla produced nausea and vomiting, and work had been done to see if there was any relation between this fact and cholecystitis. A high percentage of women who had suffered from morning sickness were found among the gall-bladder patients, and any condition that produced nausea and vomiting had the primary symptom that produced gall-bladder disease. The speaker emphasized this relation to the regurgitation of trypsin in view of the fact that Rosenow had recently decided that gall-bladder infection arose from infection of the teeth and tonsils, and at the Mayo Clinic 10,000 children had had their tonsils removed to see what effect this would have on hematogenous infections in the future. He asked whether the profession was not too hasty in removing tonsils, and whether the victims received relief commensurate with the expense and trouble to which they had been subjected.

Dr. Cross of Buffalo said that it was now known that cholecystitis and cholelithiasis were largely due to bacteria. This was sometimes favored by congestion of the liver, such as occurred during the period of pregnancy. Rosenow had shown that there existed a selective action of certain bacteria. Deaver for many years had claimed that there was a certain interrelation between appendicitis and gall-bladder disease. Early cases produced few symptoms, but later lesions became more complex, depending upon the amount of infection. Gall-bladder infections became systemic, and were sometimes associated with pancreatic involvement. In some cases the lesions produced few symptoms, but in others there were marked systemic disturbances, anemia, and even hemorrhagic conditions. The early history was of disturbance in the epigastrium, and this increased as infection and movements of the stones took place. Lyons' treatment by magnesium sulphate was of use occasionally, but in cases of obstruction of the common duct it was useless and waste of time for the patient. Cholecystectomy was safer and quicker than cholecystotomy. Another point was careful manipulation of the tissue in that region. The common duct should not be ligated and abnormalities of the cystic duct and arteries should be recognized. In one case the hepatic duct was one continuation of the common duct. Certain bacteria from the appendix would produce cholecystitis, but it could be produced by other bacteria. With early operation the mortality could be reduced to 2 per cent. and less damage would be rendered to other organs. A long incision, and good anesthesia was necessary. Any drain was better than no drain. Two quarts of saline on the operating table would make the patient more comfortable. Lavage of the stomach tended to lessen nausea and vomiting, and prevented distention.

Dr. A. O. WHIPPLE of New York City said that in analyzing a large number of cases one was struck with three types: (1) fulminating streptococcal cases; (2) peritoneal infection through the portal route, as in pernicious vomiting; (3) infection through the circulation, usually by *B. coli* invasion. Ehret found this organism in the duodenum; Stokes isolated it in the common duct.

Dr. W. D. JOHNSON of Batavia said Dr. Wilensky had struck the essential point when he said that 75 per cent. of cases occurred in women and 80 per cent. of these in multiparae. He had read a paper on the toxic vomiting of pregnancy, in this society, in the obstetrical section, and had advised draining the gall bladder. This cured the condition in 48 hours.

Dr. SANLIER of Poughkeepsie said that one operative complication should be mentioned; that in cases of neglected gall-bladder disease there could be an excessive drainage through the common duct, producing dehydration, amounting to as much as 12 pints of fluid per day for three days, which could become very serious to the patient. An extensive study of the literature had not revealed any similar cases reported. A year ago a Philadelphia surgeon reported a case but neither

could he find the matter mentioned in the literature. Dr. AARON of Buffalo said he had reported an anastomosis between the duodenum and hepatic duct in a case of complete obstruction of the common duct, where bile had been suppressed entirely for three months. The patient had had nine operations already, and refused to have another, for which one could not blame him. As a last resort magnesium sulphate, dry, on the tongue, was tried, with enough water to wash it down. After four days bile began to flow and the patient was relieved. Probably congestion was lessened.

Dr. EDWIN BEER of New York City said that in regard to the remarks of the previous speaker, the physiological action just described could be attributed to magnesium sulphate. He had had the same experience in common duct surgery as Dr. Sadlier had, and had seen an enormous flow of clear bile which he took to be pancreatic secretion. Why women should have so much more trouble with gallstones than men was easily understood, in view of the fact that cholesterinemia existed in pregnancy. There was a strict analogy between uricemia and uric acid stones in the urinary tract, and cholesterin stones in the biliary tract. To those who worked in both fields it was striking how often patients with prostatic obstructions showed uric acid retention. Females showed cholesterin retention, due to hypersaturation of the blood. Uratic stones formed in one case, cholesterin calculi in the other. In prostatic cases bladder stones were uratic in 50 per cent. How and why they formed was to be solved by careful analysis of colloidal chemistry. The salts were in supersaturate solution and were thrown out when the colloid-holding material was reversed. Inadequate drainage of the common duct was wrong; there were good reasons for draining it for a considerable time. Secondary drainage had been overlooked and intra-hepatic stones could pass through the drainage tube.

Dr. HYMAN of New York said that formerly men were worried about removing tonsils, and now they were worrying about the appendix. Opening the pancreatic duct with the common duct was more apt to give involvement of the pancreas. Dr. Beer had pointed out that there was an analogy to formation of kidney stones. Did the pressure from the pregnant uterus cause stagnation in the common duct and gall bladder?

Dr. A. O. WILENSKY, in closing, said he had seen drainage of duodenal juice through the common duct from a fistula, with one stone coming from a paralyzed sphincter; the sphincter being incompetent the duodenal juice leaked. This was due to traumatism during operation with secondary necrosis. Cholesterin was increased, during, and several months after pregnancy, and patients had symptoms more from hypercholesterinemia than from stones. Proper diet would relieve symptoms. Patients would come back with symptoms after operation, but these could be controlled by simple attention to diet.

Dr. MARSHALL CLINTON, in closing, said that in one case of pernicious vomiting of pregnancy, where the patient could not even retain water, he decided that draining the gall bladder should prove the facts. The gall bladder was found filled with tarry bile, no stones, and there was a great deal of trypsin. Forty-eight hours after drainage vomiting stopped. The fourth day she had slight depression. The next day she was delivered of a five months' dead fetus. The sixth day she died, but it was certain that drainage stopped the vomiting. In other patients it had been observed that trypsin was never found except in those with nausea. The trypsin might be pushed back from the pancreas.

SECTION ON MEDICINE.

Tuesday, May 3—First Day.

*Joint Meeting with the Section on Public Health,
Hygiene, and Sanitation.*

DR. NELSON G. RUSSELL OF BUFFALO IN THE CHAIR.

The Relation of the State Department of Health to the Medical Profession.—Dr. MATTHIAS NICOLL, Jr., presented this communication, in which he stated that in discussing the history, growth, and present status of

medical science it was necessary to consider the subject as related to medical education, medical practice, including diagnosis and treatment, and preventive medicine. The last was usually regarded as the chief function of the Health Department, and by not a few the sole function. Those who held this view resented what they regarded as encroachment upon their domain. Dr. Nicoll showed the untenability of this attitude of mind. The State Department of Health had sought, and received without seeking, a fair amount of advice and some criticism which had always been given careful consideration which frequently resulted in conformational action by change of method. In turn the Department of Health had not hesitated to call attention to facts regarding medical practice and education which had come within the knowledge of its administrative head and members of staff, and such matters were of equal interest to the practitioner and the medical educator since they involved the health, happiness, and life of the people. Dr. Nicoll then reviewed the outstanding features relating to medical practice, especially those affecting the less populous districts, which he declared were susceptible of confirmation, and so far as he knew had not been convincingly refuted. Physicians were abandoning the rural districts. From 1911 to 1919, the rural districts of the State had lost by removal and death 403 physicians or 13.5 per cent., while the population had increased approximately 7 per cent. Death and dissatisfaction with rural practice had left the field to be covered by middle-aged and old practitioners with few or no recruits ready to take their places. It was claimed that with the improvement of roads and the general use of automobiles fewer physicians were needed. That was true, but many large areas were not covered except by sending for a physician from a long distance. Some 83 communities had appealed to the State Department of Health to send them a physician. The Department had furnished 36 physicians, and 34 localities were still, at last account, without a physician. It was probable that the number of applicants for physicians did not represent the number of communities really in need of medical service. In these rural communities a physician might count upon a better than an average income. The failure of physicians to undertake rural practice was due to the world-wide psychological phase through which civilization was passing, and to which a tremendous impetus was given by the war, which caused the overturning of old standards and habits of life, a desire for constant excitement, a spirit of restlessness which had by no means disappeared at this time. Thus hundreds of physicians who had been in the service experienced a life previously unknown and dreaded to return to the private practice of medicine in rural communities. Such men sought city life, where they could get the excitement they craved. A second reason for the dearth of physicians in rural localities was the great advance in medical science during the last decade and the technical knowledge and equipment frequently necessary to arrive at a correct diagnosis. A third reason for the situation was that there was no question that the life of a rural physician was a hard one, and men today were perhaps less likely to undergo physical hardship than were those of bygone days. A further reason might be found in the increase of specialization as a natural consequence of great knowledge regarding pathological conditions and the new methods. To the undergraduate and young physician specialization with its regular hours, larger fees, and the possibility of establishing a wider reputation made a stronger appeal than did rural practice. Lastly, not only the physician himself but his family often determined his decision. As to possible remedies, Dr. Nicoll said that for the past two years the State Department of Health had introduced a measure into the Legislature designed as a possible solution of the above problem. These were the bills known as the Health Center bills. Secondly, small medical schools must be fostered, encouraged, and their financial needs provided for. A recent study revealed the fact that of 1700 graduates of the Albany Medical School, only 174 had settled in or about New York, while more than one-third had taken up practice in communities of about 10,000. In the natural course of events it was quite doubtful if the average physician would be able to secure an adequate financial

return in the cities, and inevitably he would be forced to seek smaller cities and rural communities.

The Group Consultation Clinic Experiment.—Dr. EDMUND C. BODDY of Rochester read this paper. He stated that there were many industrial and social conditions demanding readjustment that had a direct bearing upon the subject of the scarcity of practitioners of medicine in rural sections, but it must be recognized that an effective development in social advance could not be obtained without a corresponding advance in the standard of physical and mental well-being of our people. It was believed that factors medical should go hand in hand with the social and economic, and it would be apparent to those who gave the existing conditions careful consideration that one of the factors which thinned the ranks of rural physicians was that when, after years of superactive life they were obliged by advancing years to lessen their activities, there was not found readily anyone to share their burdens, and in the event of death the communities which they had served so faithfully had to depend upon already overworked physicians from neighboring towns for their future medical service. It was believed that it was the lack of those facilities which, as a result of the teachings of modern medical schools, and the practice of modern hospitals were essential to the practice of medicine today, that restrained the younger practitioner from choosing the less thickly settled communities for his initial endeavors in the practice of his chosen profession. Public opinion had been aroused to the fact that a larger proportion of our people were suffering from physical handicaps and that many crippling defects might have been prevented had they been recognized and proper precautions taken during their incipency. In trying out the group consultation clinic it was doubtful whether the Commissioner was actuated by the tendency of the practice of medicine to develop along these lines rather than to utilize those facilities which had already been inaugurated and developed, namely, the State Department of Health, the State Department of Education, State Hospital Commission, State Commission for Mental Defectives, State Charities Aid Association, and American Red Cross. The administration of these clinics was experimental. Six clinics were held in series of twos, differing from each other in method of reaching the people and receiving patients. In conducting the first two popular publicity was used in advertising the clinic; admission was granted to all those who presented themselves for examination; the name of the family physician was secured and the report of the examining physician forwarded to him. The second series was conducted with popular publicity, but a card of admission was required, signed by the attending physician, and all reports of examinations were forwarded to him. In the third series all publicity of any character was omitted except that directly among the physicians who were invited to send to the clinic any patient on whose case they desired consultation. Local physicians were invited to attend and to confer with the consultant if they so desired. These clinics were held in seven counties, serving a population of 325,474; the total number of patients examined was 1,735, and the total number of consultations was 3,288. To the first clinics of popular character no doubt many came out of curiosity and no doubt there were some objectionable features which were eliminated from the later clinics. As to the reception of group consultation clinics by physicians, it must be frankly stated that it was a matter of doubt. Many physicians who had attended the clinic had expressed themselves as well pleased with the idea and the service rendered; on the other hand criticism was heard as to benefits obtained. Some of these criticisms were constructive and helpful but many were based upon a misconception of the experiment. Many who had much to say in favor of child welfare clinics, tuberculosis clinics, venereal clinics, clinics for the after care of poliomyelitis, etc., criticised the consultation clinics, which were simply a grouping under one administrative head of these various clinics. It was never claimed that the Department of Health was sending out a wonderful assemblage of eminent specialists who were the last word in their art. The consultants, however, who rendered service were all well known medical men who had devoted special attention to their

respective lines of work. It was contended that a group of medical men making up a clinic so cooperating that an expression of an opinion might be obtained from each as to the condition found upon examination of the patient, aided by the use of the x-ray and well equipped diagnostic laboratory, could give a service that would be acceptable to the physician and appreciated by the public. It was not maintained that a group consultation clinic in itself would answer all the needs of a community for adequate medical service but rather that it would point the way by demonstrating to physicians and the general public how they might develop the idea, utilizing those agencies which existed in the community, by cooperating their activities in one center of administration and providing adequate means for their execution. From this focus might extend in turn such assistance as would enable medical men to supply for the community an adequate medical service.

Dr. NICOLL stated that the county medical societies were not consulted at all. They had endeavored to reach the various practitioners, and stated that they proposed to hold a clinic. On account of the expense to the Health Department there would be one more clinic held, after which there would be no more.

The Abolition of Venereal Disease.—Dr. GEORGE WALKER of Baltimore made this presentation in which he stated that he had had the opportunity in France of being connected with the venereal disease section and was overseas twenty-seven months, where he had charge of the port towns, having succeeded Dr. Young. The second million men sent over showed a little over 5 per cent. of venereal disease and that meant frank lesions with a gonorrheal discharge or the open lesions of syphilis and chancre. That was not comparable to the finding in 1,100 consecutive white patients at the Johns Hopkins Clinic, who showed 11 per cent. of venereal infection; or with 27 per cent. of infections found in the examination of 500 prostitutes in Baltimore; or with the figures shown by 600 jail inmates, among whom there were 16 per cent. of venereal infections in the white and 24 per cent. among the colored, these being apparently healthy persons. In a group of healthy negroes in Texas 24 per cent. were shown to have syphilis. Other figures were quoted to show that syphilis was fairly widespread in the community and was by no means confined to the lower classes. Osler said two years before he died that when a student knew syphilis he knew medicine. He concluded his article with the statement that 20 per cent. of all organic heart lesions were due to syphilis, about 20 per cent. of all nervous diseases, 100 per cent. of locomotor ataxias, 100 per cent. of general paresis, and about 84 per cent. of aneurysms. An English authority had made the statement that syphilis stood in the fourth place of the mortality list in England. Dr. Welch said he was disposed to go a little further and to give syphilis the third place on the list. About the incidence of gonorrhea they knew very little that was exact, but they knew that in the army in Great Britain and France gonorrhea was five times more prevalent than syphilis. When he went to France with the first contingent, in June, 1917, France was not prepared to receive us. There were no restrictions on alcoholic beverages; they were as free as water and prostitution was equally so. It soon became evident that very drastic measures would be required. They found an annual rate of 240 cases of venereal disease per thousand men and 625 cases per thousand men among negroes. It was estimated that there was 72 per cent. of sex contact among the white men and 90 per cent. among the colored troops. It became evident that they would have to depend upon something else than preachment and the attempt to put the prostitute out of bounds. They found that their chief reliance was upon prophylaxis. This consisted in a 2 per cent. protargol solution injected into the urethra and 33 per cent. calomel ointment applications, rubbed in for three or four minutes. These measures were preceded by washing with soap and water and bichloride solution. As soon as these stations were equipped and the men went to them the venereal disease rate dropped from 240 per 1,000 men to 27 among the white men and to 25 to 35 among the colored men for a period of one year. They used moral suasion and punishment, but found that moral suasion had very little effect among the colored men, so they

made it a rule that the colored men should take the prophylaxis whether they had been exposed or not every time they returned from leave of absence. The result was well-nigh miraculous. At the port of Bordeaux they reduced the incidence of venereal disease among the troops to 20 per thousand per year and at other ports similar results were achieved. He felt absolutely certain that if they had stayed long enough and had known a little more about it they could have abolished venereal disease altogether among the troops. In Bordeaux of 126,000 prophylactic applications only 1.4 per cent. were failures. In another port following 9000 consecutive prophylactic treatments there were but 19 infections. In another badly infected port 6524 prophylactic treatments were followed by only 5 infections. In the army as a whole among 224,000 treatments there were 1.3 per cent. failures. Those figures compared with the 240 per 1,000 men without prophylaxis showed what prophylaxis could do. Of one regiment of 3,200 men selected as a body guard for General Pershing, who went to Paris, to London, and back to Paris, and in whom it was not possible to enforce military discipline 13.5 per cent. developed venereal disease. Dr. Walker stated that he was confident in his own mind that in this method of prophylaxis he had a remedy which would practically always prevent venereal disease. He proposed the establishment for the general public of prophylactic stations in all large cities and in suitable places in rural districts, and the introduction of a prophylactic package which could not be obtained at drug stores but only from the department of health, or at these stations, and also the education of the public to see that such prophylaxis was employed. He did not wish to be understood as saying that we should not use methods to prevent sex contact, but that prophylaxis should be applied to those classes that could not be influenced by moral suasion.

Dr. ALEXANDER LAMBERT of New York said he could not allow the occasion to pass without emphasizing the tremendous difference prophylactic treatment had made among the men in the army as a fighting unit. It was a most extraordinary thing to see in the camps where prophylaxis was not employed the enormous number of men laid up with venereal disease and useless for the purpose for which they had been sent over. Prophylaxis of the kind described by Dr. Walker made a difference in the strength of the fighting corps, and this was the factor that finally convinced England, though there was at first a strong sentiment against it at home, that it was a measure worth adopting.

Dr. HENRY S. STARK of New York thought the establishment of prophylactic stations was hardly a thing the section should go on record as favoring at the present time. Most of the facts presented were derived from military life and in civil life one could not apply such data, because in a civil community one did not have the discipline and control that existed in the army. He thought it impossible to do much for the present generation but we could do a good deal for the coming generation by means of proper training and the suppression of all forms of lewdness.

Oral Hygiene.—Dr. HYATT of the Metropolitan Life Insurance Company made this contribution, in which he called attention to the fact that New York spent \$177,000,000 for pure water and that the United States Government had inspectors to insure pure food, but that the public had relegated to a minor place the hygiene of the mouth, through which receptacle all food was passed. Dr. Crowe of England had shown that in an unclean condition of the mouth or in pyorrhea there was a large area exposed to the absorption of toxins and bacteria passing into the body. A small attack of Riggs' disease would have an area equal to three square inches; if all thirty-two teeth were involved there would be an area of absorption equal to eighteen to twenty-two square inches. Over this absorbing surface passed pus, bacteria, and decomposing food; when one thought of this it was not surprising that many systemic disturbances should result from mouth conditions. Dr. Hartzell of Rochester, Minn., had shown that it was possible for infection to work into the pulp chambers of a vital tooth, and had shown the way by which infection traveled. It had been shown that in one milligram of scrapings from a devitalized tooth five to eight hundred million bacteria were found, while

in one milligram of scrapings from a healthy tooth about 5,000,000 bacteria were counted. An examination of 2,000 employees of the Metropolitan Life Insurance Company, one thousand of whom had one, two, three, or four teeth with non-vital pulp and with decalcification around the apical end, and one thousand of whom had no teeth with non-vital pulp, showed a marked difference in the two classes. It was found that among the persons with non-vital teeth many more were suffering from neuralgia and neuritis than among those with no non-vital teeth, the increase in nervous troubles being 164 per cent. There was also a large percentage of tonsil and skin infections, and of those showing albumin in the urine, in the group having non-vital teeth over the other group. Such evidence made it perfectly logical to believe that pathological conditions in the buccal cavity must be associated with systemic disturbances. It was very essential that children in the public schools be instructed and helped to maintain mouth hygiene in its broadest sense.

Dr. ALEXANDER LAMBERT called attention to a group of cases of angina pectoris with high tension arteries, all having a large amount of intestinal gas, and whose feces on examination showed an excessive amount of putrefaction, all of whom had bad teeth. These patients had a high systolic blood pressure, a low diastolic pressure and a great deal of putrefaction, and it was a curious thing that one could not do anything for them until the putrefaction which resulted from swallowing a certain amount of pus every day was stopped. The reduction of the putrefaction in these cases reduced the cardiac pain and improved the general condition. Another fact that had impressed him in this connection was in reference to rheumatic conditions in the young. When he came back to work in the hospital he missed the young rheumatic cases from his wards. He asked the internes how it was that there were none of these. They said it had always been so. They had not been there as long as he had; formerly these cases were plentiful. He went to the record room and looked up 1,000 cases of rheumatism recorded between the years 1906 and 1912, and the average of these cases was 25 per 1,000 admissions right along; today rheumatism in the young furnished only 0.5 per cent, in proportion to other diseases. The only change that had occurred was the change in reference to mouth hygiene and attention to the tonsils. It was interesting to note that while there was a general reduction in the incidence of rheumatism in all ages, the percentage to the total number coming in had remained about the same, except for the age period between 20 and 30, in which not only had the percentage dropped, but the total number had dropped also which was due to the fact that many had lost their tonsils as well as cleaned up their teeth.

Studies on Experimental Measles.—Dr. FRANCIS G. BLAKE of New York presented this communication. (See MEDICAL RECORD, xc, 14, p. 586, April 2, 1921.)

Dr. MATTHIAS NICOLL, Jr., asked Dr. Blake whether they had observed any change in regard to the period during which measles was infectious from that generally accepted. For how many days after the lesions appeared would measles be conveyed? He would also like to know whether the skin lesions alone were able to convey the infection.

Dr. BLAKE replied that in regard to the infectious period they had not made experiments but they had found nothing to indicate any variation from the findings of Anderson and Goldberg. They had found the disease could be communicated six days before the appearance of the exanthema. Most of the animals inoculated within 24 hours after the appearance of the exanthema came down with the disease; of those inoculated on the second day of the rash 50 per cent. showed infection. Anderson and Goldberg established five days after the appearance of the rash as the outside limit of the time during which the infection could be conveyed. However, one must be conservative in applying the results obtained in experimental animals to human beings. It might be that measles was infective for children for a period longer than for monkeys. In reference to the question whether measles could be conveyed by the skin alone, it was impossible to say, for while they had made emulsions from the skin and conveyed the disease it was impossible to say that there was not some capillary blood present.

Miscellany.

FIRST RECORDED CASE OF CHRONIC OBSTRUCTION OF THE DUODENUM, WITH REPORT OF THE AUTOPSY.*

TRANSLATED FROM THE LATIN OF DR. FRIEDRICH BOERNER OF WOLFENBUTEL.

BY JOHN W. BRANNAN, M.D.

NEW YORK.

THE following is a translation of the main portion of an article published in 1752, and probably the first printed record of a case of this nature. The full title is as follows:

FRIDERICI BOERNERI,

Artis Salutaris Doctoris et Practici Wolfenbutelensis. Academiæ Cæsareæ Naturæ Curiosorum et Societatum Teutonicarum Goettingensis, Jenensis et Helmstadiensis Sodalis,

DE TABE SICCA LETHALI

A* Mirabili Duodeni Angustia et Præternaturali Plane Ventriculi Situ.

Disquisitio Anatomico-Medico-Practica Academiæ Naturæ Curiosorum Pensi Ordinarii Loco Oblata, Calendis Novembris, MDCCCLII.

Disquisition on Dry Tabes with Fatal Ending, Caused by a Remarkable Stricture of the Duodenum, with an Abnormal Position of the Stomach, by Dr. Friedrich Boerner, Doctor of the Art of Healing and Practising Physician in Wolfenbutel.

There are so many diseases, of such severity and so difficult to recognize, to which from the very beginning of our lives even to our last breath, we see ourselves, unhappy mortals, everywhere exposed, that to arrest their attack and to restore the body to health, the lifetime of one man scarcely seems to suffice. For if you consider any period of life, even the babe still hidden in the womb of its mother, or little children, or adults, or those who have reached the feebleness of age, or on the other hand, you enumerate all the diseases by which you see the human race surrounded, and their diverse species, which together and in various ways invade the fragile framework of our bodies, you will perceive everywhere dangers innumerable. But how many are still unknown, and how many causes of disease lie concealed, which, unless the bodies of the dead are subjected to the anatomical knife (or as we should say, come to autopsy), cannot be disclosed, and escape even the sharpest-eyed physician.

May it now be permitted to illustrate the above statements, by the present unique case, most worthy of being recorded.

The patient was a man somewhat over fifty years of age, in rather easy circumstances, of bilious temperament, leading for the most part a sedentary life, accustomed to hard and rough food, salted and smoked, such as the people of lower Saxony regard as a delicacy; neglecting ordinary drink, but a strenuous lover of spirits, a man who had persuaded

*Read as part of the discussion on a paper by Dr. E. L. Kellogg on "Chronic Obstruction of the Duodenum Surgically Considered" at a meeting of the Society of Alumni of Bellevue Hospital, January 5, 1921.

himself that about six years before he had been bewitched by an old woman. He afterwards asked the advice of many physicians, and even made use of the remedies of ambulatory doctors who frequent the marketplaces, and men of that character who imagine themselves physicians and are accustomed to make experiments even upon the dying, and whatever they handed out to him he devoured with avidity; at length he came to me and desired counsel and aid against his disease.

He appeared a skeleton and image of death rather than a man. The skin scarcely adhered to his bones, and his whole body from head to heel was wasted away. In the left hypochondrium was to be seen an oblong tumor, resisting but soft, easily movable both above and below, extending from the diaphragm down to the pubes. This he believed to be an egg which the witch had produced by her sorcery. The appetite was nil, and the bowels were persistently obstructed, so that it was only after eight days that a few indurated scybala were brought forth. There was nausea, with inclination to vomit, occasionally even vomiting itself. The pulse was hard, irregular, the sleep disturbed.

After carefully studying the condition of the sick man, who insisted that he had received no external injury, I concluded that his illness was due to an obstruction of the viscera, with atrophy of the stomach, perhaps caused by worms, those dangerous enemies of the *primæ viæ*, and therefore I strove to combat the disease by aperients and gentle evacuants and diluents, and at the same time suitable clysters, but especially by an appropriate diet, to be followed by tonic medicines.

But as happens in illness of long duration, when a happy issue responds slowly to the desire of a sick person, he suddenly and with indignation demanded relief, the hope of which I was not able to give him, and he then said farewell to my treatment and to me; after the manner of the public which is fickle and changeable. About eight weeks later he died, entirely consumed by his disease.

On the day following his death, the opportunity being obtained by chance, the body was subjected to the anatomical knife and opened by a surgeon well trained in his art, in concert with two other distinguished medical men. But oh, what a stupendous spectacle! What a wonderful sight! For when the skin and abdominal muscles had been incised and dissected, there was not a trace of the peritoneum, the omentum, or the mesentery. The canal of the intestines was confused chaos. But in the left hypochondrium from the diaphragm quite to the pubes, behold an oblong membranous sac, spread out and filled with flatus, occupying the whole region! And what was the sac? It was the stomach dislocated from its proper site, corrupted, inverted, passing below the umbilicus and representing a true sac. We then proceed with our search, contemplate the intestines—and behold a new spectacle! for in the duodenum appears a solid and wrinkled constriction, exceeding the thumb in breadth, and so contracted that we are not able to inject through it even the most dilute fluids.

The liver is of normal size but so friable that we can easily crumble it with fingers; of the gall-bladder there is no distinct trace; there is marked hardening of the spleen. The cause of the long illness

and death itself having thus been ascertained, the remaining cavities are not opened. Behold then a most rare but clear case (the truth of which, were I not an eye-witness, I should myself doubt). Behold a dry fatal tabes, caused by a remarkable stricture of the duodenum with an abnormal position of the stomach.

Ancient Roman Medical Jurisprudence.—It is to this aspect of medical science that we must look for the most concrete thinking of the ancient mind on the subject of disease, and fantastic theories and therapeutics were suppressed when medical matters came before the tribunals. The Roman juriconsults discriminated between somatic and psychic maladies, between organic and functional disease, and between disease proper on the one hand and vices or deformities on the other. Transient were distinguished from permanent affections. A vice or cacothēs was with the Greeks a bad habit of body not to be confounded with disease. There were some inconsistencies due in part to different conceptions of disease held by the Greeks. Thus the word *vitium* in Rome seems to have applied to cripples, one-eyed men, etc. But a case is cited in which a lame man was characterized as sick (*morbosus*) instead of vicious (*vitiosus*).

The Future of France.—This subject is discussed in the editorial pages of *La Presse Médicale* for November 10, 1920, xxviii, 82. The marriage rate since the war is most encouraging and in 1919 alone there were 458,000 births. Natality should increase. Writing in 1868 Prévost-Paradol urged that the French multiply rapidly to maintain their place in the world, but this admonition was disregarded. Curiously enough this author warned of approaching economic struggles with the British Empire and the United States but said nothing of Germany. The two countries specified would presumably act more or less in concert, which made the outlook for France more difficult. France must bear in mind the colonizing and missionary activities of England, and also that this colonial and proselytising policy begun by Spain came to grief through its intrinsic defects. The early French colonial achievements also ended disastrously in the loss of Canada and Louisiana and again of India. Great Britain has been the only successful country in this field, and hence it is the Anglo-Saxon who should naturally be feared and emulated. But Great Britain has finished her work and should she succumb, this work will live after her, unchanged by her vicissitudes. Should the loss of her former great transatlantic colonies by France discourage present day attempts? Not at all, for, to go no further, Mediterranean Africa offers great hopes for the future. Morocco, Tunis, and Algiers mean a colonial empire of 5,000,000 French subjects. The colonial Frenchman has none of the birth control disposition of the home people. Look only at the proverbial fertility of the French Canadian, which is utilized in the interests of Great Britain. Next to Mediterranean, Occidental French Africa represents a successful province which sent 200,000 troops to fight for France in the late war. The Frenchman gravitates to warm countries to-day and many thousands live in the European Mediterranean littoral. Therein lies the hope of the future.

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Original Articles.

FOCAL INFECTION OF THE CERVIX AND ITS RELATION TO SYSTEMIC AND MENTAL DISEASES.*

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It seems best to divide the study of this subject into two parts: First—A consideration of all those facts which show that the endometrium of the cervix frequently becomes the site of a focal infection, which is second to no other in its resulting systemic effects. Second—An analysis of the results obtained in fifty cases operated upon for removal of this focus of infection at the New Jersey State Hospital at Trenton.

The writer wishes it understood that he does not claim that by any means all cases of insanity can be cured by simply removing the diseased endometrium of the cervix, nor does he wish this paper to be construed as in any way sensational but the results obtained from this procedure were, in many of the cases operated upon, so pronounced, that he feels it his duty to present the facts to you for your consideration and discussion.

It is necessary for a thorough understanding of this subject of chronic endocervicitis to review briefly the histology of the mucous membrane lining the cervical canal.

The cervical canal is lined with an epithelium different in type and arrangement from that of any other part of the female generative system. Morris's Anatomy states: "The mucous membrane of the neck is thicker and is plicated in the manner already described; its epithelium is ciliated down to the external opening, but there undergoes a transition into the squamous laminated epithelium which covers the intravaginal portion of the os; many racemose mucous glands open into the furrows of the arbor vitæ, and these are liable to pathological changes which cause them to assume a vesicular character when they are sometimes known under the fanciful name of *ovula Nabethi*." Thus we find here in the cervical canal a tissue with corrugations and folds containing deep-seated racemose glands, with tortuous canals the mouths of which are easily obstructed. This mucosa, unlike that of the cavity of the body, is not desquamated with each menstrual cycle.

Considering these histological facts we would

*Read at a meeting of the Section on Obstetrics and Gynecology of the New York Academy of Medicine, February 25, 1921. (See page 894.)

seem to have here in the cervix a tissue well suited to become the permanent abode of pathogenic bacteria, and this has been proven to be a fact. Sturmdorf¹ has shown photomicrographs of the cervical endometrium from cases suffering from chronic endocervicitis, which show all the classic signs of inflammation due to bacterial invasion.

The writer has had numerous pieces of cervical endometrium cultured by the direct method in the laboratory at the New Jersey State Hospital at Trenton, and almost all of them produced a growth of pathogenic bacteria. Besides the direct method, the writer has taken numerous cultures from the cervix by the swab method, after having sterilized the external os, and has received positive reports in practically all cases which showed the clinical signs of chronic endocervicitis. In a previous paper² he reports the results of swab cultures taken from sixty cases of chronic endocervicitis, and it seems that these results are of sufficient importance to repeat them here. "An analysis of the growths obtained from these cultures showed the following bacterial findings: Cases cultured, sixty; negative, six; *Streptococcus hemolyticus*, one; *Streptococcus* not specified, nine; *Staphylococcus albus*, four; *Staphylococcus* not specified, three; *Micrococcus albus*, four; *Bacillus coli*, nine; *Bacillus pyocyaneus*, one; common organisms, five; mixed infections, eighteen. Among the mixed infections were found some of these various combinations: 1, A streptococcus and Gram-negative bacteria; 2, Gram-positive and coccus not determined; 3, Streptococcus, staphylococcus and tubercle bacilli; 4, Streptococcus, staphylococcus, and *Bacillus subtilis*; 5, *Bacillus coli* and *B. hoffmanni*; 6, Gram-negative bacillus, *Staphylococcus albus*, and *Bacillus coli*; 7, *Bacillus coli* and Gram negative; 8, *Staphylococcus* and *Bacillus coli*; 9, *Staphylococcus*, streptococcus, and *Bacillus coli*; 10, *Staphylococcus* and smegma bacillus; 11, Streptococcus and *Bacillus coli*; 12, *Micrococcus albus* and Friedlander bacillus; 13, Streptococcus and micrococcus. Gonorrheal infections have not been seen in the series of cases.

Most of the above cultures are distinct from the fifty cases here reported for the first time. These cultures reported for the first time in this paper were all obtained from direct culture in broth media of the cervical endometrium removed at operation and will be analyzed later in the paper.

In proof that these infections are confined to the endometrium of the cervix and practically never involve the endometrium of the body of the uterus we have first the work of Sturmdorf¹ reported in his various papers. And further the work of Curtis and the writer should be considered. Curtis³ found in over 100 uteri examined only a very small

percentage in which bacteria could be isolated from the corporeal endometrium, and it seems probable that in several of these the bacterial flora gained entrance through being forced into the uterus from the tubes, as the same bacteria were found in the tubes. Also in some of these cases the uterus had been curetted during the operation, or at a former operation performed shortly before, so transmitting the bacteria from the cervix into the uterine cavity. As to the histology of the endometrium, he agrees with Hitchman and Adler, whom Sturm Dorf, quoting in 1916, as also Kundrat, says, they "have conclusively proved that nearly all of the histological features generally depicted as endometritis present only the normal endometrial transitions of the menstrual cycle. Even that infrequent form clinically labeled hypertrophic endometritis, more correctly termed glandular hyperplasia, is never inflammatory in character, but a functional adenomatous overgrowth, analogous to that presented by the thyroid in Graves' disease." Curtis quotes Mange, as did Sturm Dorf, in reference to the rarity of finding bacteria in the uterine mucosa. His work is done in a most thorough and satisfying manner, and his deductions seem to coincide with those of Sturm Dorf. In over ninety-five per cent. of some seventy-five cases operated upon by the writer for removal of their infected cervical endometrium, by a method first invented and described by Dr. Sturm Dorf, and reported in a former paper,⁴ the results were most gratifying. These patients were cured of all their pelvic symptoms and their leucorrhea was stopped, besides which they were all markedly benefited in their general health.

It is not the purpose of the writer here as in former papers to show how chronic bacterial invasion of the cervical mucosa produces most of the various pathological lesions of the uterus and other female pelvic organs, which lesions in turn cause many of the symptoms from which women suffer gynecologically. This part of the subject has already been carefully covered by Dr. Sturm Dorf and the writer in the papers quoted above.

The object of this report is to establish the fact that chronic infection of the cervical mucosa with pathogenic bacteria occurs with great frequency and that it then becomes a focus of infection just as prone to cause systemic and mental manifestations as foci in the tonsils, teeth, sinuses, intestinal tract, etc. In fact there is every reason why we should expect these results since the cervix is very freely supplied with blood and lymphatic vessels, into which absorption of toxic products and even bacteria can take place.

It seems advisable to correlate the study of focal infections of the cervical endometrium with focal infections of other parts of the body. Since, despite all the bacteriological and clinical evidence that has been produced in proof of the fact that focal infections can be the cause of severe systemic and mental manifestations and diseases, many, if not the majority, of the medical profession do not yet accept this fact. No doubt much of the uncertainty that exists, in the minds of the medical profession, about focal infections results from the fact that, after a primary focus of infection once occurs, secondary foci are rapidly established, so that it becomes necessary to seek for and eliminate not one

but several foci in most cases before benefit is obtained.

The work of Rosenow, while it may have caused the pendulum to swing too far, is now very generally conceded to have proved the fact that bacteria can become domiciled in certain areas of the body and, without causing much if any local disturbance, be the cause of severe systemic manifestations and diseases. He reported a series of experiments with "organisms corresponding closely with the *Micrococcus rheumaticus*" of Poynton and Payne. He thinks this organism is more virulent than the *Streptococcus viridans* but less virulent than the hemolytic streptococcus and pneumococcus, though these last two do not, however, produce ulcer of the stomach. He describes the various types and virulence that the streptococcus may assume. He obtained the same organisms from the tonsils of several cases. Among the lesions that he mentions that he was enabled to produce from injecting these organisms into animals were "Mild arthritis and endocarditis, and in most of them pericarditis was present but not in marked form. Iritis and conjunctivitis, hemorrhages in the sclera, retina, and iris have been observed repeatedly. Occasionally lesions in the cortex of the brain, frequently punctate hemorrhages in the stomach, followed by ulcer, and hemorrhages in the appendix have been found." In a later article⁵ he closes with the following: "The supposed relation between infected tonsils or gums, and gastric ulcer may be due not to the swallowing of the bacteria as usually supposed, but to the entrance into the blood of streptococci of the proper kind of virulence to produce a local infection in the wall of the stomach, many other observations might be cited such as associate infections of the gall-bladder and appendix, which suggest that gastric ulcer may be due to streptococci.

It is interesting after reviewing this work of Rosenow's to find that in the above reported cultures the streptococcus occurs alone ten times, combined, but not with the colon bacillus, four times, and with the colon bacillus two times, in all sixteen times. The colon bacillus occurs alone nine times, combined but not with the streptococcus, four times, and with the streptococcus two times, making a total of fifteen times. Thus we have twenty-nine of these cases of chronic endocervicitis infected with either the streptococcus or the colon bacillus, and thirteen others in which some form of staphylococcus was found, totaling forty-two in which a virulent infection was present. If then focal infections occur and cause remote effects anywhere, certainly the same is true, in the light of these researches, in regard to the cervical endometrium.

Having now reviewed the histology and bacteriology of chronic endocervicitis, and having compared this focus of infection with foci of infection in other parts of the body, let us turn our attention briefly to some of the clinical aspects of this subject.

During the year 1917 the writer was fortunate in having the opportunity of operating upon some nervous and mental cases for Dr. D. E. Drake at his sanitarium at Newfoundland, N. J., for removal of cervical foci, very satisfactory improvement resulted in these cases. The following year the pres-

ent series of operations was started at the N. J. State Hospital at Trenton, through the courtesy of Dr. Henry A. Cotton, Director.

The present report is a result of this work, and the writer believes that it records the first series of cases operated upon for removal of infective foci in the cervix, with the deliberate purpose in view of relieving some mental or nervous condition or manifestation. Every care was taken to make the work accurate. The findings and recommendations were dictated at the time of examination of the patients and during the operations, and all tissues removed were sent to the laboratory for culture. For the sake of brevity only four histories are given in detail. The whole fifty cases in the series are arranged in the form of a chart from which an analysis of the work can easily be deduced.

CASE No. 29.—R. H., colored woman, age 31, married, five children. Became suddenly excited after the birth of the last baby, in May, 1918. Remained in this condition for several months and was sent to Ward's Island. Recovered from this attack. Onset of second attack was sudden, two months before birth of another child, in May, 1919. She became destructive, noisy, attracted attention on the streets, was put in jail, and finally admitted to the State Hospital in July, 1919. She had badly infected tonsils, which were enucleated. Her stomach test showed streptococcus and colon bacillus infection. On August 19, 1919, plastic conical enucleation of the cervix was done. The cervix was found to be in bad condition and the culture showed a streptococcus and the colon bacillus. One week after this operation she apparently cleared up and at the time of leaving the hospital, September 17, 1919, she was oriented, with full insight and good judgment. She visited the hospital in July, 1920, and reported that she was again pregnant, but that her mental condition was entirely normal. This is the first time she has had a normal mental condition during pregnancy.

CASE No. 35.—S. A., single, girl, aged 19, on her first admission to the State Hospital, December, 1912, had a rather peculiar mental condition, but apparently recovered and after six months went home. She returned October, 1917. Her infected teeth were removed and in December, 1918, four unerupted teeth were extracted and her tonsils removed. Her mental condition improved, but she remained thin and emaciated in appearance. After a visit of a few months at home she returned to the hospital, July, 1919, and was given a stomach test, which showed streptococcus and colon bacillus infection. A full course of vaccine therapy was given, but there was no improvement in the patient's condition. In September, 1919, a plastic conical enucleation of the cervix was performed and there was an immediate change, the patient gaining thirty pounds. Her mental condition is greatly improved.

CASE No. 21.—J. V., married woman, age 27. Admitted to State Hospital March, 1919. Married at the age of 18; had two children. First attack followed birth of child. Onset was rapid. Patient suffered from vertigo, was depressed, and at times violent and suicidal. Eight infected teeth were extracted and her tonsils enucleated. Physical examination showed perineum lacerated second degree, slight rectocele, cystocele, cervix lacerated and congested. Cervical operation was done April, 1919, the culture showing micrococcus albus. Following this operation there was an interesting change in the mental condition of the patient. At first she was greatly depressed and suicidal and needed constant watching. Gradually she became more tractable, her depression cleared up and as soon as she was physically able she was given parole of the grounds. She left the hospital June, 1919, recovered.

CASE No. 22.—D. B., married woman, age 24 when admitted to the State Hospital, July, 1918. Onset of her trouble was said to follow an abortion at three months. She became violent, resistive, destructive, and

suicidal. Was generally considered bright, and graduated from grammar school, but was always stubborn and uncongenial. Her infected teeth were extracted, tonsils enucleated, and her stomach test showed streptococcus infection. She was given autogenous vaccine. In March, 1919, appendectomy and cholecystectomy were performed, and in May a plastic conical enucleation of the cervix was done. The cervical culture showed the colon bacillus. This patient is still in the hospital, her condition practically unimproved.

We find the following interesting facts so far as the bacteriology of these fifty cases is concerned: The stomach and cervical cultures were both complete in thirty-one cases, the stomach culture in thirty-eight and the cervical culture in thirty-nine. In the complete cases we find the same combination of bacteria or the same kind of bacteria if only one is present eight times as follows: Streptococcus and colon bacillus in both the stomach and cervix four times, streptococcus three times, colon bacillus once. In seven other of the cases we find one of the same bacteria present in both the stomach and cervical cultures, either a streptococcus or the colon bacillus, and in three negative cultures from both. Making eighteen or over one-half of the cases, or to be exact 58 per cent., in which the same infection was found both in the stomach and cervix. Does this not point very strongly to either a lymphatic or a hematogenous transference of bacteria? Out of the fifty cases, through some error of routine, no culture from the cervix was taken in nine, two were reported as common organisms, leaving thirty-nine cases with the following bacterial findings: Streptococcus combined with the colon bacillus seven times; streptococcus alone eleven times; colon bacillus alone seven times; staphylococcus or *Micrococcus albus* four times; thus making a total of eighteen cases infected with the streptococcus or forty-four per cent., colon bacillus fourteen infections or thirty-four per cent., and of these two either singly or combined twenty-five or sixty per cent. It is of interest to note how closely these findings agree with those detailed in the first series, and as near as the writer can judge they agree very closely with the findings in his private cases. They likely represent the bacterial flora of chronic infection of the endometrium lining the cervical canal. Of the cases that recovered after operation we find fifty-two per cent. infected with one or both of these same organisms, or if we wish to consider that the two reported as common organisms were not completely worked out and were really infected with one of these bacteria it would bring the total up to sixty-four per cent. The same relation of these two germs was found in the cases improved from the operation, it being sixty-three per cent. It certainly seems more than a coincidence that the percentage of the whole series, the cases benefited and the cases cured, should be so nearly the same for these two types of bacteria.

It is necessary to explain here, in order that the analysis of these cases may be more fully appreciated, that most of this series of cases reached the gynecological service after every other focus of infection that could be found had been removed and vaccines had been administered. This fact was partly due to the routine of the hospital and partly to the fact that the writer's service was only established after the other work was well under way.

Dr. Henry A. Cotton, Chief.

Case	No.	Mental Diagnosis	Teeth	Tonsils	Stomach	Vaccine	Operation	Results
I. K.	1	Epilepsy	16 Ex.	Re.	S. & B. C.	Vac. & Ser.	.....	Imp.
E. W.	2	Psychoneurosis	7 Ex.	Re.	S. & B. C.	Vaccine	.....	Unimp.
A. M.	3	M. D. I. Dep.	11 Ex.	Re.	Staphlo.	Vaccine	.....	Imp.
L. T.	4	Dem. Prec. x	3 Ex.	Re.	S. & B. C.	Vac. & Ser.	.....	Unimp.
V. H.	5	Unclassified	16 Ex.	Re.	Neg.	.....	.....	Imp.
C. B.	6	Dem. Prec. x	1 Ex.	Re.	S. & S.	Vaccine	.....	Imp.
C. O.	7	M. D. I. Dep.	2 Ex.	Re.	Neg.	.....	.....	Unimp.
L. C.	8	Neurasthenia	1 Ex.	Re.	.....	.....	.....	Imp.
B. L.	9	M. D. I. Man.	6 Ex.	.....	.....	.....	.....	Imp.
R. M.	10	Dem. Prec. x	2 Ex.	Re.	Neg.	.....	.....	Unimp.
A. B.	11	Neurasthenia	.....	.....	Neg.	.....	.....	Unimp.
M. I.	12	M. D. I. Dep.	1 Ex.	Nor.	Strep.	.....	.....	Unimp.
M. I.	13	Par. Cond.	7 Ex.	Nor.	S. & B. C.	.....	.....	Unimp.
S. M.	15	M. D. I. Dep.	17 Ex.	Nor.	S. & S.	.....	.....	Unimp.
D. N.	16	M. D. I. Dep.	4 Ex.	Nor.	Neg.	Vac. & Ser.	.....	Unimp.
E. S.	17	M. D. I. Dep.	.....	Re.	B. Coli	Vaccine	.....	Imp.
I. B.	18	Hypomania	O K.	.....	Neg.	.....	.....	Unimp.
H. R.	19	Imbecile	O K.	Nor.	Strep.	.....	.....	Unimp.
E. R.	20	Psychasthenia	.....	.....	Strep.	Serum	.....	Unimp.
J. V.	21	M. D. I. Dep.	5 Ex.	Nor.	B. Coli	.....	.....	Imp.
D. B.	22	M. D. I. Dep.	8 Ex.	Re.	.....	.....	.....	Imp.
B. O.	23	M. D. I. Man.	9 Ex.	Re.	.....	Vaccine	.....	Unimp.
E. W.	24	Dem. Prec. x	7 Ex.	Nor.	Strep.	Vaccine	.....	Imp.
A. S.	25	M. D. I. Dep.	1 Ex.	Re.	Neg.	.....	.....	Unimp.
A. E.	26	Dem. Prec. x	2 Ex.	Re.	.....	.....	.....	Imp.
E. M.	27	Dem. Prec. x	Strep.	.....	.....	.....	Append.	Unimp.
H. E.	28	M. D. I. Man.	7 Ex.	Nor.	Neg.	.....	Ap. & Ooph.	Unimp.
R. G.	29	Paranoid Cond.	1 Ex.	Re.	Strep.	.....	.....	Unimp.
S. F.	30	M. D. I. Man.	.....	Re.	S. & B. C.	.....	.....	Imp.
A. H.	31	Unclassified	6 Ex.	Re.	Strep.	Vac. & Ser.	.....	Unimp.
E. F.	32	Const. Inf.	.....	Re.	S. & C.	Vaccine	Re. of Col.	Unimp.
I. B.	33	Epilepsy	3 Ex.	Re.	Strep.	.....	Re. of Col.	Unimp.
J. K.	34	Unclassified	26 Ex.	Re.	Strep.	Vaccine	E. L. & Ap.	Unimp.
S. A.	35	Epilepsy	.....	.....	.....	.....	.....	Unimp.
L. S.	36	M. D. I. M.	4 Un.	Re.	S. & C.	Vaccine	.....	Imp.
M. B.	37	Imbecile	5 Ex.	Nor.	S. & C.	.....	Re. of Col.	Unimp.
E. W.	38	M. D. I.	O K.	Re.	.....	.....	.....	Unimp.
H. N.	39	M. D. I.	6 Ex.	Re.	P. G. B.	.....	.....	Unimp.
K. R.	40	Toxic Psych. sis	.....	.....	Strep.	.....	.....	Unimp.
T. W.	41	M. D. I.	O K.	.....	.....	.....	.....	Unimp.
I. H.	42	Const. Inf.	7 Ex.	.....	Strep.	.....	.....	Unimp.
M. D.	43	M. D. I.	3 Ex.	Re.	S. & S.	Vaccine	.....	Unimp.
A. C.	44	Exh. Del.	.....	Nor.	.....	.....	.....	Unimp.
M. K.	45	M. D. I.	.....	Re.	.....	.....	.....	Imp.
E. A.	46	Gen. Paralysis	.....	.....	.....	.....	.....	Unimp.
K. K.	47	M. D. I.	1 Ex.	.....	Strep.	.....	.....	Imp.
S. A.	48	Unclassified	.....	.....	.....	.....	.....	Unimp.
C. F.	49	Dem. Prec. x	5 Ex.	.....	Strep.	Vaccine	.....	Unimp.
C. D.	50	M. D. I.	M. D. I.	.....	S. & C.	Vaccine	.....	Unimp.
			17 Ex.	.....	.....	.....	.....	Imp.

Explanation of Abbreviations

M. D. I.—Manic Depressive Insanity. (Depressed or Manic)
Const. Inf.—Constitutional Inferiority.Exh. Del.—Exhaustion Delirium.
Ap.—Appendectomy.
E. L.—Exploratory Laparotomy.

All the cases exhibited the clinical signs of chronic endocervicitis, with two exceptions; those cases in which the examination indicated the necessity of pelvic work were excluded from this series. An attempt has been made in the chart to distinguish those cases that had an infection in addition to a laceration of the cervix and those that had an infection without laceration by designating the first as Lac. cervix and the latter as Infected cervix. The cervical operation of choice was that first invented and described by Dr. Arnold Sturmdorf which, on account of its descriptive value, acquired the name of plastic conical enucleation of the cervix, at the State Hospital at Trenton; although various methods and modifications were employed. The fundamental object, however, was to remove completely the infected cervical endometrium. In addition to the cervical operations ten perineorrhaphies were performed, in one of which an additional cystocele operation was done and one or both tubes and ovaries were removed in two of the cases. There were no deaths, and a gynecological cure was obtained in practically all the cases with a marked improvement in general health and a gain in weight that was very pronounced in most.

The following mental results were obtained: Eighteen cases were improved after removal of foci in teeth, tonsils, etc., but none were cured. From removal of the focus in the cervix twenty-one cases were improved; fifteen of these had shown no im-

provement from the removal of other foci, the other six had shown some improvement from the former work. After removal of their infected cervical endometrium seventeen cases are reported by the hospital to have recovered mentally; eleven of these showed their first improvement after removal of foci in the teeth, tonsils, etc., the other six cases showed no improvement till the cervix operation was done; then they recovered.

The twenty-one cases improved were of the following mental groups: Unclassified, three; Exhaustion delirium, one; Manic depressive insanity not classified, three; Manic depressive insanity depressed, four; Epilepsy, two; Constitutional inferiority, one; Dementia præcox, three; Paranoid condition, two; Psychasthenia, one; Imbecile, one. The seventeen cases reported cured were as follows: Manic depressive insanity not classified, four; Manic depressive insanity, manic, two; Manic depressive insanity, depressed, five; Toxic psychosis, one; Hypomania, one; Neurasthenia, two; Dementia præcox, one; Unclassified, one.

The writer feels justified in drawing some of the following conclusions from the study of the work:

The cervical endometrium is frequently invaded by pathogenic bacteria and thus becomes a focus of infection which causes alterations in the cell chemistry, due to the absorption of toxins, resulting in marked systemic and mental manifestations and diseases.

HOSPITAL AT TRENTON

Division

Dr. F. W. Langstroth, Consulting Gynecologists
Dr. R. G. Stone, Resident

Pre-Operative Gynecological Diagnosis	Operation	Cervix Infection	Results
Infected Cervix, Polypus & Cyst.	Enuel. of Cer. Removal of P & C	Strep. & B. Coli	Imp.
Congested Cervix	Enuel. of Cervix	Strep. & B. Coli	Unimp.
Lac. Perineum Inf. Cervix, Cystocele	Enuel. Cervix & Perin.	Strepto.	Rec.
Infected Cervix	Enuel. of Cervix	Colon Bacillus	Unimp.
Lac. Per. Inf. Cer. Rectocele	Enuel. Cer. and Perineo.	Negative	Rec.
Severe Infection of Cervix	Enuel. of Cervix	Strepto.	Imp.
Lac. Cer.* and Per., Cystocele	Enuel. of Cer. Perin. Oophor.	Strepto.	Rec.
Lac. Cer. and Perineum	Enuel. Cer. and Perineo.	Common Organism	Rec.
Lac. Cer. and Perineum	Enuel. of Cervix	Common Organism	Rec.
Lac. Per. Infected Cervix	Enuel. Cer. and Perineo.	No Culture	Imp.
Lac. Cervix	Enuel. of Cervix	Negative	Rec.
Lac. Cervix and Perineum	Enuel. Cer. and Perineo.	Strepto.	Imp.
Lac. Cervix	Enuel. of Cervix	Strep. and Staph.	Imp.
Lac. Cervix and Perineum	Enuel. of Cervix	Strepto.	Imp.
Infected Cervix	Enuel. of Cervix	Strepto.	Imp.
Lac. Cervix and Perineum	Enuel. Cer. and Perineo.	B. Coli, B. P.	Imp.
Lac. Cervix	Enuel. of Cervix	Strep. and B. Coli	Rec.
Lac. Cervix	Enuel. of Cervix	Strepto.	Imp.
Lac. Cervix and Perineum	Enuel. Cer. Rec. and Cyst.	Negative	Imp.
Infected Cervix	Enuel. of Cervix	B. Coli	Rec.
Lac. Cervix and Per. Rec. and Cysto.	Enuel. of Cervix	Micro. Albus	Rec.
Lac. Cervix	Enuel. of Cervix	Colon Bac.	Unimp.
Infected Cervix	Enuel. of Cervix	Strepto.	Rec.
Lac. Cervix	Enuel. of Cervix	Negative	Rec.
Infected Cervix	Enuel. of Cervix	Strepto.	Imp.
Infected Cervix	Enuel. of Cervix	Strepto.	Unimp.
Infected Cervix	Enuel. of Cervix	No culture	Unimp.
Infected Cervix	Enuel. of Cervix	Strep. and B. Coli	Imp.
Infected Cervix	Enuel. of Cervix	No Culture	Imp.
Infected Cervix	Enuel. of Cervix	Strep. and B. Coli	Rec.
Infected Cervix	Enuel. of Cervix	Strep. and B. Coli	Imp.
Infected Cervix	Enuel. of Cervix	Staphylo Albus	Imp.
Infected Cervix	Enuel. of Cervix	Strep. and B. Coli	Imp.
Infected Cervix	Enuel. of Cervix	Negative	Imp.
Lac. Cervix and Perineum	Enuel. of Cervix	No Culture	Unimp.
Infected Cervix	Enuel. of Cervix	Strepto.	Imp.
Infected Cervix	Enuel. of Cervix	Negative	Unimp.
Lacerated Cervix	Enuel. of Cervix	Pure Colon Bac.	Rec.
Lacerated Cervix and Perineum	Enuel. of Cervix	Negative	Rec.
Lacerated Cervix and Perineum	Enuel. of Cervix and Per.	Staph. and B. Coli	Rec.
Infected Cervix	Enuel. of Cervix	Negative	Imp.
Lacerated Cervix and Perineum	Enuel. Cer. and Perineo.	No culture	Unimp.
Infected Cervix	Enuel. of Cervix	Negative	Imp.
Lacerated Cervix and Perineum	Enuel. Cer. and Perineo.	Negative	Rec.
Infected Cervix	Enuel. of Cervix	Colon Bacillus	Imp.
Infected Cervix	Enuel. of Cervix	No culture	Unimp.
Infected Cervix	Enuel. Cer. and Oophor.	Staphylo Albus	Rec.
Infected Cervix	Enuel. of Cervix	No culture	Imp.
Lac. Cervix and Perineum	Enuel. of Cervix	No culture	Unimp.
Infected Cervix	Enuel. of Cervix	Staphylo	Unimp.
Lac. Cervix and Perineum	Enuel. Cer. and Perineo.	No culture	Unimp.

*In all cases the lacerated cervix was also infected.

Various types of the streptococcus and colon bacillus, occurring either singly or combined, seem to be the most frequently offending organisms, but harmful results from the presence of the various staphylococci must not be overlooked.

The same kinds and combinations of bacteria are recovered with great frequency from more than one area of the body, as the above analysis plainly shows. This points very strongly to a hematogenous or lymphatic distribution of these bacteria.

Certain portions of the body seem prone to become the site of these foci of infection, partly on account of their histological structure, and partly because their function, especially in the adult, is limited. These areas are largely represented by the tonsils, teeth, especially when the nerve is dead, appendix, cervical endometrium, and, as has been suggested by some, the seminal vesicles and possibly the prostate gland in the male. The colon and gall-bladder would seem to the writer to be the site of secondary rather than primary infections.

The bacteria and toxins of chronic focal infections, are, the writer believes, selective, some showing a predilection for one structure of the body and some for another. This likely explains why some cases having foci of infection suffer from some manifestation perhaps in the joints or intestinal tract, etc., and again others from nervous or mental disturbances.

In order to obtain results all the active foci must be sought out and removed, and vaccines given.

Vaccines or foreign proteins do not seem to be able to destroy the infecting organisms, but do seem to aid in neutralizing and combating the toxins. (It is quite likely that few of the cases reported here would have benefited if the foci in their teeth, tonsils, etc., had not been removed.)

Just as in arthritis, the best results in nervous and mental diseases are obtained when the foci are removed early in the course of the disease; little benefit can be expected when fibrous changes have taken place or nerve tissue has been destroyed.

We are now fully justified as a result of this work in placing focal infections of the cervical endometrium upon a firm basis, second to no other, as a factor in the cause of systemic mental and nervous manifestations and diseases. And while we should not promise too much from a removal of these foci, still no one would seem justified in treating many of the chronic diseases to-day without having all these foci sought for and removed by someone especially trained in the respective field.

The writer wishes to thank Dr. Cotton for the opportunity of performing these operations at the N. J. State Hospital at Trenton; Dr. Stone and other resident physicians for their untiring help and assistance in carrying on this work, and Mrs. Maude B. Rue, statistician, for abstracting the histories. There is also appended a partial list of articles that the writer found valuable in preparing this paper, but to which no opportunity was found to refer to in the paper without increasing its length unduly.

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17 EAST THIRTY-EIGHTH STREET,
AND RIDGEFIELD PARK, N. J.

THE ELECTRICAL NATURE OF MAN.

11. ALBERT ABRAMS, A. M., M.D., LL.D.,
SAN FRANCISCO, CAL.

In one of my books, "New Concepts in Diagnosis and Treatment" and elsewhere my technical apparatus, "Electroradiometer" and "Oscillophore" are employed for demonstrating human radiations. The sensitivity of the human reflexes for showing the latter was evidenced by the use of the heart.²

Human Phenomena.—My constant endeavor has been to study man from the viewpoint of physics. Until this is done, medical art can never attain the dignity of a science. A science is gauged by the amount of mathematics (symbolized logic) it contains and when one can neither measure nor express knowledge in numbers, such knowledge is not scientific.

The writer is a positivist in the sense that knowledge should be limited to phenomena, and that all sciences are but branches of one science to be investigated by one and the same method. The antiquated theory of vitalism predicated a vital force unfettered by natural laws thus segregating the human organism from other entities and so retarding the correct interpretation of human phenomena.

Isolation and weighing of an electron eliminates imponderability as the dividing line of material and spiritual matter. The vital force is the inherent radioactivity common to all life evolved from the incessant activity of the electrons.

The yield of this radioactive energy as shown by my apparatus is greatest at birth and diminishes with advancing age.

²"Electrical Experimenter," Sept. 1918; *Physico-Clinical Medicine*, Sept. 1918.

Human Radiation.—Energy liberated by the human appears in mechanical, thermal and electrical form. Apparatus (magnetometer, sthenometer, and a variety of dynamoscopes) for recognizing radiations have been devised but, lacking constancy in action, they are impracticable.

The heretofore supposititious radiations have been called prana, animal and vital magnetism, odyle, psychode, biactinism, aura, etc. Superstition is true psychology with the wrong dress and the electroradiometer shows that some spiritistic phenomena are realities independent of disembodied spirits and referable to the manifestations of human radioactivity. It can be shown that, in the normal male, radiations from the right hand are positive and from the left hand negative and this polarity is reversed in the normal female. Yellow reflected on the body will reverse the normal polarity in both sexes. It can be shown with the electroradiometer that the average man thinks with

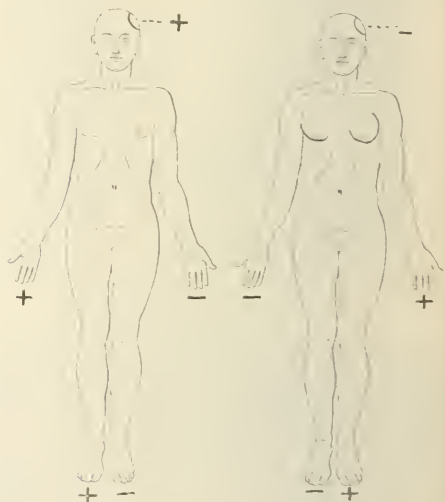


FIG. 1.—Cerebral electrogenic centers of the male and female. The decussation of the nerve tracts accounts for the polarity on the opposite side of the body.

only one side of his brain, whereas the genius utilizes both sides.

Electricity.—A few elementary facts in physics are relevant to my subject. Electricity has been arbitrarily divided into static and current; the former is electricity at rest and the latter, electricity in motion. Static electricity is produced by rubbing or the influence of one electrified body on another. Current electricity is produced by batteries and dynamos.

Static electricity is usually considered of minor theoretic importance and the experiments with it are relegated to the juvenile experimenter.

Positive and Negative Electricity.—If a rod of sealing wax or other resinous substance is rubbed with a dry wool cloth, it gains the property of attracting to itself light bodies (pith or bits of paper). After the latter are attracted, they are repelled.

Rubbing produces what is known as a charge. A

glass rod rubbed with silk will attract a pith ball which was repelled by the sealing wax. Thus, one differentiates positive (vitreous) and negative (resinous) electricity.

Bodies charged with one kind of electricity repel those charged with the same kind, but attract those charged with the opposite kind. Charged bodies are said to be excited or electrified.* They are discharged by contact with the finger.

Excations.—To investigate human phenomena, it is necessary for the investigated individual to face the geographical west, with the uninvestigated arm or leg separated (arm from the body and one leg from the other).

Grounding as a rule is unnecessary, but the phenomena are accentuated if a wire is connected with one leg to a radiator or water pipe. All materials must be clean and dry. In moist weather, they must be warmer than the air in the room and parts intended to be electrified must not be handled. Pith may be obtained from any jeweler. Sunflower pith is excellent. Cut out balls with a sharp knife and smooth them by rolling between the hands.

Technique.—Suspend a small pith-ball by a silk thread from a rubber rod. The latter may be held in the hand in a clamp or placed on a table. Charge ball by touching it with a rod of hard rubber rubbed with flannel. When charged the approach of the rubbed rod will repel it.

Observe that any substance with a positive charge will attract the ball and a negative charge will repel it. Observe that if the ball is charged with a rod of glass, the opposite effects ensue.

Only a few experiments will be cited.

Experiment I. Showing that human radiations from the tips of the right hand and foot in a normal male are positive and on the left side negative. That the opposite polarity is present in a normal female. Sexual inclination is a matter of polarity. Seated or standing toward the geographical west, approach the ball with the grouped finger tips. Note that, in repulsion, the primary action is a slight attraction immediately followed by repulsion. These effects may be noted directly or indirectly, by observing the shadow of the ball.

Note that when standing in the magnetic meridian, these effects are not observed until the body approaches the west. When the finger tips of both hands are held on either side in proximity to the ball the latter oscillates to and fro (the action of neutral electrification). Note that in temperamental individuals the polar effects are accentuated.

Experiment II. Showing that the normal polarity may be reversed by yellow light allowed to fall on the body, notably on the head, and that normal polarity effects are accentuated by red.

Experiment III. Showing that polarity may be reversed by a bar magnet. Present negative pole of the magnet to the left side of the head (Fig. 1) in a male and note the reversal of polarity when the right finger tips or toes approach the ball. A like reversal ensues when the positive pole of the magnet approaches the same side of head in a female.

Experiment IV. Showing that zones of polarity

*Further elementary facts may be gleaned from any text book on physics.

are localizable on the body. Normal male and female identification is possible by holding the rubber rod in the hand. When the ball approaches the zones (Fig. 2) peculiar to the male or female, repulsion of the ball ensues, whereas at the other side, there is some attraction. Repulsion is the true test of electrification.

Do not confound the motion of the ball with the unconscious muscular movements of the magic pendulum (*pendule explorateur*) used for determining the sex of eggs, location of underground ores or springs.

If the body approaches the suspended ball from a stationary stand the results are the same.

Experiment V. Proving that friction is necessary to evoke a static charge. All rods show positive and negative ends. The reason why this fact has been unrecognized is because some heat is necessary to accentuate electrification. Take an inanimate object like a rod of wood. Heat both ends slightly in a flame and note that one end approaching the ball will attract and the other end will repel it.

Experiments with magnets (slightly warmed) show when held toward the ball, the latter being thoroughly charged negatively, the following:

Positive pole of a bar magnet attracts, and negative pole, repels. A horseshoe magnet causes the

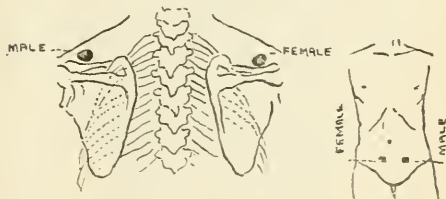


FIG. 2.—Areas on the abdomen and upper part of the chest peculiar to sex.

oscillations of what is designated by the writer as neutral energy. Note that one of the poles of the horseshoe magnet will attract and the other will repel the ball. This simple differentiation of the poles may be corroborated by the compass needle.

Electronic Reactions of Abrams.—These refer to definite and constant areas of dullness elicited by percussion on the chest and abdomen¹. In the *MEDICAL RECORD* (Feb. 16, 1918), and elsewhere², "Symptomatic Atelectasis" was discussed. The reader is referred to the latter contribution to avoid repetition.

Referring to Fig. 3, the zones peculiar to cancer and syphilis are demarcated. These zones of dullness are evident in every individual with syphilis and carcinoma provided the patient faces the geographical west and is grounded. Separation of the feet and hands extended from the body² will accentuate these areas of dullness.

If a bar magnet is presented to the cancer area during percussion, the dullness persists with the positive pole and is dissipated by the negative pole, showing the positive character of the cancerous energy.

The luetic area is positive and negative inasmuch as the dullness persists with both poles. When a pith ball is suspended from a proper support and the ball is about one inch from the areas in ques-

tion a movement of the ball is noted and this movement varies with the nature of the energy:

1. Positive (cancer)—more attraction than repulsion.
2. Negative—more repulsion than attraction.
3. Neutral (tuberculosis)—A lateral to and from movement.
4. Positive and Negative—Attraction and repulsion in a vertical direction. By use of the ball the zones may be definitely circumscribed.

Note that these oscillations of the ball are not present when the patient faces the magnetic west, but reappear at once when the posture is directly toward the geographical west.

To achieve accuracy in noting the movements of the ball avoid suspending the ball by the fingers to eliminate unconscious muscular movements.

By aid of the electronic reactions employed in various ways, say in syphilis, one may determine the following:

- (1) Differentiation of congenital and acquired syphilis; (2) Potentiality of the disease; (3) Parental origin; (4) When acquired (approximately);

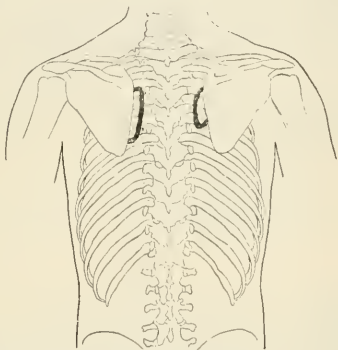


FIG. 3.—Showing the areas of dullness in the interscapular regions: peculiar to cancer (left) and syphilis (right).

- (5) When quiescent; (6) When cured; (7) Site of infection; (8) Strain.

Addendum.—Physicians using the electronic reactions for diagnosis will note that the oscillations of the pith ball will only recur at the vibratory rates of the disease. That the oscillations do not ensue beyond the potentiality of the energy.

That the same method of diagnosis is demonstrable over other areas in different diseases in accordance with their topography as shown in the "Iconography of Electronic Reactions," by Abrams.

Owing to the rejuvenated scientific importance of the pith ball, it is worthy of a more dignified appellation and the neonym "electrobioscope" is proposed. Since this article was written the writer has still further elaborated its uses, enabling him to define with accuracy the topography of the viscera, appendix, location of cerebral centers, etc.

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TECHNIQUE OF PSYCHOANALYSIS AS PRACTISED ON A CASE OF PHOBIA.

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THE patient, a woman about forty years of age, dreaded and tried in consequence to avoid the sight of church steeples and towers of any kind. When she passed by such a tower, she was very strongly affected emotionally, experiencing always a feeling of terror or anguish, accompanied by the usual marked physical symptoms. Sometimes even speaking of a tower would at once awaken this emotional complex which expressed itself outwardly in her face, as I myself observed on several occasions. Considering the frequency with which church and schoolhouse towers are met with in everyday life, one can easily imagine the discomfort arising from such a phobia. Before the mystery was unraveled she was unable to give any explanation of the origin or meaning of this phobia, and could not connect it with any episode in her life, or even state how far back in her life it had existed. Vaguely she thought it existed when she was about fifteen years of age and that it might have existed before that. Now, it should be noted that an idea of a tower with bells had in her mind no meaning whatsoever that explained the fear. It had no more meaning than it would have in anybody's mind. In the content of consciousness there was only the perception plus emotion, and no corresponding meaning. Accordingly, I sought to discover the origin and meaning of the phobia by the so-called psychoanalytic method.

When I attempted to recover the associated memories by this method the mere mention of bells in a tower threw her into a panic in which anxiety, "thrills," and perspiration were prominent. Before making the analysis I had constructed a theory in my mind to the effect that a phobia for bells in a tower was a sexual symbolism, being led to this partly by the suggestiveness of the object and partly by the fact that I had found symbolisms of a sexual kind in her dreams.

Analysis was conducted at great length, and memories covering a wide field of experiences were elicited. When asked to think of bells in a tower, or each of these objects separately, there was at first a complete blocking of thought, in that her mind became a blank. Later, memories which to a large extent, but not wholly, played in various relations around her mother (who is dead) as the central object came into the field of consciousness. Nothing, however, was awakened that gave the slightest meaning to the phobia even on the wildest interpretation. The patient, who had been frequently hypnotized by another physician, tended during the analysis to go into a condition of unusually deep abstraction, to such a degree that on breaking off the analysis she failed to remember, save very imperfectly, the memories elicited. Such an abstraction is hypnosis.

Finally, after all endeavors to discover the genesis of the phobia by analysis were in vain, I tried another method. While she was in hypnosis I put a pencil in her hand with the object of obtaining the desired information through automatic writing. While she was narrating some irrelevant memories

of her mother, the hand rapidly wrote as follows: "G . . . M . . . church and my father took my mother to Bi . . . where she died and we went to Br . . . and they cut my mother. I prayed and cried all the time that she would live and the church bells were always ringing and I hated them."

When she began to write the latter part of this script she became depressed, sad, indeed, anguished; tears flowed down her cheeks and she seemed to be almost heartbroken. In other words, it appeared as if she were subconsciously living over again the period described in the script. I say subconsciously, for she did not know what her hand had written or why she was anguished. During the writing of the first part of the script she was verbally describing other memories; during the latter part she ceased speaking.

After awakening from hypnosis and when she had become composed in her mind, she narrated, at my request, the events referred to in the script. She remembered them clearly, as they happened when she was about fifteen years of age. It appeared that she was staying at that time in G . . . M . . . , a town in England. Her mother, who was seriously ill, was taken to a great surgeon to be operated upon. She herself suffered great anxiety and anguish lest her mother should not recover. She went twice a day to the church to pray for her mother's recovery, and in her anguish declared that if her mother did not recover she would no longer believe in God. The chimes in the tower of the church, which was close to her hotel, sounded every quarter hour; they got on her nerves; she hated them; she could not bear to hear them, and while she was praying they added to her anguish. Ever since this time the ringing of bells has continued to cause a feeling of anguish. This narrative was not accompanied by emotion, as was the automatic script.

It now transpired that it was the ringing of the church bells, or the anticipated ringing of bells, that caused the fear, and not the perception of a tower itself. When she saw a tower she feared lest bells should ring. This was the object of the phobia. She could not explain why she had never before connected her phobia with the episode she described. This failure of association, as we know, is not uncommon, and in this case was apparently related to a determination to put out of mind an unbearable episode associated with so much anguish. There had been for years a more or less constant mental conflict with her phobia. The subject had striven not to think of or look at belfries, churches, schoolhouses, or any towers, or to hear the ringing of their bells, or to talk about them. She had endeavored to protect herself by keeping such ideas out of her mind. Before further analyzing the case there are two points which are well worth calling attention to.

1. When the subject subconsciously described the original childhood experience by automatic script there was intense emotion—fear—which emerged into consciousness without her knowing the reason thereof. When, on the other hand, she later, from her conscious memories, described the same experience, there was no such emotion. In other words, it was only when the conserved residua of the experience functioned consciously and autonomously

as a dissociated, independent process that emotion was manifested. So long as the memories were described from the viewpoint of the matured adult personal consciousness there was no emotion. As a subconscious process they were unmodified by this later viewpoint. This suggests at least that when the phobia was excited by the sight or idea of a tower it was due, likewise, to a subconscious process, and that this was one and the same as that which induced the experimental phobia.

2. The phraseology of the script is noticeable. The account is just such as a child might have written. It reads as if the conserved thoughts of a child had awakened and functioned subconsciously.

From this history, so far as given, it is plain that the psychosis in one sense is a recurring antecedent experience or memory, but it is only a partial memory. The whole of the experience does not recur, but only the emotion in association with the ringing of bells. The rest of that experience, viz., the idea of the possible death of her mother with its attendant grief and anguish associated with the visits to the church, the praying for recovery, and, finally, the realization of the fatal ending—all that which originally excited the fear and gave the ringing-of-bells-in-a-tower meaning was conserved as a setting in the unconscious. That the rest of the experience was conserved was shown by the fact that it could be recalled, not only by automatic writing, but, although not in association with the phobia, to conscious memory. From this point of view the fear of bells ringing may be regarded as a recurrence of the original fear—that of her mother's death—now derived from a subconsciously functioning setting. The child was afraid to face her grief and so now the matured adult was also afraid.

From another point of view the ringing of bells may be regarded as standing for, or a symbol of, her mother's death, with which it was so intimately associated, and this symbol awakened the same fear as did originally the idea itself of the death. An object may still be the symbol of another, although the association between the two cannot be recalled. All these memories, involving grief, suffering, self-reproach, bells, and mother, formed an unconscious setting which gave meaning to bells in towers and took part in the functioning to form a psychic whole. The conscious psychosis was first the emergence into consciousness of two elements only, the perception and the effect, and the fear was a reaction to self-reproach, a fear to face self-blame.

A search into the unconscious brought to light a persisting idea that when events in her life happened unfortunately it was due to her fault. It had cropped out again and again in connection with inconsequential as well as consequential matters. She had, for instance, been really unable on many occasions to leave home on pleasure trips for fear lest some accident might happen within the home and, consequently, it would be her fault; and, if away, she was in constant dread of something happening for which she would be to blame. It was not a fear of what might happen—an accident to the children, for example—but that it would be her fault. I have heard her, when some matter of apparently little concern had gone wrong, suddenly exclaim "Was it my fault?" her voice and features

manifesting a degree of emotion almost amounting to terror. When her brother died (still earlier, before her mother's death) she had blamed herself for that death, as later with her mother, on the same religious grounds. This self-reproach for happenings, fancied as due to her fault, has frequently appeared in her dreams. It would take us too far afield to trace the origin and psychogenesis of this idea. Suffice to say, it can be followed back to early childhood when she was five or six years of age. She was a lonely, unhappy child. She thought herself ugly and unattractive and disliked, and that so it always would be through life, and it was all her fault because she was ugly, as she thought. The instinct of self-abasement or negative self-feeling dominated the personality as the most insistent instinct, and, from its intensity within, the self-regarding sentiment formed a sentiment of self-depreciation. She wanted to be liked, and believed it to be her own fault that, as she fancied, she was not and never would be, and reproached herself accordingly. This sentiment of self-depreciation, with its impulse to render self-reproach, has persisted, as with many people, all her life, and has been fostered by unwise and thoughtless domestic criticism.

Returning to the phobia for bells, in the light of all these facts the patient's belief that her mother's death was her fault and the consequent self-reproach were obviously only a particular concrete example of a lifelong emotional tendency, originating in the experiences of childhood, to blame herself; and this tendency was the striving to express itself of the instinct of self-abasement (with the emotion of self-subjection), which, incorporated within the self-regarding sentiment, was so intensely cultivated and had played so large a part in her life. Indeed, this instinct had almost dominated her self-regarding sentiment and had given rise time and again to self-reproach for accidental happenings. It now specifically determined her attitude of mind toward the series of events which led up to the fatal climax and determined her judgment of self-condemnation and self-reproach. These last most probably received increased emotional force from the large number of roots in painful associations of antecedent experiences, particularly of childhood, in which the self-regarding sentiment, self-debasement, and self-reproaches were incorporated. Nevertheless, the fear was of a particular concrete self-reproach. The general tendency was of practical consequence only so far as it explained the particular point of view and might induce other self-reproaches.

As a general summary of this study it would appear that we can postulate a larger setting to the phobia than the grief-inspiring experiences attending her mother's death. The unconscious complex included the belief that she was to blame and the sentiment of self-reproach, and the whole gave a fuller meaning to the ringing of bells in a tower. The fear, besides being a recurring association, was also a reaction to the subconsciously excited setting of a fancied truth or self-accusation. Although excited by towers and steeples, the fear was really of self-reproach. Towers, steeples, and bells not only, in a sense, symbolized her mother's death, but her own fancied fault. It was in this sense and for this reason that she dared not face such objects.

The conscious and the unconscious formed a psychic whole.

Now, in reaching these conclusions see how far we have traveled: Starting with an ostensible phobia for towers, we find it is more correctly one of ringing of bells, but without conscious association; then we reach a childhood's tragedy; then a self-reproach on religious grounds; then a belief in a fault of childhood's behavior culminating in a lifelong self-reproach—the casual factor and, psychologically, the true object of the phobia; and between this last self-reproach and the phobia no conscious association.

511 EAST ELEVENTH STREET.

SOME PRACTICAL POINTS IN ENDOCRINOLOGY, WITH ILLUSTRATIVE CASES.*

BY J. W. TORBETT, B.S., M.D.,

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I SHALL make no apologies for selecting this subject, because its importance will be vouched for by any one who has even occasionally made a correct diagnosis and seen the remarkable results that follow the use of the proper gland therapy. I believe the internal secretions are, in a great measure, mutually interdependent upon each other, and hence are recognized by correlated group symptoms of disharmony rather than symptoms of one gland alone. As editor of the department of Gland and Serum Therapy in the *American Journal of Electrotherapeutics and Radiology* and as a member of the Association for the Study of the Internal Secretions the writer has had occasion to review the Bulletin, *Endocrinology*, in its original articles and abstract department, too, for the past four years. These articles are so numerous and the views are so diverse that I shall in this article attempt to simplify and classify some of the practical points that have been verified in my own experience, rather than wander off into the hazy field of scientific speculation. While perfect harmony between all the endocrine glands is best for perfect health, Kaplan and also Fraenkel have recently claimed that many persons may have a dominating influence of one or more glands as shown by their physical appearance without affecting their health badly.

Prof. Emile Sergent of Paris claims that hypoadrenia is one of the most common of the endocrine dysfunctions in tuberculosis, while Harrower of California says that it is present in the neurasthenic and postinfluenza toxemias, so numerous now among our chronic cases. Steinach's recent claims in making old mice and guinea pigs young by transplanting the respective young sexual glands and even changing entirely the sex of the animal by using the opposite sex glands show the possibilities of the subject.

Dysfunction of the thyroid and gonads may cause many neurasthenic symptoms but the general tired condition of asthenia, loss of "pep," mental and physical inability to work, the white line of Sergent on the skin with low blood pressure, following influenza and other chronic diseases and focal infections, come from the exhausted adrenals.

*Read before the Central Texas and Seventh District Medical Societies.

Prof. Cannon has shown that fear, rage, anger, and pain and perhaps worry act upon the adrenals similarly to the toxins of disease, nicotine, etc., in exhausting the function of the glands. Since the adrenin combined with the thyroxin greatly govern the process of oxidation, the exhausted condition of these glands tends to metabolic laziness and cellular insufficiency. The cells are unable to eliminate their own waste products which are mostly acid in character, hence a tendency to acidosis occurs with a greatly reduced output of urea. Strychnine, as pointed out by Stewart and Ragoff, perhaps stimulates the adrenals more than any drug, but it is very injurious in these exhausted conditions which have come about from overstimulation already. Small doses of adrenin, thyroid, and if constipation be present, pituitrin, often assist such patients to a rapid recovery. Garretson says the hypoadrenia is apt to have tingling, flashes, and paresthesia with a tendency to hyperchlorhydria, hypertension, diphtheria, hernia, and varicocele.

The adrenals maintain the tonus of the sympathetic supplying the longitudinal fibers of the bowel muscles, while the pituitrin controls the terminal vagus supplying the circular fibers of the bowels, which gives a better understanding of constipation and diarrhea. The hypothyroid person is one slow, sluggish, and with subnormal temperature, with a dry, scaly, or parchment-like skin that sweats but little except in the palms, thin outer end of eyebrows, lowered tolerance of meats and cold. The hyperthyroid has a thin, clear skin, small white teeth, a tendency to elevation of temperature and pulse rate, to sweat easily, to be nervous, hysterical or hypochondriac, and acquire intestinal and cardiovascular disorders. The pituitrin persons are prone to diseases of periodicity like malaria and syphilis, their teeth are usually well separated; they also may have thick hair on unusual parts, like the adrenotrop; while a hypopituitarism of the posterior lobe persons may have increased carbohydrate tolerance with increased fat in hips and flanks, with decreased pubic hair, etc.

CASE I.—One of my first cases of endocrine dysfunction was a lady from McGregor several years ago who had been an invalid some years with a severe form of stomach trouble which is sometimes called Richmann's disease. She would vomit large quantities of greenish fluid and have severe pains in the lower abdomen near the bladder and be so nervous with vertical headaches she could not bear any noise. These spells would come, she said, every three or four weeks and last for about five or six days. The regularity of the trouble and the fact she was only about thirty years old and with both ovaries removed some time ago gave me the suggestion that she might have a surgical menopause as the cause of her nervous and gastric symptoms. The use of the ovarian substance with a good balanced ration soon restored the lady to fine health though she kept up the tablets for several months just before the regular time she expected the return of the symptoms with entire prevention of same. She was in good health until the meningitis epidemic when I have since learned she succumbed to an attack of that disease.

CASE II.—Mrs. R. from Snyder, Texas, who had been troubled for several months with a severe form of arthritis. She had very little fever, no decided leucocytosis, had a very dry, shiny skin, slow pulse, diminished periods, poor tolerance of cold and meats, with a pronounced atonic constipation. No other focus for the infection being found her case was diagnosed as a low grade of infectious arthritis due to the intestinal stasis and its consequent autotoxemia,

giving in turn an hepatic insufficiency and hypothyroidism due to the overworked and exhausted condition of the detoxicating functions of those two glands. She was given a course of baths and saline laxatives for general elimination, massage and high frequency electricity for their local, and static electricity for its general effect upon the nervous system and circulation, with no meat but plenty of milk which Lorand says is the best food stimulant of the thyroid, with also a generous supply of greens, lettuce or celery, orange juice, and potatoes which contain iron for building the hemoglobin and which McGarrison has recently shown contain the antiscorbutic vitamins that best promote the proper function of the adrenals. The adrenals are now known to be usually deficient in cases of hypothyroidism. Loss of "pep," low blood pressure, the Sergeant line, diminished muscular heart tone, in fact the usual neuroathenic fatigue syndrome, are the usual symptoms of hypoadrenia. Small doses of thyroid extract alternately with the syrup of iodide of iron were also given for six months at least, when the bowels were again normal, the skin soft and moist, the arthritis entirely gone, periods regular and later she had a fine baby.

CASE III.—Dr. B. of Alabama, age thirty-five, had always been healthy until last year when he had a very severe attack of influenza from which he never entirely recovered. He gradually became slower in his movements, his face was bloated, especially after eating meats, of which he was a large consumer. He could not talk rapidly and would very frequently get his tongue tangled so that he could with difficulty carry on a conversation. He had been examined by numerous physicians for every kind of focal infection and had a renal function test but no satisfactory diagnosis nor results from treatment. Our laboratory tests of the blood, urine, etc., showed nothing especially wrong, neither did regular physical, eye, ear, nose, throat, and retinoscopic examinations. Our diagnosis of hypothyroid and hypoadrenia following a post-influenza toxemia, was based upon the slowed speech and pulse with no signs of brain tumor, the dry skin and hair with the outer portion of the eyebrows fallen out, a diminished tolerance for meats and also cold. Breischauer showed several years ago that dogs with the thyroid removed could live on bread and milk but died soon if fed on meats. His easy fatigue, loss of "pep," low blood pressure, and the Sergeant white line showed the hypoadrenia. The mixed gland tablets with one-grain tablets of thyroid extract added after a few days restored him so that in one week he could talk without getting his tongue tangled and he writes he is now back on the job active as ever. The mixed glands formula is: thymus gland gr. 2, thyroid gland gr. 1/5, pituitary gr. 1/2, suprarenal gland gr. 1/4, didymin gr. 1/2, and cerebrin gr. 1/2. He now writes a good letter and does not leave out any words as he once did. He was, of course, put on the diet mentioned above but had to return home at the end of one week and did not get the other lines of treatment as given the other patients. His case was one that had not advanced so far and hence was not so easily recognized but was much more amenable to treatment. The grouping of small symptoms is the method for the early diagnosis and the search for pluriglandular disharmony, and not one gland deficiency, the means of greatest success.

CASE IV.—Mrs. L., age about twenty, very active and intelligent, married about two years with no pregnancies, had very profuse and continuous periods that refused to be controlled by any local or systemic remedies, and even returned after a few x-ray treatments had reduced the flow. The physical examination disclosed nothing but a large soft uterus with very small, flabby breasts. The administration of mammary gland extract three times daily soon regulated the flow and by taking the tablets at the regular period since then she has become entirely normal.

Such cases in young girls with sweethearts who hug and kiss them much, giving hyperactive ovaries, should have the adrenin or pituitrin added to the mammary gland treatment, according to which one the symptoms call for.

Many married and also many young girls are not promptly relieved of annoying nervous symptoms because of the difficulty in determining their gland disharmony. These glandular dysfunctions are frequently hereditary as a careful family history will disclose. Rhythmical regularity is a pituitrin function and irregularity its dysfunction. The cystic ovary with its varied contributory causes and many unpleasant symptoms of pain, nervousness, anemia, and mental unrest, is a trouble that demands our skill to give relief. Several cases during the past year with pain, nausea, nervousness, and even some so toxic as to have fever at that time have been relieved entirely by the whole ovarian substance with cacodylate of soda or iron intravenously, tincture of iodine and menthol painted locally for pain in conjunction with the generous full vitamins, fresh fruit, vegetable, and milk diet. Best results, of course, always follow the early recognition of the causative factors of the glandular dysfunction. S. W. Bandler, writing in the *Medical Clinics of North America*, ii, 4, 236, shows that the ovarian, thyroid, suprarenal, and posterior-pituitary glands support the genitalia, while the thymus, mammary, anterior-pituitary, and placental depress them.

Dr. Walter Timme has an article in the same issue on the new pluriglandular compensatory syndrome characterized by severe spells of intratemporal or pituitary headaches, blood sugar disturbances, intense fatigability, temperamental unfitness, irregular or abnormal skeletal or bone development, and unnatural spells of drowsiness. Such cases, he says, are relieved by being fed the whole pituitary body, from one to four grains every second day.

Perhaps the most difficult cases to recognize are those who in early or middle life have had one or more hyperactive glands that later were partially removed by surgery or become exhausted and atrophied from excessive use. Focal or systemic infections, intestinal stasis and its toxemias, a one-sided diet with too few vitamins, worry, grief, shock, and excessive use of a gland are the principal causative factors giving disharmony.

The fresh gland dose is usually about five times that of the desiccated gland and can be best given in institutions by being prepared in the diet kitchen, being ground up with bread or rice puddings and afterwards slightly toasted. It is our intention to further follow the results of such feeding in the diet kitchen of our institution in chronic cases.

In conclusion, I wish to say that endocrinology offers a large and useful field for study and discovery, but it behooves us to use caution to temper our judgment and enthusiasm, as thyroid extract, pituitrin, and adrenin are formidable weapons of great danger when not carefully and correctly used.

TORRETT SANATORIUM.

Another Reflex Discovered.—Mavinesco and Radovici, in a case of amyotrophic lateral sclerosis with marked spasticity, found that stimulation of the thenar eminence produced a slow contraction of the mental group of muscles on the corresponding side of the chin, which was thus retracted. This led them to examine 300 persons whose nervous systems were apparently normal. The reflex was found to be present in about 50 per cent. The muscular contraction in the normal subject, however, is sharp and brief, while if the pyramidal tracts are diseased, the response is sluggish and prolonged.—*The Medical Press*.

VOLVULUS OF THE INTESTINE.

REPORT OF A CASE WITH SUCCESSFUL RESECTION OF TWENTY-EIGHT INCHES OF GANGRENOUS SMALL INTESTINE.*

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ACUTE intestinal obstruction is always of interest to the surgeon, as is one of its causes, volvulus, a brief description of which follows.

Definition.—Volvulus consists in the twisting of a loop of intestine on its axis so as to obstruct its lumen and vascular supply. This definition (Bryant¹) describes the conditions briefly yet fully.

Incidence.—It is one of the least frequent of the causes of intestinal obstruction. The relative frequency of this disease may be judged by the report of Gibson² that in one thousand operations for intestinal obstruction, volvulus occurred one hundred and twenty-one times. Commenting on this, Erdman³ believed the number one-hundred and twenty-one much too large proportionately, since in Gibson's cases foreign references were frequently drawn upon. Deaver⁴ reports two hundred and seventy-six consecutive cases of acute intestinal obstruction admitted to the German Hospital in the ten years ending with 1913. In this series there were only five cases of volvulus.

Age and Sex.—Volvulus may occur at any age but is most frequent from forty to sixty years. Manson⁵ reported a case in an infant. As to sex, it is much more prevalent in the male, in the proportion of two to one (Erdman); to four to one (Bryant). In women, it usually occurs in those who have borne many children (Tillmanns⁶).

Etiology.—The etiology may be classified under three subdivisions: (1) Predisposing causes, (2) requisites, (3) exciting causes.

1. Among the predisposing causes may be mentioned Meckel's diverticulum, appendicitis, apertures in the peritoneum and mesentery, a relaxed condition of the abdomen and of the intestines, and an elongated mesentery (Mekechnie⁷).

2. Requisites, as stated by Power,⁸ are three, (a) a loop of bowel lying less securely packed than usual in the peritoneal cavity; (b) loaded bowel; (c) irregular peristalsis.

3. Exciting causes: (a) Contusions of the intestines; (b) Peristaltic movement of the intestine when it is unequally filled (Tillmanns⁹); (c) bands and adhesions; these are placed among the exciting causes, because they are the most frequent. (Lillienthal¹⁰ and others); (d) ascaris lumbricoides (Heiser¹¹); (e) adenomatous polyp (Manson).

Location of Volvulus.—The location of volvulus is as follows: Most frequently it is found in the sigmoid in about one-half of the cases; next in the cecum and last in the small intestines (Brewer¹²). Other parts of the intestinal tract may become the seat of a volvulus as a Meckel's diverticulum, cecum and appendix (Edwards¹³), entire colon and sigmoid (Kerr¹⁴ and Eisendrath¹⁵), hour-glass stomach (Barbacci¹⁶), and the total intestines (Ombiedanne¹⁷).

*Case presented at Clinical Society Meeting, Peoples Hospital, April 14, 1920.

Symptoms.—The symptoms of volvulus resemble those of intestinal obstruction in general with some modifications. Volvulus, like other forms of intestinal obstruction, may be either acute or chronic. Bloodgood² reports a case of chronic volvulus with thirty-two attacks extending over a period of sixteen years. Ombiedanne's case was also chronic and probably congenital. Hirschsprung's disease (megacolon) may be a result of this condition in a congenital form. Of especial interest are those of the acute form. They depend considerably upon the location. Acute volvulus is usually ushered in with an acute sharp pain in the abdomen. This is followed in several hours by distention, which is usually high up in the abdomen. Shock, an early symptom in other forms of intestinal obstructions, usually appears late in this disease, frequently not before several days. There is often a visible mass situated over the site of the volvulus and peristalsis radiating toward the mass may be seen. Vomiting is usually a very late symptom and may not be present at all. If present, as the case progresses it may become fecal in character. Obstipation is the rule but even this may appear late owing to accumulations in the colon and rectum. Tenderness over the mass is also an early sign. The temperature and pulse will vary depending upon the condition of the intestines and complications such as gangrene of the intestines or peritonitis. Mucus and blood in the stools present in other forms of intestinal obstructions do not occur here. Flatus is not passed.

Prognosis.—The prognosis depends on many factors. In the chronic form, the prognosis is good, as the volvulus rarely goes on to strangulation. In the acute form the prognosis depends upon (1) early diagnosis, (2) time of operation, (3) condition of the intestine, (4) presence of complications, (5) necessity of resection, (6) amount of resection, (7) location of the volvulus, (8) general condition of the patient.

Gibson gives the mortality as 70 per cent. when the small intestine is involved and as 46 per cent. when the large. Erdman quotes Gibson to show the seriousness of volvulus when it affects the small intestine. "Only one case in the entire list recorded was successful after resection of the small intestine was performed. This case was operated upon the second day, one hundred and twenty-seven centimeters being removed." Power states that in his hospital from 1899 to 1915 there were twenty-five cases of volvulus with twenty-one deaths. Erdman resected twelve inches of small intestines in one case with recovery. In Deaver's cases, two out of five died.

Treatment.—The treatment, of course, is early operation and finding and releasing the cause. Bands, adhesions, etc., when discovered are divided, then the volvulus is untwisted, emptied of its gas, and a rectal tube is inserted. Other surgical procedures, such as resection, etc., will depend upon what complications are found.

CASE.—Mrs. Y. W., aged 62, widow, consulted me March 3, 1920, complaining of pain in the epigastrium and abdomen. Her previous and personal history were negative except that for six years past she had suffered with a rodent ulcer of the forehead, for which she was treated at the Skin and Cancer Hospital. She apparently has been cured of this ulcer, as only a

minute trace is still visible. Her present history dates back several months, her chief complaint being pain in the epigastrium and umbilical regions. There is no history of vomiting, hematemesis, or jaundice. Constipation was a prominent symptom, cathartics being constantly necessary. She also complained of nausea, anorexia, headaches, and general weakness. There was no other history. Physical examination showed her poorly nourished and emaciated. Heart and lungs were negative. On examination of the abdomen, the liver was found to be slightly tender and enlarged to about two fingers' breadth below the free costal margin. There was also tenderness in the epigastrium. No tenderness nor masses were felt elsewhere in the abdomen. She also had a right femoral and left inguinal hernia. While undergoing a roentgenographical examination, immediately after the ingestion of the barium meal, she developed severe colicky pains in the abdomen as a result of which the examination could not be made nor could any plates be taken. The abdominal pains reappeared several hours later and progressively increased in severity. This suffering continued through the night. A local physician had to administer three-quarters of a grain of morphine hypodermically. She vomited frequently, but the matter was not fecal in character. She passed no feces nor flatus. This occurred on March 4. On March 5 I was called in to see her. Her pain had been only slightly relieved by the morphine. The vomiting continued. No flatus had been passed. She was in collapse; the pulse was of poor quality, feeble, and rapid; the temperature 99° F. On examination the abdomen was found to be distended, the distention being in two distinct places—high up in the abdomen and in the appendix region. In the latter location a rather large mass was visible and easily palpable. Palpation, even in her semiconscious condition, caused her pain. The presence of intestinal obstruction was evident, with a probability of volvulus. She was immediately removed to the Peoples Hospital and operated upon by me. Surgical interference took place about twenty-two hours after the initial attack of pain.

An incision was made over the mass and through the right rectus about the umbilical region. On opening the peritoneum a very large amount of bloody fluid escaped. The first impression on opening the peritoneum resembled that of a ruptured ectopic pregnancy. The bloody fluid in this case, however, did not clot. On exploration, a large, very heavy mass, consisting of a double coil of gangrenous small intestine was seen. The black color of this mass contrasted markedly with the remainder of the small intestine, which was very pale. This gangrenous intestine was found coiled upon itself from right to left about one hundred and eighty degrees. A band of adhesion constricted it at the base. The mass consisted of ileum about one foot away from the ileocecal junction. The band was immediately cut, the coils untwisted, intestinal clamps were applied, and the entire mass was resected. An end-to-end anastomosis (McGrath method) was then performed. The peritoneal cavity was flushed out with hot saline solution, a large quantity of which was allowed to remain. The abdomen was then closed up. The entire operation took thirty minutes; gas-oxygen anesthesia was used. The patient made an uninterrupted recovery, leaving the hospital in two and a half weeks. There was nothing special in the after treatment. The excised coils of ileum measured twenty-eight inches and were very heavy. There was no apparent cause for the original band, as there had been no previous operation. The betterment in her condition was noted from the moment she was through with the operation, as immediately there was a marked improvement in her pulse.

Conclusions.—1. Volvulus of the small intestines is of rare occurrence.

2. The prognosis is grave and depends upon early diagnosis and early operation.

I am indebted to Dr. Sol. Rottenberg for assistance.

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64 EAST THIRD STREET.

ANESTHESIA IN DENTAL SURGERY.

BY M. ECKER, D.D.S.,

NEW YORK.

PAIN is the usual outstanding symptom of one who seeks relief from a throbbing tooth. Not only so, but this pain, however slight, is a warning of trouble ahead, unless the offending member is removed or otherwise treated. What a relief and gratification for the patient who, entering a modern dentist's office, finds that not only is the pain relieved, but a new sensation, pleasurable in the extreme, is experienced during the extraction! Taking advantage of the synergistic effect of the safest and most powerful analgesics and anesthetics in our pharmacopœia, he does not realize that evolution in Slumberland is still in progress, and that the last word is yet to be said concerning this most important subject; he merely knows that he has been relieved of suffering, without additional pain, and that he is able to walk from the operating theater without nausea, vomiting, or headache.

While it is generally conceded that a physician, Crawford W. Long of Georgia, was the first to use ether to deaden the pain of a surgical operation, the world is indebted to a dentist, William T. G. Morton of Massachusetts, for the first public demonstration of any anesthetic. Another dentist, Horace Wells, is credited with the discovery of the anesthetic properties of nitrous oxide, but his unfortunate failure in an attempted public demonstration of the use of the gas apparently delayed its practical application, and little was heard of it until more than twenty years later, when Colton recorded twenty thousand administrations without an accident. Up to this time (1867) little differentiation was made between cyanosis and anesthesia, and with a few dentists and doctors this is true even to-day. In 1868 Andrews of Chicago, reported the use of a mixture of nitrous oxide and oxygen, stating that he had obtained a more satisfactory form of anesthesia with the combination than with nitrous oxide alone.

Flourens first mentioned ethyl chloride as an anesthetic in 1847, but it was not used for this purpose

until 1895, since which time it has gained rapidly in favor. While its use by dentists in the United States is comparatively limited, it is extensive in South America and in England. The after-effects of ethyl chloride do not begin to compare with those from nitrous oxide. There is, however, one very great advantage in using ethyl chloride, namely, that there is an analgesic stage, immediately before the patient loses consciousness and also immediately after the return of consciousness, during which the dentist can work. This analgesic stage does not exist with nitrous oxide, given alone or with oxygen.

The object of this paper is to direct attention to the possibilities of combining the good effects of nitrous oxide and ethyl chloride in attempting to modify the anesthetic in such a way that the analgesic stages are imparted to the nitrous oxide and oxygen anesthesia, while the nausea and vomiting, and the possibility of collapse, that sometimes follow ethyl chloride alone, are eliminated. Like all methods and techniques, this latest method is a product of evolution which only now, in the last few thousands of cases, is accomplishing what we were striving for at the outset.

It may be stated here that, while nitrous oxide-oxygen alone is sufficient for the majority of cases, there are exceptional cases in which it is far from satisfactory. It was with the hope of ironing out the exceptions, so to speak, and of making the procedure more satisfactory from the operator's standpoint, that we determined to change our technique. In doing so we have been enabled to take advantage of certain important research work now being conducted in this city. At the suggestion of Dr. J. T. Gwathmey, at first we passed the nitrous oxide and oxygen over, not through, a mixture called anæsthol, which is supposed to combine in a stable chemical union, roughly, about 17 per cent. of ethyl chloride, 35 per cent. of chloroform, and 47 per cent. of ether. We found this chemical union to be very unstable. When freshly poured in, it acted better than when almost used up. The ethyl chloride is given off first, giving the combination of nitrous oxide, ethyl chloride, and oxygen; later, as the ethyl chloride is exhausted, there is a combination of nitrous oxide, ether and chloroform, with possibly small traces of ethyl chloride; still later, as we get near the bottom of the container, there is a mixture of nitrous oxide and chloroform and small amounts of ether and ethyl chloride. With this last mixture the writer had one case of slight chloroform poisoning, as indicated by pallor around the margin of the lips, and a tendency to vomit.

The explanation of the giving off of the mixtures in the order stated is to be found in the specific gravity of the mixtures which, compared with air, is as follows: One volume at 0° C. and 760 mm. barometric pressure: ethyl chloride, 2.22; ethyl ether, 2.56; chloroform, 4.21. The ethyl chloride being the lightest, is given off first, the ether next, and the chloroform last.

With the mixture freshly prepared, there is less tendency toward vomiting—the patient receives more of the nitrous oxide, ethyl chloride, and oxygen, and small traces of the other ingredients. When the container is about half empty there seems to be more of the ether effect, with an occasional tendency toward retching; and, later, when

two-thirds of the mixture is used up, the chloroform effect is apparent, and there is not so good an effect from the operator's standpoint as when the mixture is freshly poured in.

Knowing that different anesthetics and narcotics affect different parts of the central nervous system, and believing thoroughly in the theory of the synergistic action of drugs, I commenced using a fifty per cent. mixture of paraldehyde and anæsthol, and obtained a slightly better effect than when anæsthol was used alone. Paraldehyde is conceded to be one of the safest drugs in the pharmacopœia, and while the amount used of any of the drugs named, with any one patient, is far below the minimum physiological dose, yet the resultant narcotic picture, as reflected in the patient, more than justifies the continuation of their use.

At first I used Cotton-process ether, manufactured by the Du Pont Manufacturing Company, which is supposed to eliminate in very great measure the disagreeable effects of ether as commonly manufactured and sold in the United States. It is claimed to contain certain amounts of ethylene gas. Passing the nitrous oxide and oxygen over the Cotton ether, this combination was administered in forty-eight cases. In eight cases there was nausea, and in two cases there was vomiting. The last two patients were quite sick, necessitating lying down for an hour. The anesthetics were perfect, more satisfactory than with the gases alone; but on account of the after-effects I felt, and still feel, that this combination has no place in the general routine of oral surgery.

The next combination tried was nitrous oxide, oxygen, and anæsthol, which was employed in sixty-two cases. In six of these cases there was nausea, and in a few cases there was slight cyanosis. I felt that this combination had to be improved as regards the after-effects. The anesthesia was quite as good as with the Cotton-process ether, but the patient returned to a normal condition more rapidly than with the ether.

The next combination was with the gases passed over paraldehyde, and was used in one hundred and thirty cases. Very few changes in the anesthesia were noted, but the patients found it not unpleasant to take, and they were less hysterical afterward. There was no nausea, vomiting, or headache in this series. It was decided, therefore, to retain the paraldehyde in our armamentarium, with whatever other agents we might decide to use.

The next combination was a fifty per cent. mixture of paraldehyde and anæsthol over which the gases were passed. Over twelve thousand administrations have been given with this combination. The anesthesia is better than with any of the other combinations mentioned. First, the stage of excitement, while rarely seen with any of the combinations mentioned, is not infrequent with nitrous oxide and oxygen alone. This was practically eliminated with the last mixture. Second, the full surgical stage, *i. e.* for tooth extraction, is more rapidly induced, averaging about one minute and fifteen seconds. The stage of anesthesia in which we operate is everything that could be desired, and lasts two minutes and longer, after the mask is removed. Although the eye reflex returns to normal, an analgesic stage is always present, and this

is determined by curetting about the socket of the tooth extracted. The relaxation is more complete than heretofore. Whereas formerly we used a holding strap for athletes and alcoholics, who usually resist nitrous oxide and oxygen alone, we have now dispensed with this entirely. In other words, we have ironed out the exceptional patient. Erotic and other dreams are conspicuous by their absence. It may be noted in passing that hallucinations under nitrous oxide and nitrous oxide-oxygen quite frequently occur with the highly neurotic patient. The tension upon the operator at the end of a busy day is markedly less with the combination now used than with nitrous oxide-oxygen alone. For operations in which I formerly resorted to the use of novocain, such as the drilling out of a root or a slightly unerupted tooth, I now use this combination. Ten drops of anæsthol is the average amount used with each patient.

To summarize: (1) The operation is absolutely painless, as evidenced by the quiet state of the patient during operation, no unpleasant reflexes appearing at any time. The narcosis seems to be more acceptable to the patient than that from the gases alone, as evidenced by the facial expression. Rigidity is markedly lessened. Hysterical outbursts are now rare. The patient leaves the room without assistance and in a quiescent state. (2) This method is applicable in general surgery, in hospitals and out-patient clinics where a short but safe anesthesia is required.

147 FOURTH AVENUE.

RECTAL CONSTIPATION: ITS SIGNIFICANCE AND TREATMENT.

BY E. JAY CLEMONS, M.D.

LOS ANGELES, CAL.

THE five common symptoms complained of by sufferers from anorectal troubles are constipation, diarrhea, pruritus, protrusion, and discharge. Of these, rectal constipation is the most frequent, in fact it is the commonest complaint from which man suffers. Of all the distresses that afflict man none compares with the discomfort of the effects of rectal constipation.

Rectal constipation due to downward displacement of anatomical structures constituting the anorectal line, such as hypertrophied anal papillæ anal cryptitis, complicated anal fissures, so-called "sentinel pile," prolapsed polypi, internal hemorrhoids (past the second degree), mixed hemorrhoids, and rectal prolapse is here considered; no reference being made to obstructive rectal constipation, such as is caused by pressure of adjacent organs, angulations, constrictions, adhesions, rectal valve hypertrophies, or new growths.

Patients suffering from this form of constipation are neurasthenics and hypochondriacs and are also sufferers from indigestion and palpitation. This is owing to the fact that tissues supplied by the vegetative (sympathetic) nerves have become displaced in such a manner as to come in contact with and to remain within the grasp of the external anal sphincter muscles, thereby resulting in spastic constipation because of the direct and indirect interference with peristalsis and defecation.

Spastic constipation causes an imbalance of the normal intraabdominal gaseous pressure, resulting in dilatation of the stomach. This dilatation of the stomach results in the viscera becoming dependent upon the fixed portions of the alimentary canal for support, thus inducing gastroenteroptosis. This condition is accompanied by bodily derangement which varies from a slight indisposition to a most profound autointoxication. This is because such a complex condition of affairs deranges digestion, assimilation, elimination, and oxygenation causing dyspepsia, malnutrition, and overloading of the tissues of the body with waste products.

The significance of rectal constipation is therefore of the greatest importance as the effects of this condition are a most vital factor in the health, happiness, contentment, and wellbeing of mankind because of the fact that no man can enjoy health, happiness, contentment, and wellbeing who suffers from the effects of rectal constipation.

The object to be accomplished in the treatment of this form of constipation is the surgical removal of the offending pathological tissue in a manner so as not to interfere with the normal nerve supply and not to have resulting post-operative tags and contractures, at the same time reconstruct the parts in such a manner as to prevent tissue supplied by vegetative nerves from again becoming within the grasp of external anal sphincter muscles. This object is best accomplished under local infiltration anesthesia using one-thirty-second of one per cent. aqueous solution of procaine hydrochloride supplemented by one to 50,000 epinephrin hydrochloride for the purpose of keeping the parts ischemic, decreasing rapidity of anesthetic drug absorption and prolonging anesthesia.

The patient is instructed not to interfere with his daily routine till the morning set for the operation when he is to have dry toast and black coffee for breakfast before entering the hospital. After going to bed the assistant shaves the perineal region and administers a two quart plain enema. He is then placed, after expelling the enema, upon the operating table on his left side with knees flexed upon abdomen, separated by pillows. The parts are then prepared for the operation.

The operation is begun by applying the cotton tipped end of an applicator, which has been dipped in phenol, to a point upon the skin surface one-half inch to the left of the anus. This is for the purpose of anesthetizing the skin and marking the place for the insertion of the needle. After waiting till this spot has turned white and the patient informs one that the burning sensation has ceased you then insert a fine hypodermic needle attached to a half ounce metal syringe, loaded with the anesthetic solution, into the loose subcutaneous tissue by puncturing the skin at a point in the center of the carbolyzed area. Inject this solution very slowly. At the first indication of pain stop and wait till the pain ceases, then inject a little more solution, so slowly that you do not hurt the patient or blanch the parts. Upon thoroughly distending the tissues from this puncture you have prolapsed the pathology and brought out the ano-rectal line, at the same time the solution has not passed the median raphe. Now insert the needle of a ligature carrier threaded with number two ten-day chromic catgut,

beginning a quarter of an inch in front of the posterior median raphe at the level of the ano-rectal line, pass deeply, penetrating the deep fascia, and come out a quarter of an inch behind the anterior raphe at the level of the ano-rectal line. Remove the ligature carrier. Grasp the distended structures with vulsellum forceps and, while making traction, tie the ligature taut enough to strangle all tissue within its grasp. The skin is then cut up to the ligature, beginning at a point approximately one inch from the anus. The same procedure is repeated upon the right side, thus leaving two strips of undisturbed tissue through the anal canal while the rectal mucosa is drawn down, strangulated and anchored laterally by the two ligatures whose tension approximates the skin edges, leaving no raw surfaces.

The parts are dressed daily with gauze smeared with sterile petrolatum. The first twenty-four hours the patient sips six ounces of water every four hours at fifteen minute intervals, thus keeping up peristalsis, causing gas to pass freely per anus. When gas passes the urine is voided without difficulty and the patient does not suffer from pain. Peristalsis and nutrition are maintained the next seventy-two hours by four ounces of beef broth and four ounces of sweet whey given every four hours, the broth to be drunk hot and the whey to be sipped every fifteen minutes at the rate of an ounce an hour. On the fourth day an enema is administered, the patient put on a full diet and encouraged to go about his business. He reports weekly till the parts heal and a seven-eighths inch anal dilator can be passed without injury.

In conclusion it may be said that this treatment alleviates one of the most distressing afflictions from which man suffers with the minimum risk and discomfort.

605 HOLLINGSWORTH BUILDING.

Medicolegal Notes.

Identification of X-ray Pictures Admitted in Evidence.—In an action for damages for a broken leg caused by being run down by an automobile, objection was made to the introduction in evidence of an x-ray picture of the plaintiff's broken leg, made while he was being treated for his injuries at a hospital. The plaintiff testified that he was exposed to the x-ray machine in two different ways, and that the next day the doctor presented him with these pictures, which showed the leg as being broken. It was held that the plaintiff's testimony sufficiently identified the pictures for admission in evidence.—*Mankin v. Bartley, C. C. A., 266 Fed. 466.*

Period of Employer's Liability for Medical Services Under Workmen's Compensation Act.—The Illinois Workmen's Compensation Act provides that "the employer shall provide necessary first aid, medical, surgical and hospital services; also medical, surgical and hospital services for a period not longer than eight weeks, not to exceed \$200. It is held that the Legislature did not intend that the eight weeks should necessarily be confined to the time immediately following the injury, since it frequently occurs that the results of the injury do not develop to such an extent as to require medical, surgical, or hospital services for a considerable time after the injury is received; and to hold that such services are to be supplied only within the first eight weeks following the injury would, in many instances, limit them to but a part of eight weeks, and in other cases prevent recovery for such services altogether.—*Chicago-Sandoval Coal Co. v. Industrial Commission, 294 Ill. 351, 128 N. E. 567.*

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THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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THE ETIOLOGY AND PATHOLOGY OF INFECTIOUS PULMONARY EDEMAS.

THE etiology of infectious pulmonary edema is extremely variable, but usually is due either to the bacillus of tuberculosis or to the pneumococcus. The former organism is more prone to produce satellite infectious edema, and perhaps also serous inflammatory tuberculosis, without any particular characteristic, specific or otherwise. The pneumococcus, while contributing its part to the production of satellite edemas is, so to speak, the causal agent of *autonomous* infectious edemas. It is interesting to note that the pneumococcus, which is the primordial factor of chloride retention is, at the same time, at least as far as the lungs are concerned, the hydropigenous bacterium *par excellence*. The elective preservation of the vitality of the pneumococcus on a defibrinated blood medium—made according to the procedure of Gilbert and Fournier—constitutes the rigorous experimental reproduction of prolonged pneumococcemias vegetating in the edema.

The polymorphism of the pneumococcal manifestations is to be particularly insisted on. The pneumococcus is, in point of fact, the causal agent *par excellence* of the four great infectious pulmonary syndromes of a nonspecific nature, resulting from the afflux of the constitutive elements of the blood into the infected territory, as follows: Firstly, fibrin. The fibrinous reaction, the type of which is frank acute lobar pneumonia, with the pneumococcus as its almost exclusive etiological factor. Secondly, the red blood corpuscles. A simple congestive reaction, whose classical type is Woillez's congestive type, a simple attenuated abortive pneumonia. Thirdly, the leucocytes, with the leucocytic reaction, the suppurative syndrome of collected abscesses in the lung or of bronchopneumonia, both processes having an equally frequent pneumococcal etiology. Fourthly, the serum, with the serous reaction. This is the syndrome of infectious edemas of the lung, which usually are nothing less than prolonged pneumococcemias.

Macroscopically, there is a gelatinous subpleural edema, preferably occupying certain edematous areas, such as the edges of the lung, the hilum and fissures; the edema of the parenchyma with tur-

gescence of the lung, which is easily depressed in a cup-shaped hollow with the finger, floating on water, and on section giving issue to albuminous serosity, aerated and reddish in color and occasionally streaked with fine purulent lines.

Microscopically, there are first the lesions of mucopurulent bronchitis, without any peribronchial nodules in the strict sense of the term, but with an intense proliferation of the parietal epithelium. Secondly, the lesions of massive catarrhal alveolitis, with desquamation, proliferation and degeneration of the epithelial cells—epithelial pneumonia. Thirdly, alveolar serous hydrops, and fourthly, parietal interstitial serous infiltration. The contingent of both white and red corpuscles is relatively small when compared to the predominance, or at least the unusual abundance of, the epithelial element, with little or no fibrin.

In the infectious serosity, the only evidence of the general defense of the organism, in the absence of any considerable cell diapedesis, the inflammatory superactivity of the fixed cells—endothelialitis on the pleura, epithelialitis in the lungs—attests to the intensity of the local defense. Briefly, there is edema with alveolar and interstitial hydropsy and epithelial desquamation, but this edema is infectious, as is proven by the bacteriferous serosity and epithelial proliferation and degeneration.

These infectious edemas should be treated as if the lesion were a mechanical one, by milk diet, local blood-letting, digitalis and preferably theobromine. Medication likely to keep up or to increase the edema—the iodides, saline solutions, tuberculin, adrenalin—are to be rigorously avoided. But above all, in cases of pneumococcal infection care must be taken *not to treat the case as one of tuberculosis*. Should a pleural collection exist, thoracentesis is to be prudently done, as a pre-existing infectious edema might produce a mechanical edema *a vacuo*.

INTRABRONCHIAL INJECTIONS IN THE TREATMENT OF PULMONARY GANGRENE.

THE use of intrabronchial injections in cases of abscess and gangrene of the lung was introduced by Lajarige in 1893. The method seems not to have been adopted very widely. Some ten years ago, however, Guisez took it up and has developed a technique which he has applied in a large number of cases. The field of the injections in practice has been narrowed to abscess and gangrene of the lung in which conditions it is said to give results of value. Guisez has apparently used only disinfectant injections and has felt no necessity for injecting antisera. Besredka made the latter suggestion based on the results of animal experiment and Rathery and Bordet and Renon and Mignot have practised such intrabronchial injections of antisera for grippal and other bronchopneumonias. The author, however, is interested only in gangrene of the lung as a condition in which the best results are obtainable by disinfectants. The amount injected

into a bronchus is from 15 to 20 c.c. at a time and this dosage is necessary for good results. The screen shows the degree of penetration of the syringe nozzle and the latter is seen to pass the bifurcation and enter the desired bronchus. On one occasion the author saw on the screen the fluid itself enter the bronchioles. The larynx, including the initial portion of the trachea, must of course be cocaineized. Care should be taken that the cannula does not touch the tracheal mucosa during the injection which should be made drop by drop. Of a number of disinfectants tried the author prefers for the purpose gomenol given every two or three days. (*La Presse Médicale*, February 26, 1921, xix, 17.

The first patient mentioned with pulmonary gangrene recovered under the disinfectant treatment alone, and the author has relied on the latter exclusively throughout and has cured a number of cases. Ten histories appear in which the result so far as the gangrenous process was concerned was quite satisfactory. Only after a case of death from septicopyemia and another from meningococcus complications did he have to record failure. The diagnosis having been made by the x-ray to locate the gangrenous area the author begins his massive injections into the corresponding bronchus. The number of injections given varies considerably but in some obstinate cases it reaches twenty or more. The success of the treatment is shown by the gradual disappearance of fetor, the abatement of cough and expectoration, the general betterment and the retrogression of the disease focus, as shown by the x-ray and physical diagnosis. Temperature curves show either sudden or gradual improvement. When studied carefully several cases showed a tendency to exacerbation after the initial improvement, but followed by renewed benefit up to recovery. In the appended histories we find no allusion to other treatment, either local or general. The oil was used in 10 per cent. solution.

EDEMA DISEASE AND HYPOPANCREATISM.

DURING the course of the war but little authentic information was obtainable concerning the edema attributed to subalimentation. For one reason it appeared to develop chiefly in the Teutonic countries and the local accounts of the disease reached us only sparingly in abstracts from the journals of neutral countries. The first satisfactory description of it we find in an article by Weltmann of Professor Chvostek's clinic which appears in the *Wiener Archiv für innere Medizin* for December 15, 1920, ii, 1. The paper is largely a personal one including an account of three cases. The disease has vanished since the war, without leaving a trace. Studies of it must be limited to records made in the past, preferably since the war, or under the more favorable conditions of post-war times for study. One case was seen in 1919, another in 1920, and the third is without date. The first case is summed up as follows: an imbecile-degenerate woman of 40 had subsisted almost exclusively for

several years on a carbohydrate diet. She developed an attack of edema and diarrhea with intact heart and kidneys. The blood was hydremic and the transudates extremely poor in albumin. There was complete absence of HCl in the gastric juice. Sodium chloride caused diuresis but if combined with sodium carbonate the diuresis was inhibited while the edema was aggravated. Sodium carbonate alone in large doses increased the dropsy while HCl and pepsin started up diuresis. The diarrhea could not be arrested: on examination there were present in the stools fat, undigested meat, and much sodium chloride. The condition became progressive, cachexia developed, and death occurred after deep coma, preceded by an acute hemorrhagic diathesis and polyneuritis. Autopsy showed high grade atrophy of the pancreas.

The second case was very much like the first throughout and autopsy showed atrophy of the pancreas and likewise of the ovaries and suprarenal cortex. The Langerhans cells of the pancreas did not share in the atrophy. There is no mention in this case of a polyneuritis. The third case, also in a woman, considerably older than the preceding and apparently of ordinary mentality, presented the same symptoms as exhibited by the first two, including those of pancreatic insufficiency. But this case was complicated by a typhoid infection with bacteriemia and strongly positive Widal. The stools also contained the bacillus. The specific fever was distinctly abortive although a parotitis developed. Glycosuria, present in this woman, is not mentioned in the other cases. Hydrochloric pepsin, and pancreatin promptly checked the diarrhea for a time. Death in this case was accelerated by profuse intestinal hemorrhages. Autopsy showed healed typhoid lesions and atrophy of the pancreas. The woman had had edema of the face for at least 3 years before her death.

The author concludes that none of these women was physiologically normal to begin with and that the pancreas was involved in the constitutional inferiority. Then came the years of privation, and the pancreas as the organ of least resistance became unequal to its task of assimilation of the almost exclusively starchy regimen. A vicious circle was now set up with development of cachexia, and owing to atrophy of the pancreas recovery was from the first impossible.

CANCER IN CITY AND COUNTRY.

AFTER Jessen had compiled cancer statistics for the city of Basle it occurred to him to obtain the figures for the country section of the Canton for the sake of a comparison (*Schweizerische medizinische Wochenschrift*, April 7, 1921, ii, 14). The research was thorough and figures were compiled for each localization of the disease. Beginning with cancer of the tongue, the number of cases during 18 years for the rural districts was but 9 of which but one occurred in a woman, while for the same period in the city the figures were 37 with 7 of these in women. Reckoning the populations of the communities the frequency ratio was about $2\frac{1}{2}$ to 1 in

favor of the urban section of the Canton. Other statistics readily bear out the generalizations that cancer of the tongue is considerably more common in urban communities and that it is relatively rare in women. A conservative estimate is that cancer of the tongue is twice as common in cities. In cancer of the larynx there is little if any difference in urban and rural incidence, this localization likewise preferring the male sex. In cancer of the esophagus, which is also much more common in males, there is practically no difference in the incidence according to habitation. Of great interest are the figures for cancer of the stomach, and contrary to the general belief there is slightly more of this lesion in the rural than in the urban districts. But in the city the women victims outnumber the men, while in the country there are many more male victims. Cancer of the rectum is as common in one locality as the other and this is true of cancer of the breast, but cancer of the uterus is somewhat more common in the city. The above figures, which extend back less than 20 years, have no bearing on the problem of cancer increase, but elsewhere Jessen has shown that in Swiss cities cancer has increased notably during the past 50 years.

HYPNOTIC PUGILISM.

THE copy makers of sporting news for the daily press cannot be accused of overlooking data which make for sensational news and the same may be said truthfully of the cartoonists who illustrate sporting events. But to the best of our knowledge and belief there is one piece of news which they failed to take advantage of. An account was given in an issue of *la Psychologie appliquée* during 1920 (the *Gazette hebdomadaire des sciences médicales de Bordeaux*, April 24, 1921, xlii, 17, from which we quote, fails to give the number of the issue), of the award to the pugilist Carpentier of 10,000 francs for his services in elevating his particular branch of sport through his personal character and intelligence. The prize in question is known as the *grand prix Deutsch* and the award was made at one of the reunions of the *Académie des Sports*. In connection with this award the writer in the psychological journal prints the startling rumor, apparently in good faith, that Descamps, the trainer and manager of the boxer, hypnotizes the latter before sending him into the ring. After he has him in the state of hypnotic suggestibility he impresses him with statements that he is invincible, that he will feel no pain from the blows, that he will not tire, and so on. The sport writer often claims that one boxer has his antagonist under a sort of hypnotic spell by indirect waking suggestion variously conveyed, of which many examples are given; but that a boxer himself should be under volunteer hypnosis is seldom mentioned. This point may have been utilized in short story writing about boxing matches, but in the forthcoming event between the French boxer and Dempsey, no scribe has as yet made space out of the subject, or if he has done so, it has not received the degree of publicity that one would anticipate. Some years ago it was asserted that one of the leading actresses of the day obtained her talent, or at least the ability to exercise it, through hypnosis, and the story of Trilby is well known, but slugging under hypnosis is new.

News of the Week.

New Hospital at Spring Lake.—The Ann May Hospital at Spring Lake, N. J., was formally opened on National Hospital Day, May 12.

Medical Alumni Dine.—About fifty members of the Class of '96 of the New York University Medical School commemorated the twenty-fifth anniversary of their graduation at a dinner at the Hotel Pennsylvania on the evening of May 7. Dr. Van Beuren Thorne is president of the class.

The Dental Society of the State of New York held its annual meeting at the Hotel Commodore, New York City, May 11-13. This is the first time this organization has met in New York City.

Cholera and Typhus Threaten Moscow.—A despatch from Riga, Latvia, reports that cholera and typhus have broken out in Moscow. The Soviet Government is much alarmed over the situation and has ordered a general clean-up of the city from June 5 to 18.

Typhoid Fever a Vanishing Disease in Baltimore.—The figures of the Baltimore Health Department show that the death rate from typhoid fever, once so high in that city, has been cut to a fraction of its former size. In 1910, 235 deaths were charged to typhoid fever; in 1915 the number dropped to 128, and in 1920 there were only 35 deaths charged against typhoid fever. In 1920, 270 cases were reported, but it was shown that 96 were brought definitely from other places. The results achieved are attributed to carefully guarding the water and milk supplies of the city.

Improvements for Pennsylvania Hospital.—At the annual meeting of the board of managers of the Pennsylvania Hospital improvements, additions, and alterations to the extent of \$5,500,000 were recommended. These plans call for a new out-patient and emergency building, new heating plant, a nurses' home, a storeroom and the erection of a separate building for private patients, with a capacity of one hundred beds. These improvements will not alter or affect the old buildings in the hospital grounds. It is proposed to finance the project through an additional endowment fund of \$2,000,000.

Missouri Doctors Form Public Health League.—About five hundred doctors from St. Louis, Kansas City, St. Joseph, and other parts of the State, held a meeting in St. Louis, on April 26, to organize the Missouri Public Health League, an organization in the interest of health and public instruction. A resolution was adopted to proceed immediately to invoke a referendum on Senate Bill No. 433, passed at the last Legislature, which amends the law governing the granting of certificates to practise medicine in Missouri. A council was appointed which will endeavor within the next six weeks to arouse public interest against the bill. The bill on which the referendum is sought amends the law requiring that applicants for license to practise medicine shall be graduates of a "reputable" medical school so that it reads shall be graduates of "some medical college." The bill further amends the law so as to permit an aggrieved applicant to appeal from the decision of the State Board of Medical Examiners.

Tuskegee Medical Course.—The Tenth annual clinic of the Tuskegee Institute, Tuskegee, Ala.,

was held during the month of April, at which more than 1000 medical cases were treated, and 60 operations performed. Among those from a distance who took part in the clinics were Dr. E. H. Carey, Dallas, Tex.; Dr. Frank R. Ober, Boston, Mass.; Dr. J. Whittridge Williams, Baltimore; Dr. James S. Stone, Boston; Dr. Frederick R. Green, Chicago; Dr. M. L. Goodkind, Chicago; Dr. H. A. Royster, Raleigh; Dr. John E. Cannaday, Charleston, W. Va.; Dr. Fred H. Clark, Oklahoma City.

Ban Medical Student Bill.—The Commissioners of the District of Columbia have sent an objection to Senator L. H. Ball, chairman of the District Committee in the Senate, against a bill to amend the law governing the practice of medicine so as to permit students taking the examination to claim credit for study time spent in the office of a doctor. The commissioners object to the bill on the ground that it would lower the standard of medical education in the District of Columbia and that therefore it should not be enacted.

Campaign Against Rabies in New York City.—Following the death from rabies of a resident of Brooklyn who was bitten by a stray dog, the Health Department states that during the first three months of 1921, twenty animals examined at the laboratory of the Department of Health were found to be suffering from rabies. This is the largest number that has been reported for three months during a period of many years. The Health Department warns the owners of dogs that they will be required to observe strictly the muzzling ordinance.

Industrial Corporation Aids Public Health.—In cooperation with the New York City Department of Health's measures to prevent smallpox, the Western Union Telegraph Company, in the future, will require all applicants for employment to present certificates of recent vaccination.

Telephone System for Locating Physicians.—Des Moines, St. Louis, and St. Josephs have installed telephone exchanges for physicians, and Sioux City is to have a similar system by July 1. The service is exemplified as follows: When an emergency arises and a person wishes to locate his family physician who is a member of the exchange either at his office or residence, by referring to the telephone book he finds the line, "if no answer call No. ———," and the exchange immediately gets in touch with the physician wanted either by phone or messenger.

Charity Patient Disappears With Radium.—The treatment of a charity patient in an Oklahoma City hospital has resulted in the loss of radium valued at between \$3,000 and \$3,500 by a group of doctors in that city. The radium in two needles was placed in a cancerous growth. The patient disappeared with the radium on May 8, and police investigation has failed to reveal any trace of his whereabouts.

Drug Convictions Stand.—The conviction in the United States District Court of Dr. Daniel J. Hoyt and Dr. Leopold Harris, New York, charged with violation of the Harrison narcotic act, was recently confirmed in a decision by the United States Circuit Court of Appeals. Both physicians were convicted in May, 1920, of dealing in wholesale commercial prescription of drugs. Dr. Hoyt was sen-

tenced to serve four years and Dr. Harris two years in the Federal penitentiary in Atlanta.

Physicians Lease Office Building.—According to the real estate news, a group of physicians have leased the former home of Peter Doelger, Jr., at 266 West End Avenue, New York City, for a period of fifteen years at a total rental of \$200,000.

United Hospital Fund Distributed.—In connection with the celebration of National Hospital Day by appropriate exercises in the various hospitals of New York City, the United Hospital Fund announced the distribution of \$625,000 to fifty-six non-municipal hospitals, the amount going to each hospital being based on the extent of free work done by it irrespective of race or creed. Of the general hospitals, Mt. Sinai received the largest contribution, \$41,729, and St. Luke's came second, receiving \$35,974. Brooklyn hospitals received \$88,663.90. There were more than 10,000 contributors to the fund.

Madame Marie Curie, who arrived in this country on May 11, received the honorary degree of Doctor of Science at a special convocation of Smith College on May 13. President William Allan Neilson conferred the degree.

Dr. Charles E. de M. Sajous has been appointed professor of applied endocrinology in the Graduate School of Medicine of the University of Pennsylvania, and Dr. George B. Wood has been appointed professor of laryngology. Both men will assume the duties of their new positions next autumn.

Dr. E. M. Holder has been elected chief of the division of surgery of the Tennessee College of Medicine, to succeed Dr. McIver Woody, resigned.

Ex-Surgeon General William C. Braisted, U. S. N., has been chosen president of the College of Pharmacy of Philadelphia.

Dr. Alden Coffey has been appointed a member of the Board of Health of Fort Worth, Texas.

Reunions of Medical Men in Boston.—THE ALUMNI ASSOCIATION OF JEFFERSON MEDICAL COLLEGE, Philadelphia, will hold a reunion during the week of the annual meeting of the American Medical Association in Boston. All graduates are invited to register at the Jefferson table in the Convention Hall and give their Boston address. Dr. Wallace P. MacCallum, 214 Huntington Ave., Boston, will act as secretary.

THE PHI ALPHA SIGMA MEDICAL FRATERNITY will hold a reunion for members during convention week. Dr. E. J. G. Beardsley will act as secretary at the Hotel Brewster.

ALL OFFICERS AND MEMBERS OF BASE HOSPITAL 89 are invited to sit down to mess during the Boston meeting. Dr. Walter S. Lucas, secretary, will be at the Hotel Brewster during the convention.

New York State Narcotic Law Abolished.—Governor Miller has signed the first Lord bill which repeals the narcotic drug law, so that now the Harrison law alone is in force in this State. The Fearon bill was vetoed.

Alliance of Columbia University and Presbyterian Hospital.—According to an announcement made by the authorities of these institutions, plans for the alliance of the College of Physicians and Surgeons of Columbia University and the Presbyterian Hospital, which for various reasons have been held in abeyance, are soon to become

an actuality. Gifts totaling \$11,000,000 already have been received for a site, buildings and endowment, and it is estimated that from \$3,000,000 to \$4,000,000 additional will be required. Under the terms of the agreement for permanent alliance, Columbia University and the Presbyterian Hospital each continues its independent existence and control while providing a common administrative board for the oversight of the joint enterprise. New buildings are to be provided for both the medical school and the hospital between Broadway and Fort Washington Avenue, and 165th and 168th streets. This land has been given by an anonymous donor and is valued at \$1,000,000. The new administrative board is composed of John G. Milburn, Walter B. James, and William Barclay Parsons, representing the University, and Edward S. Harkness, Henry W. deForest, and William Sloane, representing the hospital. It is stated that Dr. William Walker Palmer, an associate professor in the College of Physicians and Surgeons until he joined the staff of Johns Hopkins University two years ago, is to be the new professor of medicine in the College of Physicians and Surgeons and the chief of the medical service in the Presbyterian Hospital.

Bellevue Without a Death.—For the first time in five years a period of twenty-four hours, on May 14, passed without the registration of a single death in Bellevue Hospital. A total of 1,400 patients were receiving treatment during this period. The record is considered unusual because of the seriousness of most of the cases brought to Bellevue.

Obituary Notes.—Dr. TITUS MUNSON COAN died at his home in New York City on May 8, at the age of eighty-three years. He was a graduate of the College of Physicians and Surgeons, New York, in 1861, and a Civil War veteran. He was one of the collaborators of the Standard Dictionary and a writer on medical and other subjects.

Dr. J. H. CONNOR, formerly of Superior, Minn., a graduate of Rush Medical College in 1883, died of apoplexy in Eau Claire, Wis., on April 23, at the age of sixty-two years.

Dr. MACCLAREY WEEKS of Galesburg, Ill., a graduate of the Northwestern University Medical School, Chicago, 1902 at one time president of the Knox County Medical Society, died suddenly on April 19, at the age of forty-two years.

Dr. RALPH W. MONTELIUS, Lieutenant-Colonel N. G. P., retired, died of pleuro-pneumonia at Mount Carmel, Pa., April 19. He was graduated from Jefferson Medical College in 1876.

Dr. F. D. WRIGHT, a graduate of Rush Medical College in 1882, died at the Christian Hospital, St. Louis, of a complication of diseases on April 18, at the age of sixty-five years.

Dr. ARCHIBALD L. MUIRHEAD, professor of pharmacology and former dean of the college of medicine of Creighton University, Omaha, died on April 24, at the age of fifty-five years. He was graduated from the University of Michigan Department of Medicine in 1893, and was for eight years editor of the *Medical Review*. He was formerly a member of the Nebraska State Board of Health.

Dr. AUGUSTUS BRYANT SHOLARS of Little Rock,

Ark., a graduate of the University of Louisiana Medical Department in 1861, died at his home on April 26, at the age of eighty-four years. He served as a surgeon in the Confederate Army during the Civil War.

Dr. GEORGE L. SMITH of Jefferson, Wis., a graduate of Rush Medical College in 1879, died at his home, on April 16, at the age of sixty-six years.

Dr. WILLIS E. STERRS of Albany, Ala., was accidentally drowned on April 26. He was a graduate of the University of Michigan Medical Department in 1888, and the founder of the Cottage Home Infirmary, the first hospital for Negroes in that section of the country.

Dr. ROBERT C. YENNEY of Portland, Ore., died suddenly of heart disease on April 24, at the age of fifty-two years. He was a graduate of the University of Pennsylvania Medical Department in 1892. He was a Lieutenant-Colonel in charge of a hospital unit on the Western Front during the war and also a Spanish War veteran. From 1904 to 1909 he was secretary of the Oregon State Board of Health.

Dr. M. L. WOLFORD of Harrisburg, Pa., a graduate of Jefferson Medical College in 1880, died of apoplexy on April 28, at the age of sixty-eight years.

Dr. OLIVER T. EVERHART, a graduate of the University of Maryland School of Medicine, died at his home in Hanover, Pa., on April 28, at the age of eighty-nine years.

Dr. BENJAMIN R. PELTZ of Roxborough, Pa., a graduate of the University of Pennsylvania Department of Medicine in 1867, died in a local hospital on April 28, at the age of seventy-eight years.

Dr. PAUL J. ANDERSON of Oakland, Cal., died in Honolulu of complications following pneumonia, on April 20, at the age of thirty-five years. He was a graduate of Cooper Medical College in 1910, a member of the American Neurological Association and the American Medical Association. He was for many years connected with the Alameda County Hospital and the Berkeley Dispensary.

Correspondence.

THE PRESENT STATUS OF THE SURGICAL TREATMENT OF CANCER.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—My attention has been called to an article by Dr. L. Duncan Bulkley in the MEDICAL RECORD, which has been copied verbatim in the *New York World*. As it is calculated to give the public an erroneous idea of the present status of the surgical treatment of cancer, I take the liberty of calling attention to the fact that arguments based on imperfect statistics are no longer tenable. The time has passed when we can say, with the French cynic: *Donnez moi des chiffres, je vous prouverai tout*. The American Society for the Control of Cancer is generally regarded as engaged in an altruistic movement, the professional standing of the directors (the list of whom I inclose) being such that they cannot be regarded as "overzealous surgeons throughout the country," or men who "acknowledge that 90 per cent. of those once attacked by cancer die therefrom." We are not bidding for operative work, but are

aiming at prevention and early diagnosis, rather than capital surgery in advanced cases.

Our statistician, Mr. Frederick L. Hoffman, than whom there is no more thorough and conscientious specialist in this line, has recently proved that since the year 1915 the mortality from cancer throughout the United States has *not* increased, but has remained steadily at 80 per 100,000.

We do not care to discuss the value of radium in the treatment of cancer, as it is evident that Dr. Bulkeley has not given sufficient attention to this subject to speak *ex cathedra*, neither do we refer to the work of the pathologists, who are able to speak for themselves. The claim that early cancerous lesions (and even metastases!) can be "made to disappear . . ." and that "the patient remains well indefinitely," with "minute and proper dietetic, hygienic and medical treatment" we do not pretend to discuss, having had no experience along this line.

HENRY C. COE, M.D.

NEW YORK.

ONE MEDICAL SCHOOL AND ONE FACULTY FOR ONE GREAT UNIVERSITY OF GREATER NEW YORK.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—Every American physician, and for that matter, every American citizen, will rejoice on learning of the contemplated establishment of a great medical center in the City of New York. It is announced that the authorities of Columbia University and the Presbyterian Hospital, who have \$15,000,000 at their disposal, have allied themselves in a stupendous program to create the world's greatest institution of medical learning.

Before the world war American physicians looked upon Berlin, Paris and Vienna as the great centers for medical learning. One might wonder why London never had the same repute and was never considered so great a medical center as the other three capitals. Conditions in London are somewhat analogous to those in the great cities of our own country. There as here exist several schools connected with hospitals which train physicians independently and give diplomas. The reason why Paris, Vienna, and Berlin were visited for post-graduate instruction by American physicians more frequently than London, in spite of the fact that in the latter city they had no difficulty with a foreign tongue, lies in the superiority of the facilities which a great single school can offer to the student. When there are several medical schools in one city, rivalry is inevitable. The more powerful and richer institutions will draw the better and more distinguished teachers from the less rich and less powerful and thus weaken the latter's prestige. The larger school can demand a higher tuition fee and a poor student, no matter how talented, cannot enter the great school which he knows would give him a greater prestige on graduation.

Never before has there been such an opportunity to unite the three medical schools of Manhattan and even the Long Island College of the Borough of Brooklyn into one great medical department of a newly created single university such as would result from the combination of Columbia, New York

University, and Cornell, after the pattern of the University of Paris. This unification could begin with the consolidation of the 3 or 4 medical schools. Paris, with its 4,000 to 5,000 medical students, offers the greatest possible clinical facilities in its many hospitals and laboratories for graduate and post-graduate instruction. Students are assigned to the hospitals as pupils, externs and interns for from 3 to 4 years. The first two years are mainly devoted to dissection, laboratory and practical work and to theoretical lectures. The remaining years are given to clinical instruction at the bedside and practical surgical training on the cadaver.

It was my privilege to have taken my degree the first time after only 3 years' attendance in one of our best American colleges, and the second time in Paris after nearly 5 years of hard work. On the strength of this experience of 8 years in medical schools as a regular student and some time spent in post-graduate work in Berlin and Vienna, and lastly as a teacher in an American post-graduate institution where physicians from all kinds of schools came to learn, I may be permitted to give my opinion as to how the contemplated venture may in reality make New York one of the greatest medical centers in the world.

Let the above mentioned four colleges unite as one great medical school with one faculty, one dean and four associate clinical deans to direct the clinical instruction. Thus, as in Paris, there would be several centers where anatomy could be taught practically. Let each large hospital have its own clinical laboratory, but all other instruction should be carried on at the Washington Heights Medical Department. Let there be a reasonable fee of tuition which will enable the student in moderate circumstances to enter. Every graduate should have at least one year internship in a hospital recognized by the faculty as in good standing. Examination for hospital internship should be done away with, the final examination and the record of the student's work should give him priority in the choice of the hospital in which he desires to serve as intern. There are enough hospitals in or near New York to give every student graduating from this school an opportunity to serve one or even two years as intern. While post-graduate students should be welcomed to the school for research work and clinical instruction, the greatest attention should be paid to the regular students of the University and they should be given preference in instruction and opportunity for clinical work. In the fifth year of his medical training the student should be left a free choice concerning what general or special clinics he would wish to attend, or what particular lectures by certain teachers he would wish to hear. This should in no way interfere with his final examination for his degree.

From what I have seen of medical colleges, students and teachers in this and many other parts of the world, it is my firm conviction that if the American medical schools in our various cities would each unite into one great faculty working under a single great university, they would, with the superior practical and ingenious methods of work of the American medical and surgical teachers, accomplish greater results than any European school in existence. So let us do away with the multiple medical local colleges and unite into one

great medical faculty and under one single University of the City of Greater New York.

Perhaps the various schools of law, pedagogy, sciences, etc., may later on be willing to follow our example, but in the meantime let us show to the world that American medical science is truly altruistic and in earnest and that New York physicians in particular, in their desire to create the greatest medical center in our metropolis, are willing to give up their individual preferences or ambitions and uniting in the work to make the teaching of the healing profession the best and noblest work there is. Thus may we alleviate human suffering, prevent and cure disease and work for the glory and physical and moral good of the nation and of mankind at large.

S. ADOLPHUS KNOPF, M.D.

NEW YORK, May 16, 1921.

OUR LONDON LETTER.

(From Our Own Correspondent)

LONDON, April 26, 1921.

Birth Rate of England and Wales.—The provisional figures of births registered in England and Wales during the first quarter of 1921 show a decline of over 61,000 from the record of the corresponding period of last year. Compared with the first quarter of 1914, however, the drop in numbers is under 8,000. Excluding the war years, the births are the fewest recorded in the first quarter of any year since 1872, and the provisional rate per 1,000 living is, with the exception of the war years, 1916-19, the lowest ever recorded for any first quarter. The deaths also show a decline and are, indeed, the smallest in number registered in the first quarter of any year since 1868, and the provisional rate is the lowest ever recorded for any first quarter.

Report of the Medical Officer of the County of Norfolk.—The reports of the medical officers for the counties of England and Wales have been issued recently and provide valuable information. Among these instructive documents, some of which have been referred to in previous letters, that of Dr. J. T. C. Nash, the medical officer of the County of Norfolk, is especially interesting. It is an exhaustive report, crammed with statistics and minute details. It also contains summaries of the reports for the years 1915 to 1918, very useful for the purpose of comparison. Dr. Nash points out that new and important statutory duties of a medical nature have devolved upon county councils in promoting the health of the people, including maternity and child welfare, the treatment of venereal disease, the administration of the milk order, etc. Prior to the commencement of the war, practically the only medical duties undertaken were in connection with mental diseases and the medical inspection of school children. It was not until 1919 that the Norfolk County Council seriously considered a tuberculosis scheme, so that this huge undertaking had to be dovetailed in with other new schemes and has involved considerable congestion of work with which the Public Health Committee has had to deal. It must be borne in mind that a county annual report not only has to deal with the health activities in which the county council is itself engaged, but with the sanitary circumstances of all the constituent sanitary districts in the administrative

area. It is not only for the information of the county council but for the Ministry of Health and others who have not the same intimate knowledge of the area. Moreover, it is expected to contain matter which will be useful to district medical officers of health, and be a means for conveying information on health questions to the community at large. In the report for the year 1919-20, Dr. Nash gives the birth rate as 17.3 of the population and the infantile death rate as 79.1 per 1,000 births. The death rate at all ages was 14.3, that for England and Wales being 13.7. He finds that the death rates of pregnant and parturient women are somewhat in excess in Norfolk as compared with England and Wales, except in the years 1916 and 1917, when they were lower. The excess he attributes in part (1) to the lack of a sufficient number of qualified midwives; (2) to the lack of special hospital provision for difficult cases in scattered and sparsely populated villages; (3) to the inadequacy of some cottages for even a normal confinement; (4) to deficient nutrition of pregnant women. He proceeds as follows: "The indication is for the county council to meet factors 1, 2, and 3 by making arrangements with available hospitals or hostels for the reception of cases for which adequate provision at home is impossible, and to circularize midwives and practitioners of such provision, and for which grant is available. Factor 4 is largely met now by the administration of the milk order of 1919. The fact that maternal mortality was lower in 1916 and 1917, when income was better and rationing was in force, enabling all to get a share, is suggestive that nutrition is an important factor." He considers infantile mortality to be too high for a rural area, and attributes it to a want of proper nutrition for the mother and the absence of efficient dentistry, both of which conditions adversely affect the children. He urges the need for supervision of midwives, advice to expectant mothers, assistance at the time of confinement, and arrangements for dealing with postnatal matters. Dr. Nash speaks highly in favor of infant welfare centers, a number of which are successfully working in Norfolk. Referring to infectious diseases in Norfolk, he states that no person who has had enteric fever is fit to handle milk, which is a vehicle peculiarly adapted for carrying infection; indeed, he thinks it would be well if persons who have had enteric fever were debarred from any occupation in the preparation or distribution of any kind of food. He notes with satisfaction that there has been a marked and continued reduction in the incidence of enteric fever in England, and attributes this largely to the persistent warfare on boiled cockles from polluted layings, a means of precaution he initiated in the opening years of the century. He points out that the partial boiling of cockles, formerly so prevalent, does not destroy the poison germs; they must be thoroughly boiled. Dr. Nash devotes a considerable part of the report to tuberculosis, and points out that the year 1918 showed a marked increase in the number of deaths from tuberculosis, an increase due, he suggests, to the short rations of food, the strain of the culminating year of the war, and the terrible pandemic of influenza which swept the world in that year. He does not believe that there were more cases of tuberculosis in that year, but that

the constitutional factors then existing lessened the resistance of the tissues of persons affected with the disease. Hitherto, in his opinion, too much attention has been given to tuberculosis as a disease calling for specialized treatment and too little to its public health aspect, requiring the simultaneous adoption of preventive as well as remedial measures. Perhaps the main points in the report referred to above are the remarks on maternity and child welfare and infantile mortality. Dr. Nash believes that maternity and child welfare effort should, in the course of the next few years, reduce the average mortality of the twenty rural districts of Norfolk from 81.6 to 75; but the result can only be brought about if such effort is concentrated and adequate, and is specially directed to the adequate nutrition of expectant and nursing mothers and the encouragement of the breast-feeding of infants for at least seven to ten months after birth. As in Norfolk so in England and Wales as a whole, the care of the expectant mother and the management, medical, surgical, nursing and otherwise, of the parturient woman is, generally speaking, not in conformity with a high standard. It is allowed by the leading obstetricians of the country that the training of the medical student and nurse in this most important branch of surgery is inadequate. In country districts there is a lamentable lack of maternity homes, and the conditions in many, perhaps most, of the cottages are entirely unsuitable for the conduct of such a surgical procedure. As for the infantile mortality in Norfolk, Dr. Nash puts it down to prematurity and immaturity and holds that the diet of the mother plays a great part in producing these conditions. He points out that a diet of refined denatured foods will certainly lack necessary elements and will give rise to malnutrition and deficiency diseases. Hence the necessity for advocating the use of whole grains, containing all their natural salts and vitamins; for the daily consumption of fruits, vegetables and greens, remembering not to discard the water in which the latter are cooked, but to utilize them again in the forms of soups and sauces; for the use of natural sugars in preference to refined sugars. The report, indeed, like all the reports of the medical officers of health, is full of practical suggestions, and it would be in the interests of the health of the community if certain parts were extracted and reprinted for widespread distribution.

Post-Graduate Medical Education.—The advantages, or rather, the necessity, in these days of a well organized postgraduate medical education has been so often pointed out and are so obvious that further elaboration of the subject would seem to be superfluous. In America the importance of having such a system is well understood, but although a good deal has been done and more conceived and planned in this country, schemes in this direction appear to lag somewhat strangely. To the *Observer* of April 24 last, Mr. Percy Dunn, a well known London surgeon, contributed so excellent an article on the question that it will not be out of place to quote it at length: "The time is not far distant when postgraduate medical teaching will come to assume as much importance as the education provided for the medical student. Medical knowledge new today is often old tomorrow. It is only those in contact

with the centers of its advancement who can keep pace with its progress. An up-to-date, newly-qualified young house physician or house surgeon, appointed, let me say, to a country hospital or infirmary, is not infrequently called upon to "advise" his chief as to the latest method of treatment of cases. In former days this kind of thing was a common rule. The "chief" was usually a general practitioner in the town, who had for long lost contact with the advancement in his profession. It was only by continuous study of text books and regular perusal of the medical journals that he could keep himself up to date. But such a task was beyond him; he had no time to devote to it. Moreover, the value of text book reading is limited; it fails in supplying the practical factor which appeals to the eye and trains the hand. The times, however, have changed largely in comparison with those of the past. The practitioner of today is far in advance in professional knowledge of his predecessor. That knowledge has been gained under the modern system of medical education, more surely based upon a scientific foundation. But so it is that the more sure the foundation the greater becomes the opportunity for improving and elaborating the superstructure. Thus it has come to pass that medical knowledge is always advancing. One day it may be regarded as up to date, but the next day it is superseded by a new scientific development. Herein is revealed the extremely important utilitarian aspect of the value of postgraduate teaching. To place the advantages of postgraduate teaching upon its highest pedestal, the community, that is the nation, gains by the dissemination of up-to-date medical knowledge among practitioners in whose hands the care of the public health chiefly rests. But in order to carry through a scheme for the purpose of achieving this truly national object, the aid of a patriotic philanthropist is needed, and here it may be said that of the many great projects which have evolved themselves out of the brain of that incomparable organizer, Sir John MacAlister, the postgraduate scheme is his newest creation and one of the most important. His life has practically been spent in advancing the facilities for the progress of medical science. It is impossible to conceive of the greatness of the asset to British medical science which the creation of the Royal Society of Medicine represents. Never restful where progress is possible, about two years ago he founded the Fellowship of Medicine Post-Graduate Association. Struggling along successfully as it has done during the past eighteen months, attracting medical men from all parts of the world, the time has now come when in order to accomplish the full fruition of its objects financial aid is necessary. For the sum of £30,000 a benefactor could claim the honor of providing an "Imperial Post-Graduate Medical College in the Empire's centre, securing for British medical science the facility for world-wide dissemination. Capital alone is required for this Imperial object."

The above account describes the need for efficient postgraduate teaching in Great Britain, and the claims of London as a world postgraduate medical center clearly and well. It also gives honor where honor is due in describing Sir John MacAlister in whose brain was first conceived the

idea of making of London the medical center of Europe if not of the world, as an incomparable organizer. It may be added that of all the schemes in which Sir John MacAlister has played a leading part in initiating and developing, none has been nearer his heart than the present scheme. He is particularly desirous of attracting American medical men to London for postgraduate medical training, and with this end in view is sparing no effort to make their stay profitable from the medical and scientific standpoint and comfortable and pleasant from the social aspect. The lack of funds is the main impediment to its consummation, it is to be hoped however, that this will be removed soon and that as Mr. Percy Dunn anticipates an Imperial Post-Graduate Medical College will be founded in the largest English speaking city of the world.

Sir Squire Sprigge, editor of the *Lancet*, has been elected a Fellow of the Royal College of Surgeons.

Progress of Medical Science.

Boston Medical and Surgical Journal.

May 5, 1921, clxxxiv, 18.

1. Vitamins in milk. M. J. Rosenau.
2. A Review of Three Hundred Cases of Blood Chemistry.—Edward B. Bigelow, from this review, concludes that, in general, these examinations, whether they prove to be normal or abnormal, are functional tests of value in the fuller consideration of cases. Prognosis is extremely poor when there is a high retention of creatinine, and rather poor when there is a high urea retention. The determination of the alkali reserve is valuable in diabetes mellitus and to a lesser degree in nephritis. Repeated blood sugar determinations are invaluable as guides in the treatment of diabetes mellitus.

New York Medical Journal.

May 4, 1921, cxlii, 13.

1. The Role of the Prostate and the Seminal Vesicles in Arthritis.—Oswald Swinney Lowsley, on a study of one hundred cases of gonococcus infection of the joints, occurring in Bellevue Hospital in the past two years, additional cases which have been treated by operation and otherwise during the past six months, and some cases which have been treated by palliative means. The investigation was conducted largely in the urological department. The majority of the patients, sixty-seven in number, were treated in the urological wards. Twenty-five were treated in the medical wards, and two in the gynecological department. Previous similar attacks had occurred in 15 per cent. of the cases, while 66 per cent. of the patients

complained of a previous gonorrhea. Twenty-nine per cent. denied previous attacks of either arthritis or gonorrhea. The knee was involved more frequently than any other joint. The results of treatment were not particularly brilliant in any of the series. Better results were obtained by operation and by cast methods than by any other, the period of residence in the hospital being two-thirds as long in the latter as in the former. The use of internal medication was productive of less improvement than any of the other methods tried. Local applications to affected joints proved beneficial in three-fifths of the cases tried. Gonococcus vaccine was beneficial in seven cases of eleven injected, and typhoid vaccine used in sixteen cases was at least temporarily beneficial in ten. Palliative treatment of the prostate and seminal vesicles resulted in two complete cures, five cases in which distinct improvement was noted, and two in which there was no improvement. Casts and splints were used in twenty-three cases. Improvement followed in less than 50 per cent. of the cases, but the series of carefully treated cases in which heavy casts were applied and the joints baked afterward were signally successful, all showing marked improvement. Operations upon the seminal vesicles showed improvement in nine out of ten cases. The writer concludes that no case of arthritis in the male adult is properly investigated unless a rectal examination is made. Prostatic fluid should be examined in the fresh state under the high power lens of the microscope to determine the presence of pus or pathological elements. The process of staining masks the true conditions in some instances. In chronic prostatitis the gonococcus is rarely met with.

Journal of the American Medical Association.

May 7, 1921, lxxvi, 19.

1. Restoration of the Normal Cardiac Mechanism in Auricular Fibrillation by Quinidin: Preliminary Report. Robert L. Levy.
2. New Principles in Plastic Operations of the Eyelids and Face. Joseph Imre, Jr.
3. Increased Amount of Uric Acid in the Blood in the Toxemias of Pregnancy. J. Lisle Williams.
4. Hyperglycorachia in Epidemic Encephalitis. Harold E. Foster.
5. Infestation with Filaria Loa: Report of a Case of Filaria Beneath the Conjunctiva and Microfilariae in the Peripheral Blood Stream. Howell L. Beale.
6. Prevention of Acute Arspheamin Reaction by Antianaphylaxis and Atropin. George J. Busman.
7. Laryngeal Diphtheria: Review of Five Hundred and Fifteen Cases in Which Intubation Was Performed. Archibald L. Hoyne.
3. Increased Amount of Uric Acid in the Blood in the Toxemias of Pregnancy.—J. Lisle Williams, after a large amount of uric acid had been found in the blood of a patient with eclampsia, made more detailed chemical studies of the blood of patients with the so-called toxemias of pregnancy. The results of the chemical examinations of the blood of twenty-five patients with eclampsia, preeclamptic toxemia, or pernicious vomiting of pregnancy demonstrate that the uric acid regularly exceeds the normal in the blood of these patients, whereas the other nonprotein nitrogen constituents usually are not increased. Study of the blood of these twenty-five patients, and of six pregnant women with none of the mentioned, studied for purposes of comparison, the following conclusions are drawn: 1. In the blood of patients with eclampsia, hyperemesis gravidarum, and with the symptoms of preeclamptic toxemia, together with arterial hypertension, the uric acid is markedly increased. 2. Delivery and recovery from the symptoms are associated with a gradual return of the uric acid in the blood to its normal amount. 3. Arterial hypertension in pregnancy unassociated with toxic symptoms is not unaccompanied by uric acid retention. 4. The toxic vomiting of pregnancy is associated with a marked increase of the uric acid in the blood, whereas the nervous or physiologic vomiting is not. It seems possible, therefore, to differentiate these conditions by quantitative estimations of the uric acid of the blood.
4. Hyperglycorachia in Epidemic Encephalitis.—Harold E. Foster states that hyperglycorachia is usually present in epidemic encephalitis. This small series (eleven cases) would indicate that there is a definite relation to the intensity of the clinical picture. There seems to be no definite relation to the duration

of the disease. There is no evidence of a corresponding glycemia or glycosuria. It appears to be the only test which is characteristic of this condition, and in the absence of a distinctive pleocytosis, total protein content or colloidal gold reaction, it is of value as an additional diagnostic aid and possibly is of prognostic importance.

6. **Prevention of Acute Arspenamin Reaction by Antianaphylaxis and Atropin.**—George J. Busman made an examination of the records of the Section on Dermatology and Syphilology of the Mayo Foundation with reference to arspenamin reactions, finding thirty-six cases in which the recurrence of arspenamin reactions, of both the nitritoid and gastrointestinal types, was so persistent that it was impossible to ascribe it to incidental or temporary fluctuations in the technique. His findings are summarized as follows: 1. The exact nature of nitritoid and gastrointestinal reactions to arspenamin is undetermined. It seems not improbable that a variety of causes may act to produce a single syndrome of which the acute reaction on the table, and in certain cases, the late gastrointestinal reaction, may be phases of the same phenomena. 2. In the group of cases reported, repeated nitritoid crises, associated with repeated gastrointestinal reaction, persisted regardless of any controllable factor in the technique. 3. Repeated uncontrollable acute reactions are interpreted as personal idiosyncrasies of the patients to the drug. 4. The observation of Stokes on the value of atropin and of induced antianaphylaxis (Besredka technique) in the control of a persistent tendency to acute nitritoid crises is confirmed. 5. It has been further found that a tendency to repeated late gastrointestinal reaction can also be controlled in a large number of cases by either method alone, or by a combination of the two methods. 6. Atropin is sometimes effective in doses less than 1/50 grain. It may fail entirely to effect reaction even in doses of 1/50 grain. 7. A combination of the use of atropin and the induction of antianaphylaxis by dividing the dose of arspenamin is more effective than the employment of either method alone. 8. A combination of the two methods may make possible the continuance of arspenamin treatment in patients in whom repeated severe reaction would otherwise force its abandonment.

The Lancet.

April 16, 1921, cc. 16.

1. Oliver-Sharpey Lectures on the Nature of Flutter and Fibrillation of the Auricle. Lecture I, Auricular Flutter. Thomas Lewis.
2. A Hunterian Lecture on the General Indications for Operative Exploration in Nerve Injuries. Harry Platt.
3. Researches on the Biochemistry of Germs and Other Proteins, with Special Reference to the Problems of Immunity. Part I, The Splitting of Germs and Other Proteins into Their Component Parts. David Thomson.
4. Observations upon a Case of Filaria (Loa) Loa Infection. George Low and Elizabeth J. O'Driscoll.
5. Spinal Anesthesia for Suprapubic Prostatectomy. H. M. Page.
6. Diseases Described by Medical Men Who Suffered from Them. Sir Humphrey Jolleson.

2. **General Indications for Operative Exploration in Nerve Injuries.**—Harry Platt emphasizes, in the beginning of this discussion, that it is impossible to enunciate any hard-and-fast rules in connection with the indications for the operative exploration of an injured nerve trunk. An exploratory is either justified, or is inevitably needed, under the following conditions: 1. Where the syndrome of complete interruption has persisted unchanged after a period of observation during which repeated clinical examinations have been carried out. As a working plan, a period of observation lasting six months is reasonable, although it must be admitted it is essentially an arbitrary one. With regard to the stage of safety, after complete healing of the wound a period of four to six weeks should be taken as a minimum, but may be prolonged according to the influence of local conditions. 2. Where the syndrome of incomplete interruption has continued without change for six months and particularly when this is represented by the distal syndrome. 3. In the presence of the syndrome of irritation, either of a moderate degree showing no signs of subsidence, or in the severe type—causalgia—at the earliest possible moment. The preparations for the operation; the exploration technique proper; the general indications for the choice of

the particular type of operative repair, and an analysis of 510 operations performed in the writer's services from March, 1915, to December, 1920, are given in detail.

3. **Researches on the Biochemistry of Germs and Other Proteins, with Special Reference to the Problems of Immunity.**—David Thomson, in this first communication, deals with the splitting of germs and other proteins into their component parts. The biochemical researches involved were begun in 1917, at a time when the writer was engaged largely in growing the gonococcus and in making large quantities of gonococcal vaccine for the army. Having ascertained that the gonococcus substance (thrown out of solution by acidification) is antigenic, he commenced to test the therapeutic value of this precipitate by subcutaneous injections in gonorrheal subjects. It was found, after many injections, that the precipitate was some 50 times less toxic than the actual untreated gonococci themselves. Moreover, the larger doses of the nontoxic precipitate appeared to confer more immunity and gave better therapeutic results than the necessarily smaller doses of the untreated germs. Having ascertained that the gonococcus protein precipitate thrown down by acidification was comparatively nontoxic, it naturally occurred to him that the toxic properties of the germ would be found in the acid supernatant fluid, which was separated from the precipitate by centrifuging or by filtration. This belief proved to be correct; small doses of the supernatant fluid caused quite an intense local reaction when injected subcutaneously. The acid supernatant fluid was neutralized before injection, so that the local reaction produced was not due to the acidity of the fluid. This supernatant fluid has also a provocative effect in the disease, since it increased the symptoms and renders the urethral discharge more profuse. It was found to contain protein substances which can be precipitated by the addition of picric acid, ammonium sulphate, or absolute alcohol. These preliminary researches on the gonococcus led to a similar study of other pathogenic organisms and of proteins in general. First of all a series of parallel experiments was carried out on germ protein (gonococcus), animal protein (ox heart), and vegetable protein (pea flour). The gonococcus, minced ox heart, and pea flour were easily soluble in N/1 NaOH, but a certain proportion of undissolved substance remained which could be removed by filtration. From these tests it appears evident that the meat (ox heart), the gonococcus, and pea flour, are very similar in nature, and that all three substances consist largely of protein, which can be split up into metaprotein, primary proteose, and deutoproteose. The nontoxic gonococcus vaccine consisted of gonococcus metaprotein, and the toxic supernatant fluid contained primary and secondary gonococcus proteose. Experiments on gonorrheal subjects showed that the primary and secondary proteoses from the gonococcus were no more toxic than the comparatively nontoxic metaprotein itself. They produced no marked local or general reaction, such as fever and malaise. It was noted, however, that an injection of these proteoses caused quite a definite provocative reaction at the focus of the disease, and a subcutaneous injection of the proteoses has been found useful as a provocative test of cure in gonorrhea. In gonococcal iritis an injection of the proteose may cause an acute flare-up in the eye; it is therefore not recommended as a diagnostic test in this condition. A certain amount of immunity appears to be developed against the proteoses, since after repeated injections they lose their focal provocative reaction. Other phases of the subject discussed by the writer are: Alkali solubility of other germs and proteins; further biochemical components of germs and other proteins, viz., acid-soluble, alcohol-soluble, and chloroform-soluble fractions; quantitative biochemical analyses of the gonococcus and the tubercle bacillus; content of different germs and proteins; same types but varying proportions of component substances, and antigenic and comparatively nontoxic nature of the protein split products described.

British Medical Journal.

April 16, 1921, 1, 3146.

1. Oliver-Sharpey Lectures on the Nature of Flutter and Fibrillation of the Auricle. Lecture I. Thomas Lewis.

2. Carcinoma of the Large Intestine. J. Lionel Stretton.
3. Gunshot Injury to the Brain Involving Both Cortical and Subcortical Tissue. Judson S. Bury.
4. The Surgical Treatment of Chronic Sciatica. J. Mill Renton.
5. Survival After Operation for Annular Malignant Disease of the Large Bowel. John D. Malcolm.
6. The Hospital Treatment of Fractures: A Suggestion for Centralization. Robert Olerenshaw.
7. Notes on a Giant. William Robinson.
8. Involvement of the Orbit in Disease of the Nasal Accessory Sinuses. Robert E. Wright.
9. The Isolation of Diphtheria Bacilli. Denys R. Wood.

4. The Surgical Treatment of Chronic Sciatica.—J. Mill Renton holds that it is only in chronic cases that have failed to recover under medical treatment that there is any question of surgical interference. Not all chronic cases are suitable for operation, and it is necessary to differentiate them carefully by the symptoms to which they give rise. He roughly classifies them into three groups: 1. Cases in which the patient is quite free from pain while at rest, but begins to have pain on exercise or on assuming some special position. 2. Cases in which there is a certain amount of pain while at rest, but where it becomes really intense on exercise or on the assumption of a particular position. 3. Cases in which the pain is of an indefinite character, present at rest off and on, and sometimes improving to a certain extent on exercise. The operation is extremely simple, consisting essentially in the freeing of the sciatic nerve from adhesions. This is done by exposing the nerve below the gluteus maximus by a four to five inch longitudinal incision, hooking it up, and then carefully removing all adhesions from the sacro-sciatic notch to about the middle of the thigh. The adhesions may be fine and readily separated by the finger, or they may consist of strong bands that have to be divided. All tags and loose ends of adhesions should be dissected away. The branches to the hamstrings which come off just below the lower border of the gluteus maximus should be preserved. The nerve is then dropped back into the wound and the skin sutured. No splint is applied, but the patient is kept in bed for ten days and then allowed up.

The Therapeutic Gazette.

March 15, 1921, xiv, 5.

1. Indications for the Treatment of Acute Appendicitis from the Standpoint of the Surgeon. Moses Behrend.
2. Chlorine as a Therapeutic Agent. M. B. Haldorson.
3. The Aims and Duties of the Student. Hobart Amory Hare.
4. Notes on Treatment of Some Common Affections. Charles Greene Cumston.

1. Indications for the Treatment of Acute Appendicitis, from the Standpoint of the Surgeon.—Moses Behrend holds that greater care should be taken by the general practitioner in referring his cases earlier to the surgeon. This will reduce the number of drainage cases, which later are nearly always followed by an incisional hernia. Some types of acute appendicitis ought to be operated on at once. Others are benefited by a rest of a few hours by instituting the Fowler-Murphy treatment. Children should be operated on at once on account of the peculiarity of the appendix to undergo rapid inflammatory changes. The ability to diagnose the position and degree of inflammation depends solely on one's experience. While the value of the leucocyte count is not underestimated, the diagnosis of acute appendicitis is determined by physical examination. A leucocytosis is simply confirmatory evidence. In all pus cases one must get in and out as quickly as possible. Deep anesthesia is important. The appendix is removed in every case. The Ochsner treatment is no doubt valuable in the hands of those who understand its application. The writer never uses the Ochsner treatment. A mortality of less than 1 per cent. compares favorably with the results of surgeons who advocate this treatment.

Southern Medical Journal.

April, 1921, xiv, 4.

1. Some Observations on Sprue and Its Prevalence in the South. Sidney K. Simon.
2. The Differential Diagnosis of Hematemesis, with Report of a Case. Whitman Rowland.
3. Scarlet Fever and the Streptococci Sore Throat: An Epidemiological Discussion. A. J. Ware.

4. Reporting of Morbidity Statistics with Special Reference to Malaria Fever. W. S. Leathers.
5. The Standard Treatment for Malaria—A Discussion of Some of Its Advantages. C. C. Bass.
6. The Destruction of Anopheles in Screened Dwellings. D. L. Van Dine.
7. Cooperative Antimalarial Campaigns in the United States in 1920. J. A. LePrince.
8. Postoperative Thrombophlebitis. Frank K. Boland.
9. Transplantation of Cartilage. W. T. Coughlin.
10. The Importance of Early Diagnosis in Acute Abdominal Conditions. J. Louis Hanshoff.
11. Apoplexy of the Placenta. M. Pierce Rucker.
12. Some Fundamental Considerations in the Functional Examination of the Ear. Joseph D. Heitger.
13. Intubation Versus Tracheotomy in Laryngeal Diphtheria. John H. Foster.

1. Some Observations on Sprue and Its Prevalence in the South.—Sidney K. Simon briefly traces the history of sprue, and classifies the symptoms in a well advanced case into four cardinal groups: 1. An intensely red, desquamated, raw-beef type of tongue, accompanied in most instances by a general ulcerative stomatitis. 2. A greatly inflated abdomen, doughy in consistency, with enlarged intestinal coils often visible through the thinly stretched abdominal wall. 3. A chronic fermentative type of diarrhea characterized by unusually copious, pale-yellow and foul-smelling stools. 4. A progressive deterioration of strength, accompanied in most instances with marked pallor. Ashford's conclusions regarding the etiology of the condition, which he attributes to "*Monilia psilosis*," have not been entirely confirmed, although from a clinical standpoint the evidence appears convincing. The morbid lesions are not unlike those found in other forms of blastomycotic infections. The chronic, irregular course of the disease is certainly quite characteristic of this type of infectious process. Various dietetic methods of treatment have been employed, but complete unity of opinion is lacking. The one fact particularly noted by the writer in contemplating the various diets is that fat is the one element of food not tolerated in sprue. In three cases followed by him it was found that fat in any form immediately gave rise to disturbances of the intestinal function, followed by an outbreak of toxic symptoms. A liberal mixed diet, including skim milk, buttermilk, fat-free meat, and vegetables and fruits of several varieties yields the most satisfactory results in the dietetic management of the disease. Based upon the theory that the disease is of blastomycotic origin, due to specific infection with *Monilia psilosis*, efforts have been made, particularly by Ashford and his followers in Porto Rico, to prepare a vaccine for use in the treatment of sprue. Sixty-two cases were treated by Michel with a vaccine prepared after the directions of these observers, and it is claimed that forty-nine were discharged cured, twelve were improved, and one died. The vaccine treatment, in conjunction with the usual dietetic regulations, seems to offer the best results.

11. Apoplexy of the Placenta.—M. Pierce Rucker calls attention to the many theories that have been advanced as to the causation of solid areas in the placenta, to which various terms have been applied, as placentalitis, scirrhus, atrophy, hepatization, apoplexy, phthisis, fatty and fibrofatty degeneration of the placenta. Their macroscopic appearance naturally suggests the name placental infarcts, as they look like the familiar embolic processes found in the spleen and other organs. Sometimes the infarction is not white but red, suggesting hemorrhage. In the past three years the writer encountered six cases in which there were large red infarcts. The cases are reported in brief detail. From the study of the cases and the observations of others he concludes that the term apoplexy of the placenta would seem appropriate, first, on account of the hemorrhage usually present in these infarcts; and, secondly, on account of the rather sudden appearance of the clinical signs. The association of large white and red infarcts in the same placenta, the presence of necrotic areas in the center of many of the infarcts, and finally the presence of clotted blood in many of these infarcts with signs of premature separation of the placenta suggests that this may be the sequence of events in certain cases of ablatio placenta. This condition presents a definite symptomatology that makes it possible to recognize it by carefully observing the patient in the latter part of her pregnancy.

Book Reviews.

THE TREATMENT OF WOUNDS OF LUNG AND PLEURA.

Based on a Study of the Mechanics and Physiology of the Thorax. Artificial Pneumothorax, Thoracentesis, Treatment of Empyema. By Professor EUGENIO MORELLI, Assistant in the Medical Clinic of the Royal University of Pavia, Maggiore Medico, Field Hospital No. 79. Translated from the Italian by LINCOLN DAVIS, Formerly Lieutenant-Colonel, M.C., U. S. Army; and FREDERICK C. IRVING, Formerly Major, M.C., U. S. Army. Boston: W. M. Leonard, 1920.

This is a most interesting volume detailing a method of treatment which seems to merit wide acceptance as soon as it becomes generally known. The translators were close observers of Morelli's work and results at Ospedaletto 79, which was attached to the 11th Corps of the Italian Army, directed by Morelli and devoted exclusively to wounds of the lung and pleura. They had the opportunity of studying some hundred of these cases treated by Morelli during the final actions on the Piave and its vicinity, and from interested sceptics they were soon converted to enthusiastic adherents.

Before reaching the text there is first a Letter from the Author to the Translators, in the course of which Morelli pays a tribute to the late Dr. John B. Murphy because, although he had independently conceived and applied therapeutic pneumothorax almost contemporaneously with Forlanini, Murphy gave the honor of priority to Forlanini. Next, there is a Translators' Note; then an Introduction, written on his deathbed by Forlanini; and finally a Preface by the author, in the course of which he says: "I gratefully acknowledge that all I have to say is the direct germination of what my 'Maestro' (Forlanini) has taught. I have applied his ideas on the treatment of phthisis, pleuritis, and empyema to war wounds of the lung and their complications, modifying and adapting the technique only to the special conditions."

After a short preliminary chapter on mortality statistics and pulmonary physiopathology, Morelli discusses the symptomatology and clinical pathology of wounds of the lung and pleura. His method of treatment consists essentially in creating or prolonging a closed pneumothorax, with removal of hemorrhagic or other fluid under appropriate conditions and with proper regulation of the pressure of the pneumothorax. All the details of time, circumstances, and manner of performing these maneuvers are discussed exhaustively.

With the apparatus described and illustrated, production of pneumothorax is easy and perfectly safe, the latter being attested by the fact of his having induced pneumothorax more than 1,000 times without fatality. His method of making a closed wound of the pleural cavity out of an open one is ingenious and seems effective. An interesting chapter on the clinical examination of patients with wounds of the thorax is followed by the detailed case reports of 65 patients treated by Morelli's methods and a long discussion of the features brought out by these cases.

The book is intensely interesting, the method of treatment seems logical, the results seem almost miraculous in many cases, and it is to be hoped that the book will have a wide circle of readers, particularly among the leaders of the profession, both medical and surgical; for we feel that the author has elaborated a technique which, if widely known, would result in the saving of a great many lives that will otherwise be lost through the employment of the more common methods. This applies not only to cases of wounds and injuries of the lungs and pleura, which are comparatively uncommon in civil practice, but also to cases of empyema, which we almost always have with us.

THE DISEASES OF THE NEWBORN. By Dr. AUGUST RITTER VON REUSS, Assistant at the University Children's Clinic and Director of the Department for the Newborn at the First University Women's Clinic in Vienna. With Ninety Illustrations. New York: William Wood & Co., 1921.

How long may a child be regarded as newborn? Considering the influence of several factors, the author of this book gives the first two or three weeks of life after birth as the limit of this period, granting, of course,

individual variations in the child. Then it is that the influence of that much-stressed period in the Freudian theory (intrauterine) has not yet passed off, while an endeavor is being made by the new organism to learn rapidly the strange environment. It is this time of growth, development, and accommodation to a very new world on the part of the infant which seems to be debatable ground for both the pediatric and obstetrician, so far as responsibility for its physical health is concerned. It is to clear the field of any haziness in this important period that this book has been written. It is a most interesting compilation on the subject, covering first, the physiology, feeding, nutrition, and all normal aspects of the new life, then going into the pathological side of each system of the body. The premature baby is included, but it is somewhat of a misfortune that no reference has been made to the later development or adult life of the premature child. The book emphasizes the point of defective vitality which is often the share of the premature, due to his prematurity. This big fact is so seldom taken into account in the history of such an individual's life as maturity is reached, and may form a large part of the background for much that is not understood either psychically or physiologically by many medical minds in the later treatment of such cases. Of course the author credits syphilis as being the cause of many such births, but he is generous, and allows the mother a little latitude for other reasons why she should have precipitated into a strange world offspring so handicapped from the very beginning.

Why should not the premature baby be of most valuable assistance to the psychoanalysts? Since he has not had the full time allowed for suppression into the unconscious of his many intrauterine impressions, he would seem to be an extraordinary morsel of study for these specialists as he steps along through life. One or two months taken from the lap of luxury might be a deterrent to any individual no matter how sturdily made he might be! Since the author apparently finished this compilation in 1912 and sent it forth in 1914, although this is its first appearance here, he has not much to say as to the effect of the reactions of internal gland secretions on the newborn, either normally or pathologically. The bibliography covers fifty-three pages and is most complete. The work is a mighty convenient means to keep at hand all types of knowledge on the newborn babe for either the pediatric, obstetrician, or general practitioner, if there are any such left.

TROPICAL OPHTHALMOLOGY. By ROBERT HENRY ELLIOT, M.D., B.S. (Lond.), Sc.D. (Edin.), F.R.C.S. (Eng.). Late Superintendent of the Government Ophthalmic Hospital, Madras, and Professor of Ophthalmology, Medical College, Madras, etc., etc. New York: The Oxford University Press, American Branch, 1920.

This volume comprises ten sections of which the first is a general introduction, the second, devoted to the action of tropical glare as a factor in eye disease, the third, to the part played by winds and dusts, and the fourth, to direct injury by insects, tics, etc. The fifth section is devoted to parasitic affections originating within as well as locally. The sixth and seventh sections deal with cataract operations including the native procedure of couching. Section VIII is devoted to diseases of the lids, conjunctiva and cornea and lacrymal apparatus. Section IX comprises miscellaneous affections, errors of refraction, glaucoma and neoplasms. In the tenth section we find the local eye manifestations of constitutional diseases. This volume, which contains 511 pages, 117 text illustrations and eight colored plates, should be read by every practitioner. It sheds side lights not only on domestic ophthalmology, but all aspects of clinical medicine.

OTO-RHINO-LARYNGOLOGY for the Student and Practitioner. By DR. GEORGES LAURENS. Authorized English Translation of the Second Revised French Edition by H. CLAYTON FOX, F.R.C.S. (Irel.) With a Foreword Contributed by J. DUNDAS GRANT, M.A., M.D., F.R.C.S. With 592 Illustrations. New York: William Wood and Company, 1919.

THE "meticulous minuteness" with which the details are given in this volume of 324 pages of text, the comprehensive scope of the subject matter, the profuse illustration, and the full index, render this a valuable addition to the reference library of the student, the general practitioner, and the specialist.

Society Reports.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

One Hundred and Fifteenth Annual Meeting, Held in Brooklyn, May 3, 4, and 5, 1921.

SECTION ON SURGERY.

(Continued from page 855)

Wednesday, May 4—Second Day.

The Interpretation of the History in Surgical Affections of the Right Upper Quadrant.—Dr. CHARLES G. HEYD, New York City, made this presentation. His paper was a plea for the art, rather than the science, of medicine, as represented by the correlation of the history with the symptomatology. He said that of 100 people complaining of gastric distress, 20 would have symptoms due to organic disease; 40 would have disease remote from the stomach; 40 would have some pathological process outside of the abdomen. The differential diagnosis must be between carcinoma, appendicitis, pancreatitis, lesions of the kidney, of the gall-bladder, and of the colon. *Acute appendicitis* would give a history of pain, colic, fever, leucocytosis, nausea, vomiting, in the first twenty-four hours, and, secondarily, gangrene and perforation. On admission there was usually muscle spasm and abdominal rigidity. Chronic appendicitis had a different picture, difficult to diagnose, which must be differentiated from ulcer of the stomach, and from gall-bladder disease. Symptoms were variable; there was low epigastric pain, indigestion, not always attributable to the same type of food, sometimes there was even hematemesis. *Gall-bladder Disease:* The gall-bladder, pancreas, liver, and stomach should be considered one physiological system; infection being the etiological factor of the lesions. In 75 per cent. of gall-bladder cases there were stones; in 25 per cent. infective processes. Four clinical types existed: (1) Disease confined to the gall-bladder; (2) attacks of biliary colic; (3) calculous obstruction of the common duct; (4) associated pancreatic disease. The clinical picture of cholecystitis was due to the motor-secretory disturbance, characterized by vague irregular dyspepsia, fullness, weight, distress, gas eructation after fatty foods; vomiting relieved the symptoms, which would not persist on an empty stomach. In duodenal ulcer, on the contrary, the patient would feel better with a full stomach. Cholelithiasis produced a sudden, agonizing pain, without warning, in the upper quadrant, which usually required morphine, but disappeared as suddenly as it came. The speaker said jaundice was associated with: (1) Cholecystitis; (2) catarrhal states; (3) hepatic cancer; (4) cirrhosis; (5) cancer of biliary ducts; (6) acute yellow atrophy. Stupor was associated with acute yellow atrophy and with cirrhosis in the terminal stages. *Pancreatic carcinoma:* This had a distinct history; the jaundice advanced in imperceptible stages, due to gradual compression of the ducts, not associated with chills and fever, but with distention of the gall-bladder. *Peptic ulcer:* In 75 per cent. of cases there was interference with emptying of the stomach, and pain related to ingestion of food. There was chronicity and periodicity. *Gastric Cancer:* This produced cachexia, and there was obstruction and vomiting in some cases. The differentiation between ulcer and cancer lay in the periodicity of the former. The cancer cases were of three types: (1) 30 per cent. of cases were in good health and were seized with sudden gastric distress, followed by quick physiological loss, emaciation, anemia; (2) 60 per cent. of cases had had chronic gastric ulcer for years, which responded to treatment; finally they ceased to respond and went progressively downhill and died in six or eight months; (3) 10 per cent. had had a typical ulcer history, going progressively downhill, becoming cachectic, and dying without regaining any ground.

Physiological Factors Underlying Operations upon the Stomach and Duodenum.—Dr. W. WAYNE BABCOCK of Philadelphia read this paper. He said that surgeons often made gross physiological errors. How.

many men had given meat broths, thus increasing acid after abdominal operations; had had the patient sitting up in bed with ruptured varix of the leg; had raised the head in cerebral hemorrhage; had given strychnine or alcohol for shock; had administered atropine in opium poisoning; had given morphine for the delirium of uremia; had used salt solution in renal embarrassment; had prescribed a protein diet in thyrotoxicosis; had increased the difficulty in inducing ether anesthesia by telling the patient to "take deep breaths"? These were but a few of the common mistakes. Dr. Babcock said the physiology of the stomach was just beginning to be understood. Briefly it might be said that the stomach was J-shaped, the greater, vertical portion being for storage of food, and the lower portion for mixing and grinding. The food was stacked in layers, the last taken, resting near the fundus, the first taken resting near the pylorus. The layers varied in reaction. The pyloric antrum would give alkaline mucous secretion; the prepyloric area secreted pepsin and hydrochloric acid; the fundus and cardia were free from acid. The food did not actively mix so while the cardia was alkaline, the prepyloric area remained acid. That was to say this condition was found 20 minutes after a meal; one hour and a half after, the fundus had acid contents, and the antrum was alkaline from regurgitation of bile. Liquids passed readily out of the stomach. The food entered the stomach teeming with bacteria from the mouth, which was sterilized by the gastric juice, so that intestinal digestion began unhampered by bacterial contamination. The acid chyme was ejected in spurts into the duodenum, by relaxation of the sphincter, and Oddi's muscle let the fluid out of the bile duct. Secretin was formed in the duodenum and stimulated bile and pancreatic juice. When the chyme was neutralized the pylorus again relaxed, and took another spurt of chyme. There was also an ileopyloric reflex which acted like the signal of a block system. The traffic was not allowed through until the road was clear ahead (by emptying of the ileocecal valve). Leakage of the acid gastric juice into unprotected portions of the bowel caused ulceration. Thus anastomotic operations of the stomach and intestine were frequently followed by ulceration. The protective action of the bile on the stomach was being slowly appreciated. There was a reflux of alkaline bile into the stomach two hours after a meal, which served as a resting medium of the stomach. Probably nausea and vomiting was a protective mechanism, and after the stomach was coated with bile the nausea ceased. Peptic ulcers occurred in portions most exposed to chyme, and unprotected by the bile. Thus in operations which allowed of bile regurgitation, the ulcer-bearing area was protected. It was difficult to entirely neutralize the chyme, because acid producing cells would go on secreting in the presence of alkali. A continuous loss of bile was followed by dyscrasia, and such patients could not stand a second abdominal operation. In old and weak patients, therefore, the safest operation was internal drainage, by anastomosis between the stomach and gall bladder. This prevented obstruction of the biliary system and allowed of prompt wound closure. Often chronic biliary obstruction, suddenly relieved, was followed by cholemia and death. Sometimes it was not safe even to remove stones at a first operation. Internal drainage would save the patient for a second-stage operation; cholecystogastrostomy, or cholecystoduodenostomy. Care must be taken not to traumatize the tissues if the patient were very toxic. In infection of the common duct local anesthesia and a transverse incision were useful to save traumatism of the duct. In Hanot's cirrhosis with marked jaundice a patient had remained symptom-free for 3 years, after cholecystoduodenostomy. It should not be forgotten that some portions of the intestine should be fixed, and some required mesenteric attachment. The duodenum and ascending colon (the great liquid stand-pipe of the body) should be fixed, the jejunum required freedom. It had been said that "We drink with the ascending colon, we eat with the jejunum and ileum." If posed, the heavy, water laden ascending colon would drag upon the right kidney, gall bladder and upper duodenum, giving rise to renal, biliary and gastric symptoms. In conclusion, if any present had made no errors in surgery, due to unrecognized physiological

conditions, the speaker said they had his congratulations.

The Reflex Stomach from the Surgeon's Point of View.—Dr. GEORGE D. STEWART of New York City presented this communication. He said that while it was agreed that the patient is a compound of certain interrelated systems, it was never acted upon. The system primarily at fault was accused. One had heard that the thyroid was a procreative organ, but so was a good pair of legs. The stomach was the spokesman for a good many organs, and its language was either motor or secretory. Crile had recently come out with the statement that stomach chemistry was not much good from a diagnostic standpoint, and the speaker said he was glad to give it up. The motility of the stomach he thought was more important than the chemistry, because while gastric response by secretion was very interesting, it did not tell where the stimulus was coming from. The central nervous system had to do with the response, and while duodenal ulcer would make itself quickly felt by pain, ileocolic disturbance had to make trouble a long time before it would be heard. To understand reflex paths of the stomach one must understand the nerve supply, by the autonomic or vegetative nervous system which controlled the smooth muscle in general: digestion, heart, lungs—all necessary to life. This system did what the voluntary system did not—it took care of the lowest functions of animal life. It comprised the sympathetic and the parasympathetic. The vagus coming from the medulla influenced the alimentary canal, stomach, and small intestine; and the lower part of the cord sent off the pelvic nerve, controlling the bladder, rectum, and secretory glands. The sympathetic consisted of ganglia of the 2d thoracic to the 3d lumbar. The parasympathetic and sympathetic were direct antagonists, one producing motion, one inhibition. While they should be better physiologists than they were, they could get into too much complication, about the reflexes, and if they stuck to the history they would do better. Briefly, one could say that the vagus controlled the alimentary tract from the fauces to the rectum, then the cord took control of the sphincter; but, going down the tract, the nervous control became less important and the chemical action more important. The reflexes were so complicated and so interlaced in action that they might be produced at any level; they might be visceromotor, viscerotrophic, or visceroviscero, so that one must go very carefully in interpreting them. There were many conditions causing the stomach reflex, *outside of the canal*, such as diseases of the generative organs in the female, mobility of the kidney, disease of the central nervous system, toxemias, tuberculosis, syphilis, cardiovascular-renal disease; and *in the canal* there might be duodenal ulcer, cholecystitis, Meckel's diverticulum, chronic ileocecal conditions, gall-bladder disease, appendicular lesions. Thus hypermotility was associated with gallstones in 68 per cent. of cases; with duodenal ulcer in 75 per cent.; with chronic appendicitis in 55 per cent. Dr. Babcock had suggested there was a block system, and one could find traces of this at seven sphincter points, regulating the traffic; such were the pharyngeal, esophageal, pyloric, duodenojejunal, ileocecal, transverse colonic, and rectocolonic. There might be centers for each one of the sphincter points. Study of the cases diagnosed at Bellevue Hospital, with gastric symptoms, showed that all such cases gave clearly diagnostic histories, which should classify the case, so that while one should bear in mind the reflexes, one should not be confused by them. The term "reflex stomach" should be abolished from the literature, often being an excuse for laziness and inefficiency. A careful study of the history in intestinal, gall-bladder, and appendical cases would lead to correct diagnosis and avoid many reflex mistakes.

Dr. PETERSON of New York City said that he thought history taking was an art, but the interpretation of the history was a science. It behooved them to take as good a history as possible and to interpret it accurately, but not to neglect to take into consideration the reflex conditions that Dr. Stewart thought so little of.

Dr. W. D. JOHNSON of Batavia, N. Y., asked where did Dr. Babcock get all his physiology? It was not in the text-books. All the experiments recorded contained

the words "there may or may not be . . ." which gave no information at all. Of 4 000 experiments quoted in one book, less than 40 were productive, so that one had to go slowly in applying these experiments to human physiology. Dr. Babcock had that rare faculty, the scientific imagination, and he was able to project it. Dr. Johnson said he was glad some one had the courage to try cholecystoduodenostomy. The man of 30 years ago was proud of his knowledge, and they must be proud of theirs of today for it was the only chance they would have. Thirty years hence they would be ashamed of what was believed today. When they remembered the postoperative treatment of 30 years ago they recalled that the patient thirsted and was given warm water in a teaspoon; he was in agony and was grugged morphine. The medicine of that day was tinctured with the theology of that day, everything that man liked or wanted was bad for him. Probably some of the accepted theories of today were equally fallacious. There had long been an idea that bile-bathed wounds did well. Dr. Babcock had said that the fluids of the upper digestive tract were sterile. Charles Mayo had said that gastroenterostomy was like tile drainage, it kept the stomach sweet. Probably many of these surgical conditions of the upper abdomen were the penalty man had paid for the upright position.

Dr. E. M. STANTON, Schenectady, N. Y., said he thought stomach reflexes were associated with many different conditions, such as biliary colic, renal colic, etc., and many patients had subjective symptoms referred to the gastrointestinal tract, the chief of which was vomiting. Notwithstanding the enormous number of laboratory tests, and the availability of the x-ray, the important fundamental thing was the careful clinical history of the case; with that, additional data might be of great service; without it, they might be dangerous and misleading. The successful interpretation of the history lay in the ability to pick out the relevant from the irrelevant. He had kept careful clinical records for 14 years, and could say that there had not been a single case cured by himself or another surgeon in which there was not some symptom in the clinical history which pointed clearly to the diagnosis. Many errors crept in by reporting cases two or three months after operation. One could take almost any class of indigestion, and do any practical operation in the bowel and the patient would be benefited, either by psychological cure, by operative rest cure, or some other factor, but take the case years afterwards, and one could say something more definite. The really cured cases were clean cut.

Dr. E. W. LEE of New York City, said they were likely to stuff themselves at this banquet of learning, and to hear more than they could digest. The amount of things to be considered in a diagnosis was confusing. He never made a mistake in diagnosing a patient whom he saw alone in his office, but when he went to the hospital and several men saw him the speaker began to wonder what was the matter with him. In other words, the history depended upon the man who took it. The question was, were they going to let the patient tell his story, or to question him and let him say what he thought he was expected to say? The prognosis depended upon the diagnosis. This depended upon the history. Andy McCosh got a case in which the history made it uncertain whether a brain tumor was on the right side or the left, so he opened both sides. Perhaps Dr. Stewart would tell what number of diagnoses were made at Bellevue Hospital which were confirmed by postmortem examination.

Dr. C. G. HEYD, in closing, said he wanted to emphasize one point, and that was that if one had 100 patients, with a carefully made history, and had another series of 100, in which the x-ray and laboratory tests were carefully made, then submitted these data to an expert, the diagnoses based on histories would have a much higher percentage of correctness. He was grateful to Dr. Babcock for clearing up several points, and to Dr. Stewart for amplifying them.

Dr. G. D. STEWART, in closing, said that they were closely in accord in the fact that history and judgment based on observation were the important things in making a diagnosis. In regard to Dr. Babcock's paper, and his own, he recalled what the devil said when he saw the revised version of the Bible, "The plot is the

same." He believed that in the end they were coming back to some form of pyloroplasty, so as not to disturb the chemistry of the organs. One might draw that inference from the studies of Dr. Babcock. In time one should find some way of curing these people without operating. Dr. Johnson was a philosopher: many things would doubtless be discarded before some of them were gone. The progress of science was not static but dynamic. The Principia of Newton was being assailed in New York City today, and there was nothing permanent but beauty, and love, and Santa Claus.

Gastroduodenostomy, versus Posterior Gastroenterostomy, in the Treatment of Duodenal Ulcer.—Dr. W. W. PERCY of Rochester, N. Y., made this presentation. The speaker asked whether the technique of gastroenterostomy were really justified by its results. The operation of Finney, called pyloroplasty, was really gastropyloroduodenostomy. The ideal method was to do away with the pathological condition, without disturbing the normal relationships and normal secretions. The degree of relief to the patient must be considered, as well as the permanency of cure. The aim was to get the stomach to functionate with as little effort as possible, by making an opening for the food to pass out. With an obstructed pylorus nature had to make a greater effort to evacuate the food, thus causing the pathology. The opening of gastroduodenostomy gave free drainage to the stomach and lessened the acid. Nature tried to open the pylorus even when the gastroenterostomy was functioning well. The bile and duodenal content assisted in reducing acidity and healing of the ulcer. The technique of gastroduodenostomy was supposed to be more difficult than that of gastroenterostomy, but that was only because men were less familiar with it. When practised it was easier, and the statistics were better, with fewer recurrences and low mortality. A slight modification of the Finney technique had been used.

Dr. JOHN E. JENNINGS of Brooklyn, said that the treatment of gastric ulcer would be ideal if we could remove the cause, which we did not know and for which we were groping. They might correct the deformity, which was usually at the pylorus. In the older cases with scar formation he thought some form of pyloroplasty preferable, not necessarily standardized, but one in which the punishment would fit the crime. Plastic work would be done more and more, though it was the substitution of one form of pathology for another. In gall-bladder cases it was foolish to do gastroenterostomy, because infection was pouring into the common duct. The diagnosis was really made on opening the abdomen although the history gave one a suspicion.

Dr. W. W. BABCOCK of Philadelphia said he was glad to hear Dr. Percy contrast pyloroplasty with gastroenterostomy. Many of them were thinking along the same lines. Dr. Jennings was an opportunist, and he had been impressed the same way, that was, that on opening the abdomen, and dealing with adhesions one must treat the deformity as each case required. One did not get one set form of operation. When one got scar tissue the free mucosa above slipped down and one could do pyloroplasty, which gave good cosmetic and functional results.

Dr. W. W. PERCY, in closing, said that Finney had laid stress on the opening of the stomach and duodenum, which gave splendid access to the ulcer area and made possible its treatment. The object of this paper was to call attention to the fact that personally the speaker believed surgeons were doing gastroenterostomy as a routine measure without thinking of a better procedure. One should reconsider the advisability of using this routine procedure which produced so many poor results.

JOINT MEETING WITH SECTION ON NEUROLOGY AND PSYCHIATRY.

Wednesday Afternoon.

DR. MICHAEL OSNATO of NEW YORK in the Chair.

The Accomplishments of Intracranial Surgery.—Dr. CHARLES H. FRAZIER of Philadelphia made this presentation. He said that local anesthesia should be deprecated in cranial surgery, as it was too trying for

surgeon and patient. In the war, cranial defects were a common operation, and experience taught a return to the original technique of pericranial grafts. *Brain abscess:* Otolologists usually performed operations on these lesions, and often were responsible for their occurrence if middle-ear infection were neglected. To detect these lesions early two points were necessary: (1) intimate knowledge of the parts concerned; (2) intimate study of the literature as to verified point of origin. The LeMaitre technique was very useful. A fine exploratory needle was first introduced, then gradually fine drainage tubes were inserted to take its place, ending with drainage tubes of larger caliber. This protected the meninges and subarachnoid space with a wall of adhesions, and secondary meningitis did not occur. In *Pituitary body disturbance*, loss of vision, headache, and pressure phenomena occurred. The question was how best to restore or conserve vision. One must determine how far the lesion had progressed, whether or not beyond the sella. Two routes were favored, the transfrontal route and the sphenoidal route. The latter gave a lower mortality but the former exposed the process better. X-ray or radium, combined with decompression gave the best results in pituitary lesions. In *Trigeminal neuralgia*, the picture was usually clear cut, but there might be some atypical cases. One should be sure of the diagnosis before resorting to radical operation. Sometimes coacination of the phenolpalatine ganglion, by the Sluder technique, was indicated. Some of these obscure neuralgias had origin in the sympathetic system, which bordered on the trigeminal. Either the motor or the sensory root could be sacrificed, as occasion demanded. *Brain tumors* were of many kinds, and varied as to structure and location. The epitheliomata differed from gliomata for instance, and location might be tentorial, subtentorial, cerebellar, or of the acoustic roots. A technique had been tried of injection of air into the ventricles to see if they were dilated or collapsed. Another plan was that of intravenous injection of saturated salt solution to relieve pressure by reducing brain volume. Two points were important; reduction of pressure and prevention of hemorrhage. Autotransfusion of 600 c.c. of titrated blood would often prevent untoward reaction after operation. The removal of this amount from a healthy person previous to operation made little difference, and it could be kept in a refrigerator until needed. Closure of the defect could be done with thin scale-like layers of periosteum of the outer table.

Dr. A. W. ADSON of Rochester, Minn., said that it was a pleasure to listen to this paper which had called attention to significant surgical problems. The question of transfrontal, versus transsphenoidal operative route was a difficult one. The transfrontal had a higher mortality; the transsphenoidal route, combined with radium offered more than any other type of surgery. Radium would have a definite field in brain surgery. In the pituitary lesions there was a percentage of hypo cases, as well as aramegalics. They were now operating on the cases with hemianopsia.

Dr. CHARLES A. ELSBERG of New York said that Dr. Frazier had mentioned the points of chief interest in brain surgery. In regard to pituitary tumors and the decompression operation, as years had gone on he had done fewer and fewer decompression operations, and then only as part of the operation for removal of the tumor. One was often asked to do decompression for patients in stupor, but it would never relieve such patients; it often made them worse; in fact they never woke up from the operation. In the subtemporal decompressions the patient would be left with a huge bump on the side of the head and would not thank the surgeon for it. In the infiltrating growths, decompression would not benefit eye symptoms, or relieve hemorrhage or hemiparesis. One could accomplish more by permanent drainage of the ventricles, because of the ventricular distention in tentorial tumors. Many ventriculograms had been done but the ideal had not been reached, and would not be, until they found a fluid which could be diffused all through the ventricle. At present it was necessary to empty the ventricles entirely, and substitute air. This was a dangerous procedure and great care was needed; meanwhile they should look for something better.

Dr. FRAZIER, in closing, said he was glad Dr. Adson advised radium in pituitary lesions. He thought there was a future for that treatment. The pituitary differed from the thyroid, but with adjustment of technique, radiation could be used. Dr. Elsberg had mentioned the limitations of cerebral decompression. It was of use where there was no growth, or in early cases, but in advanced cases removal of the tumor was essential.

Remarks on Spinal Cord Surgery.—Dr. CHARLES A. ELSBERG of New York City presented this topic. He said that he would not speak of operative procedure, so much as of symptomatology. Pain in spinal cord disease was very significant, and led to many diagnostic mistakes. The gastric crises of tabes had been mistaken for peptic ulcer, and many abdominal symptoms occurring in spinal cord disease were not correctly recognized. This question was of interest to the internist and the surgeon as well as to the neurologist. Patients were now being seen and operated upon earlier for spinal tumor, and brain tumors were recognized before the patient got choked disks. Still diagnostic errors were made. Without criticism, the following cases were reported: (1) a young girl, supposed to have appendicitis, with high temperature and rigid rectus muscle. Examination showed extreme skin tenderness (not deep) in the lower right quadrant. The patient was found to be suffering from cord pressure from an old Pott's disease. (2) A woman, 50, had iliac pain. The appendix was removed; the kidney was sewn up; the ureters were catheterized. As she still complained of pain, she was labeled "hysterical," and by and by found her way to a neurologist. Examination by the latter discovered exaggerated ankle reflexes, and slight disturbance of the plantar surface of the feet. Spinal cord tumor was suspected, and the patient was operated on. A lower dorsal tumor was removed, and the patient got well. (3) A woman with pain in the right hypochondrium, a suspected cholelithiasis case, was operated on and a few stones were removed, without relief of the symptoms; the appendix was then removed, without improvement; then a right inguinal hernia was treated without result. The woman was finally considered "neurasthenic" and sent to a neurologist. Slight neurological signs were found suggestive of spinal tumor, and at operation three small tumors were found lying on three nerve roots. Removal caused complete recovery. (4) A case of coccygeal and rectal pain in which there were various operations on the rectum without result, and which proved to be a tumor of the roots of the cauda equina. (5) Man with prostatic symptoms and cystitis, due to tumor in front of the cord. (6) Young woman, 22, just married, difficulty in urination, which was thought to be due to a small fibroid. An abdominal hysterectomy was done, but later it was discovered that there was disturbance of sensation over the rectus. A typical neuritis of the cauda equina roots was found, which yielded to careful rubbing of the roots with bichloride. (7) A woman sent to the neurological institute for bladder symptoms, who was found to have varicose veins in the spinal canal, causing pressure; removal cured the symptoms. These cases pointed to the necessity of thinking of the spinal cord in pains of obscure origin, and of making at least a superficial spinal examination.

Dr. CHARLES H. FRAZIER of Philadelphia said that these cases emphasized the necessity of watchfulness for typical as well as atypical cases. One should do exploratory operation where the lesions could not be accounted for in other ways. In answer to a question, Dr. Frazier said that there was scarcely an appreciable amount of decompression from opening one layer. In pretentorial lesions they tried not to lower the pressure. There was a difference between the pretentorial and subtentorial types.

Dr. CHARLES A. ELSBERG, in closing, said that changes in the cerebrospinal fluid, in tumors, were due to pressure. The nature of the pains varied exceedingly, sometimes being intermittent, sometimes constant. When the tumor pressed upon the nerve, in any position of the patient, there was pain. There was no particular characteristic of the pain, as regards time or location.

The Surgical Treatment of Brachial Plexus Injuries.—

Dr. A. W. ADSON of Rochester, Minn., presented this communication. These lesions might vary from involvement of one muscle to all, and from slight compression of one nerve to complete laceration of the entire group of the sheath and fasciculi, with evulsion of the nerves. Patients were divided into three groups: (1) under 2 years, (2) between 2 and 5 years, (3) over 5 years. Two views were held by two schools as to injury to the brachial plexus; one holding it to be purely nerve injury; the other to be an injury of the shoulder joint, producing laceration of the capsule, by effusion of blood and formation of scar tissue. One point was shown, that if the orthopedic lesion were reduced the paralysis disappeared. Operation, however, did not produce perfect results. Often in later life the individuals had atrophy and wrist drop. The relation to long and difficult labor was definite. Of 45 patients, 27 were forceps deliveries, with 3 breech presentations, thus showing there was traction on the head before birth. Other cases in adults were caused by war wounds, and stab wounds in the arm. The greatest amount of recovery took place in young children under 2; these recovered 56 per cent. of function. It would seem in older cases that exploratory operation might be done, but surgery held out very little hope in brachial plexus cases.

Dr. ALFRED S. TAYLOR of New York said that he was interested in the statistics, but he differed frankly from the views of the speaker. He felt that statistics were misleading because though he had operated on a number of cases, no two were just alike. In experimental work, different men got different results. His own work was confined to new born infants. It would be easy to reproduce the lesions found at this age. In one case of difficult labor, with the head not engaged, and a deformed pelvis he was obliged to make traction on the shoulder and felt the right brachial plexus give way, and there was a birth palsy lesion. The child died two hours later, and they had the body for examination. After hardening, they found the typical lesions described in the communication of Park and Taylor, so that traction was felt to be one of the chief factors. The lesion would be one of the 6th cervical, in 30 per cent. In regard to age, most cases showed improvement under two years. If it occurred after 5 it was due to neurogenesis. The posterior dislocation of the shoulder doubtless occurred later, as a consequence of the birth lesion. Of 30,000 cases at the Lying-in Hospital, Dr. Painter never saw one of posterior shoulder dislocation. In adult cases the results of treatment were not as good as in children. The best results were obtained from putting the arm in as good a position as possible at the time of birth, giving the traumatized nerves opportunity for recovery.

Dr. A. W. ADSON, in closing, said that he had presented the figures as they stood, without attempting to draw conclusions from them, nor to advocate any particular type of operation. His own results were had in adult cases. He thought statistics would help them to come to some sort of definite conclusion as to the future of the patients, by showing which result was good and which was bad. These cases were more or less indefinite, and no doubt some of them were not surgical at all. Sometimes tendon transplantation was indicated, sometimes arthrodesis.

Cervical Ribs, With Special Reference to the Surgical Treatment.—Dr. ALFRED S. TAYLOR of New York City made this presentation. He said that this deformity occurred in one in 300 cases, was usually bilateral, and varied greatly in size, from an exaggeration of the transverse process to a fully developed rib. The trouble was occasioned by pressure on the nerves, 7th and 8th cervical and first dorsal, passing over the blade-like edge of the rib. In round ribs there were not so many symptoms. The type of disturbances varied: there was sometimes sensory disturbance of the ulnar distribution, sometimes circulatory disturbance with formation of aneurysm. Thrombosis of the artery and gangrene might occur. Complications might be myositis of the neck muscles and neuritis. The treatment was operative, but care must be taken not to do damage to the brachial plexus, or the consequences would be serious. There were three types of operative approach: (1) anteriorly, getting at the rib in front of the plexus; (2) lateral exposure; (3) the posterior route, going to

the side of the spinous processes, through the trapezius. In this it is difficult to get out the head and neck of the rib. The muscular and aponeurotic attachments of the rib must be removed. If periosteum were left there would be a recurrence. The consideration of the cosmetic result was important.

Dr. BYRON STOOKEY of New York City said that while the x-ray showed an apparently normal head there were symptoms of the 8th thoracic. There were two distinct types of plexuses: the first thoracic and the 2d thoracic. In the plexus of higher origin, the development of costal structure, by pressure, prevented formation of a cervical rib. By implication of fibers within the thoracic plexus and irritation of the sympathetic fibers within the nerve trunks, vascular changes were produced resulting in abnormalities.

The Surgical Problem of Nerve Defects.—Dr. BYRON STOOKEY of New York City read this paper. He said that the first operations on nerve tissues were by bridging the gap by catgut strands, or by turning down a flap of the nerve. These were of no use, and simply created scar tissue. In very rare cases the latter became a nerve transplant, but usually the operation failed. Another method was nerve transposition, passing the nerve through a course shorter than normal; thus by putting the ulnar nerve in front of the elbow, or the median in the pronator teres, a shorter route was acquired. Nerve stretching was another method which was useful, but had its limitations, for if stretched too far the fibers ruptured and small hemorrhages occurred within the nerve; the anterior horn cells showed chromatolysis and the nerve fibers degenerated in consequence. A nerve graft, with multiple fibers had to be used to bridge too large a gap. This was according to the experimental work of Huber, and clinically some cases showed recovery. Elsberg had reported one success, Frazier one, Gusset four, and Joyce, in England, several. Lantern slides were shown to illustrate the distribution of blood vessels in the neurium and perineurium, and the lack of elastic tissue in the peripheral nerves preventing their stretching. In the graft large fibers should be avoided, as the central portion had fewer neuraxons than the periphery,—probably a matter of nutrition, and a large graft was not of much use.

Dr. A. W. ADSON of Rochester, Minn., said that overstretching of the nerve was dangerous. In trigeminal neuralgia one relieved the pain by peripheral evulsion. He said he had not been successful with nerve grafting. One must not forget the value of orthopedic measures, such as tendon transference and arthrodesis. Functional results were what the patient wanted, rather than indefinite waiting.

Dr. ALFRED S. TAYLOR of New York said that he did not agree with Dr. Stookey entirely. Somebody could always report a successful case of a method which had been condemned. There were always these exceptional results. One should, however, use the method that would give 100 per cent. results. He agreed with Dr. Adson that the results in peripheral nerve grafting were unfavorable.

Dr. B. S. STOOKEY, in closing, said that if the sutures were not tied with the precise amount of tension, and the ends apposed, the result was poor. One-eighth or one-sixteenth of an inch off spoilt the result. One might bring the graft behind the cross section and away from the nerve. The technique was not very difficult, but it had to be very precise or the neuraxes would not go through. In regard to Dr. Taylor's point, the speaker said he knew one case in which the nerve-flap operation had been successful.

Thursday, May 5—Third Day.

Synergistic Analgesia.—Dr. JAMES T. GWATHMEY of New York presented this topic. He said that in the endeavor to find a substance that would improve the injection of morphine he found that magnesium sulphate, 25 per cent., chemically pure, combined with morphine produced a very reliable synergistic analgesic. The perception of pain was dulled by doses that hardly affected ordinary sensibility. The mechanism was probably that the magnesium held the morphine in contact with the central nervous system. The majority of patients preferred to be unconscious during an operation, and to know nothing about it. Local

anesthetics should be used to quiet the cutaneous nerves. In morphine and magnesium sulphate anesthesia the breathing was like natural, but prolonged, sleep. Nausea and vomiting were reduced to a minimum, the waking was pleasant and there were no gas pains. The amount of morphine required was a minimum. Patients were carried through the pain zone and woke comfortable. Appetite was better and there was a shortening of convalescence.

Anesthesia: Its Place in the Practice of Medicine.—

Dr. J. J. BUETTNER of Syracuse made this presentation. He said that anesthesia was concerned with life and death, more so than the scalpel. The anesthetist should be a consultant capable of preparing the patient properly and of giving the anesthetic best suited to him. Light anesthetic often saved the patient. Physicians should have special instruction and training in the art of anesthesia, and the anesthetist and surgeon should be in close cooperation. The extra trouble taken in careful anesthesia was compensated for by the easy and pleasant convalescence of the patient.

Anesthesia With Nitroxxygenated Ether Vapor.—Dr. ADOLPH F. ERDMAN of Brooklyn made this presentation. He advocated the use of nitrous oxide for carrying other agents. Oxygen was the corrector and ether the base. The machine ran itself, and the apparatus was portable, the dosage was automatically controlled. The closed method was not always used, and patients were often allowed to rebreathe. The relationship of oxygen and CO₂ was important. The patients received a gradually increasing volume of straight gas, oxygen was begun as needed, and ether turned on when necessary. The method was easy and direct and very useful in the speaker's hands.

Dr. CHARLES H. SANFORD of New York City said he had used this method for some years with great satisfaction; they had the best kind of conveyor of vapor (chloroform or ether vapor), with a reliable apparatus which gave constant dosage which could be regulated to keep the patient under anesthesia for several hours. He thought the closed method was to be preferred, the dosage was more constant, and regular proportions of nitrous oxide and oxygen could be given. He did not believe ether would ever go out of use.

Dr. ADRIAN V. S. LAMBERT of New York said he wished to bear testimony to the impressions he had gained by the use of magnesium sulphate in connection with morphine in anesthesia. He was quite convinced that that combination gave a greater degree of relaxation for abdominal work than nitrous oxide anesthesia alone, with prolongation of analgesia. Less anesthetic was required for intraabdominal operations. In one instance where the patient recovered from an unsuccessful attempt to remove a cord tumor of the sacral region, and suffered reflex action of the lower extremities, the action of morphine alone was without much effect, but combined with magnesium sulphate, it caused 18 hours cessation of the reflex movement. The administration lately had consisted of a 5 per cent. solution, 300 c.c. subcutaneously as a hypodermoclysis, which had procured uniform results.

Dr. GORDON of Philadelphia reported 100 cases of synergistic analgesia at the University of Pennsylvania. One half hour before operation they gave $\frac{1}{4}$ grain morphine and 25 drops magnesium sulphate solution; 15 minutes later, another dose, and 15 minutes later 1 oz. ether with olive oil and paraldehyde, per rectum. The blood pressure was not changed and post-operative vomiting was nil.

Dr. J. J. BUETTNER, in closing, said he had used pantopan, rather than morphine, and vomiting was the exception rather than the rule. In nitrous oxide anesthesia he gave straight gas and oxygen, very little ether was used.

Dr. J. T. GWATHMEY, in closing, said he got splendid results with rectal anesthesia, and had reduced ether to a vanishing point,—one or two oz. per rectum.

Painless, Non-disseminating, Chemical Removal of Inoperable Cancer of the Breast and Metastasized Axillary Lymph Nodes. With Report of the First Forty Cases, 1898-1920.—Dr. CHARLES W. STROBELLI of New York presented this communication. His report covered 215 cases, with 90 deaths, and 63 nonrecurrences. This compared favorably with approximately 50 per cent. of recurrences after surgical removals in operable

cases. His cases were advanced inoperable ones. The reason for surgical recurrences was that showers of infected cells would fall into the vascular stream. In chemical removal the dissemination was nil. Arsenious acid was first used as a cauterizing agent in the first experimental case, but since then zinc oxid, in concentrated solution, and in a paste form was used, thickened with flour so that it could be spread on. The devitalized tissue could be easily and painlessly removed, until the whole breast was bared to the chest wall. Skin grafts were then sewn in the form of Thiersch grafts. No pain was felt if the chemical was confined to the carcinomatous areas. Such growths as scirrhous, fibrocarcinoma, adenocarcinoma, and some carcinoma had been completely removed. Thirty-two patients had died in from two to eight years after removal, generally in coma. The author was contemplating the application of this method to operable early cases, hoping to obtain better results than in surgical removal.

Dr. WM. S. STONE of New York said that this paper was a very important contribution, in regard to the fact that it provided an additional resource in inoperable cases. The first treatment of cancer was by quacks, as surgeons did not have the courage to attempt it. The chemical treatment fell into disuse when modern surgery came into being. The scar, however, after the chemical method was a much better one, and local recurrences were fewer. Dr. Ewing thought that the work had a good theoretical basis in the use of zinc chloride, on account of the excessive leucocytic exudation, in which vagrant cancer cells were destroyed. In other words, a protective layer was thrown out. The x-rays and radium produced lymphocytic exudation, and heat produced dilatation of the vessels. It must be remembered that Dr. Strobell had taken the riff-raff, cases that no surgeon would touch, and he had obtained results comparable with average surgical statistics. The skin grafts had been uniformly successful. If he had merely succeeded in making the patient comfortable for a year or two more of life, he had done well. The twilight sleep was used for taking off the skin.

Dr. L. DUNCAN BULKLEY of New York said that he considered this method a wonderful addition to the therapy of cancer. They had not allowed a knife to touch these cases for some years. It would seem feasible to use this method in early cases, as the scar was much better than the surgical one and recurrences fewer. The method was painless and the skin grafts took well. He was in favor of chemical removal. He believed it was a great advance in the local treatment of cancer. The paste was mixed with charcoal, so as to show the edge of the application, and not to cover the unaffected skin. Removal of the sloughs was painless.

Dr. STROBELL, in closing, said that the scopalamine-morphine treatment added much to the ease and painlessness of this method. The patients went to sleep and by the morning had forgotten about the operation. Removal of devitalized tissue caused no pain. Scopalamine was also useful in minor surgical operations and painful examinations. The patient remembered nothing of what had taken place.

JOINT MEETING WITH THE SECTION ON MEDICINE.

Foreign Proteins.—Dr. DAVID M. COWIE of Ann Arbor, Mich., read this paper. He said that a distinguished anatomist of the last century said to his students, "Beware of making anatomical discoveries." The field had already been reaped; next came the gleaners, next, waddling, came the geese. The speaker added, "Gentlemen, we are the geese." What, he asked, was the nature of nonspecific proteins? Men were waddling here and there picking up grains of information, but they did not know the mechanism. There were many infectious processes running a definite course and terminating in cure. There were others tending to chronicity and bodily abnormality. Arthritis was one of these. One should be interested in potential disease and attack arthritis in its potential stages. In this disease cure was not so good as prevention. In regard to foreign protein, its intravenous injection caused changes in the blood; leucopenia occurred in a few minutes, probably by positive chemotaxis, and taking of leucocytes from the general to the

capillary circulation. Then there occurred a hyperleucocytosis with formation of new cells, and the leucocytes were carried to some part of the body. There was increase of immunological products under injection of the foreign protein—not the bacterial immunoproductions, but those of general body resistance, such as lipases and cytases. The chemical content of the blood was not changed, although some workers had found change in amino-acid nitrogen and urea nitrogen in anaphylactic shock. The speaker did not think that the protein paroxysm was anaphylactic; it was an entirely different form of reaction. The foreign protein merely mobilized the immunological products. Foreign protein reactions were not constant, and while they caused results, did not induce permanent improvement. In furunculosis, gonorrheal vaginitis, iritis, and corneal ulcers, there was marked result. In chorea 61 per cent. of the attacks were definitely stopped. The question was, what would have happened if one had let the patient alone? Did the primary rest period do the work? In arthritis there were definite structural changes. The attacks were benefited by foreign protein therapy. This was true in inflammatory cases without cardiac involvement, and in subacute cases. The dosage that had been used was one of 500 million killed typhoid bacilli, as the maximal dose. Cardiac conditions and hyperthyroidism were contraindications. Nephritis had never been caused by this therapy. In one case, an infant with aplastic anemia, there was a good response and the blood picture was improved.

Dietetic Treatment of Arthritis, With Special Relation to Maximum Fat Feeding.—Dr. FLOYD R. WRIGHT of Clifton Springs, N. Y., read this paper. He said that diet was important in chronic arthritis and needless restriction of diet increased the disease. In the acute cases the diet was to be entirely different. In the chronic type one must maintain the patient's strength. Osler advised a full nitrogen diet. Pemberton found that meat could be ingested with benefit but that there was a lowered sugar tolerance in proportion to the arthritic process. The blood sugar chemistry showed difficulty in handling carbohydrates. Some food must therefore be used to compensate for lack of carbohydrates. Fats must be substituted in the diet, in a proportion of 10 per cent. protein, 10 per cent. carbohydrates, 80 per cent. fats. The basal requirement of the patient must be found and weight maintained; 80 per cent. fat might be found high in some cases, but 70 per cent. could be well tolerated.

Treatment of Arthritis by Drugs.—Dr. SAMUEL W. LAMBERT of New York City read this paper. He stated that chronic arthritis (excluding tuberculosis, lues, and gonorrhea) was usually of streptococcal origin, and was a chronic disease with acute exacerbation. There were general systemic reactions with the attack. The urine contained more acid. The urinalysis and the blood chemistry were not always parallel, sometimes one, sometimes the other showed higher uric acid and glucose. The origin of infection might be the pelvis or the alimentary canal. Probably secondary infection of the colon played an important part. The primary source of infection (teeth, tonsils, gall-bladder, male or female pelvis, etc.) must be treated, and the intestinal infection controlled. Drugs useful for intestinal disinfection were phenol combination with beta-naphthol, salicylic acid, or salol. Diverticula of the intestine were fruitful sources of infection. These could be disinfected with bismuth subcarbonate, or cerium oxalate. The former was a heavy, neutral powder, nonconstipating. One to four teaspoons could be given by mouth or rectum. The juice of three to six lemons a day, diluted in water, with sodium bicarbonate, was very valuable. Treatment of the joints was by aspirin, in 40 grain doses, or salicylates in 60 grain doses. The coal-tar products relieved pain. Lead acetate dressings were helpful. Diet included restriction of purins and carbohydrates, but otherwise maintaining nutrition. In regard to specific vaccines and serums, their efficacy was doubtful. Sterilized milk injections often gave better results. The reaction to the foreign protein was nonspecific. This disease had no relation to the modern fetish of medicine, the endocrine system. There seemed to be no reason for giving injections which produced a chemical typhoid fever or chemical intestinal toxemia, when the patient was already burdened with the toxins of arthritis.

Special Treatment of Arthritis.—Dr. CLARENCE E. COON of Syracuse, read this paper. He said that the profession lacked exact knowledge of the metabolic process in this disease, and did not know whether it was the action of slow poison coming from the individual himself, whether it was ductless gland disturbance, or absorption of infection. One must search for a reason why irritant poison produced symptoms in one person and not in another. Nomenclature of disease did not help the patient, and all types of arthritis might be due to some underlying cause. Treatment might be preventive or palliative; the first was most important. One heard about cases that responded to removal of teeth, tonsils, etc., but not so much about cases that did not respond, or why some cases got neuritis or chorea, and not others. Was the digestive tract at fault? Patients often presented digestive symptoms. Decomposition of food in the bowel might pass on toxins to the circulation. The intestinal tract might be the most prolific cause of arthritis. Perhaps one should be able to isolate a toxin from the bowel which would produce arthritis, and removal of which would control the disease. Sometimes treatment produced spectacular results in arthritis, sometimes very poor results, and in any case one must do what one could to relieve pain and prevent deformity. Thus the wearing of a rigid corset in spondylitis, or an abdominal support in viscerotopis. The knees could be helped by preventing extremes of motion. The metatarsal arch could be supported. The lack of appreciation of deformities was often seen, and early treatment might mean much comfort to the patient and increased function in succeeding years.

Dr. R. GARFIELD SNYDER of New York said that he had done considerable work with foreign protein injection, either intravenously or subcutaneously. The men who give specific vaccines never checked up results, to find out whether nonspecific injections would have produced the same reactions. All proteins had specific and nonspecific reactions, the latter probably the most important. In the case of milk injections one got an enormous amount of protein in 4 c.c., but to produce beneficial result, one must get a reaction with chills and fever. The nonspecific protein he had used was dead typhoid bacilli; he had never seen bad results from the toxicity. There was some loss of weight, but one gave a preliminary dose of castor oil, and after the vaccine the patient did not care for food for 24 hours, so one must consider this fact in the result. Almost any operation would help acute disease, no doubt because of the active purging, the rest in bed, and starvation after the anesthetic, and these factors must be considered. The difference in measuring vaccines must be considered in comparing results. Some men would shake up a bottle and guess at the number of organisms. It was always well to have vaccine tested in two different laboratories, to insure perfect sterilization. In regard to Dr. Lambert's remarks, proteose was a little less toxic than milk. The term focal infections was misleading, as often these infections were not encapsulated, and they should be called local infections. In his experience (and here he expected to meet with criticism) not one case or arrested disease had followed removal of supposed foci. He believed many teeth and tonsils were needlessly removed.

Dr. JOHN H. RICHARDS of New York said that Dr. Cowie had stated that the bactericidal power of the blood was increased by protein injections. That was contrary to his own experience with *S. viridans*. He had not tried other organisms. Dr. Cowie mentioned chorea. Dr. Richards had seen cessation of movements follow formation of embolism. In regard to the gall-bladder as an infective focus, he had never been able to recover cocci from bile, and was inclined to question infection in the gall-bladder, if there were bile in it. If the cystic duct had shut off the bile, there might be infection. He believed a large injection of foreign protein would be necessary to produce results, but had not seen any case permanently benefited by proteose, milk, or typhoid bacilli. With specific vaccine treatment, the bactericidal power of the blood was increased, though frequently foreign protein injections would remove residual symptoms. Sometimes there might be a bad effect, such as nephritis or persistent vomiting. Dr. Wright spoke of full diet in arthritis.

That was an important thing, on account of the hereditary character of the disease, with lowering of resistance of the patient to the particular type of infection. Exacerbations often accompanied some sort of distress, worry, or family trouble. He had been able to corroborate Pemberton's results as to low sugar tolerance in arthritis. He thought that the benefit resulting from dieting in arthritis was from the change in intestinal flora. *S. viridans* did not grow well in very acid or very alkaline media. Dr. Lambert spoke of uric acid retention in chronic arthritis. There was no nephritis, but a high acid content. Atophan gave relief. An important condition to combat in streptococcus infection was anemia. Dr. Lambert spoke of colonic infection. He had taken specimens from the small bowel and found streptococci. Colon irrigation would not affect that. Dr. Coon spoke of preventive therapy; children of arthritic families should be instructed in hygiene. Dr. Coon mentioned production of a toxin in the bowel, probably causative of arthritis, but it would be difficult to develop a toxin to do this. *S. viridans* was a resistant organism, not easily broken up to obtain endotoxins, and it did not produce exotoxins.

Dr. J. C. RUSHMORE of Brooklyn said that many patients came to the orthopedist after the internist had cured them. He wished to urge the importance of orthopedic measures in early stages of treatment. Relief of pain could be made by fixation and traction, so as to prevent deformity. One could treat by massage and heat, and these methods would give much relief. One might not change the process in the joint but one could clean up the periarticular tissue. Dr. Coon's suggestion of ankylosis should be a last resort, when one could not do anything more for the patients, and the solution of the problem was merely relief of pain. A great part of the work was teaching these people to correct posture and one could put them in a better position.

Dr. COON, in closing, said he was impressed with the fact that they knew nothing about the underlying cause of arthritis and he saw no reason to change his opinion. Many patients got no better in spite of all treatment.

(To be continued.)

NEW YORK ACADEMY OF MEDICINE.

SECTION ON OBSTETRICS AND GYNECOLOGY.

Stated Meeting, Held February 25, 1921.

DR. HAROLD BAILEY IN THE CHAIR.

Familial Multiple Enchondromes Complicating Pregnancy.—Dr. SIDNEY D. JACOBSON presented this patient, an Italian, twenty-three years of age, who at the age of eight had developed a small chondroma of the wrist. This was removed. At that time she had no other tumors. Two or three years ago she was operated upon by Dr. Fowler of Brooklyn, who removed a portion of the right ilium. The tumor recurred and a year later was removed. The tumor was examined microscopically and showed pure cartilaginous tissue. While pathologically these enchondromas were benign, clinically they were malignant. About a year ago Dr. Jacobson had removed a growth from her abdominal wall. Within four months of the operation the woman became pregnant and it was found that she had metastatic deposits higher up in the abdomen. There was also a more recent one lower down. The older one of these tumors showed a softened center indicating mucoid degeneration. In this case the tumors were of the familial type. The woman's father, who was also presented, showed a characteristic bowing of the radius and ulna and a deposit on a rib. A paternal uncle was said to have the same condition. The removal of these tumors did not do much good because they continued to recur, and eventually a deposit was formed in a vital organ, causing death. This woman, pregnant for the first time, had been advised to have the pregnancy terminated. It was a question whether it was wiser to terminate the pregnancy or to remove the tumors. The tumors were large and their resection would mean the removal of a large portion of the abdominal wall, and with the uterus increasing in size there would be danger of a

large ventral hernia. Another point that had decided him in leaving the pregnancy alone was the fact that during pregnancy there was a deposit of calcium salts in the maternal body which nature removed later, and he had hoped that she might be cured in this way, since their therapy had failed. The x-ray photographs shown demonstrated that the patient had these tumors in her legs, arms, and in practically every bone in her body. Cases were on record in which an enchondroma had been known to perforate the bladder or pregnant uterus. Numerous cases had been reported in which paralysis had resulted from pressure of these tumors on a nerve, and cases of aneurysm had been reported as a result of their impingement on blood vessels, their sharp point having lacerated the fibrous coat of the vessel.

Dr. BAILEY said this case brought out one or two interesting questions. The first was whether she should be allowed to go on with her pregnancy. There was no doubt that in this tumor there were malignant tendencies. It was well known that during or immediately after pregnancy there was a rapid growth of all tumors. That had been their experience at the Memorial Hospital. A point that was both interesting and odd was that at the Memorial Hospital they had never had a case of general enchondrosi. Tumors of this type should be non-malignant. Dr. Bailey asked why this tumor showed a tendency to metastasize.

Dr. FREDERICK W. RICE stated that he had examined Dr. Jacobson's case. If the x-ray showed the pelvis free from growth he did not see why the pregnancy and labor should be affected in any way.

Dr. CHARLE B. DAVENPORT said he was interested in this case because of the family history and had made inquiries of the father, who showed the same condition. The father stated that his father and his father's mother and brother had presented the same familial peculiarity.

Chorioepithelioma.—Dr. ALFRED M. HELLMAN reported this case. He said that this condition was still rare enough, he believed, to warrant the reporting of every case. There were some unusual features about this case which made it doubly worth while studying. The growth was a heterochthonous blastomata, or a chorionic carcinoma, as it was called in England. In general it originated in the cells of another individual, and in that sense was a teratoma. But as it was composed of cells, not organs, it was a cytoma. It usually followed pregnancy, more often abortion, or a hydatid, and the primary growth was in the uterus, vagina, tubes, or ovaries, except in that unusual form which arose in men in the testes, evidently from some inclusion cells. Though chorioepithelioma was extremely malignant, spontaneous cures had been reported. Secondary growths appeared in the order of frequency as follows: Lungs, vagina, liver, spleen, kidneys, ovaries, brain, broad ligament, pleura, lymphatic glands, pancreas, heart, stomach, and lymph glands of the pelvis. The absolute diagnosis could only be made by the microscope. The case reported was that of a woman, aged fifty, who presented herself at Dr. Hellman's office, November 27, 1920. She had been married twenty-three years, had seven children, and had had several miscarriages. The youngest child was full grown. The last miscarriage was February, 1920, nine months before he saw her. She quoted her physician as saying that at that time she was four months pregnant. She had had no complete cessation of menses. After curettage at that time she bled irregularly for from four to six weeks and then stopped for two weeks. Two weeks before coming under his observation she was again curetted for severe hemorrhage. This failed to stop the bleeding. Her complaints were uncontrollable bleeding, at times slight, at times severe, and great weakness, with some loss of weight. Her systolic blood pressure was 128. Her urine was normal. The uterus was only slightly enlarged, was soft, and bleeding slightly. Dr. Hellman thought he was dealing with a cancer of the fundus, but did not lose sight of the fact that the patient might have a sloughing fibroid, or an incomplete abortion. On November 29 he performed a diagnostic curettage which was of negative value only. There was little tissue obtainable, and this showed a small, round celled infiltration and no malignancy. Despite his thorough curettage the patient continued to

bleed, and not wishing to wait for another hemorrhage, he advised hysterectomy on December 3, and performed it on the next day. A panhysterectomy was performed, and the round ligaments sutured into the vaginal wall for support. A small perforation of the fundus was found. Despite a slight infection of the abdominal wall, the patient made an uneventful recovery and was today enjoying better health than she had enjoyed for over a year. The pathologist's report stated that externally the uterus, tubes, and ovaries appear normal except for the puncture wound noted at operation. On making a longitudinal incision the uterine cavity was found filled with blood clot. In transversely incising the fundus there was a slight protrusion of a deeply seated mass not previously visible, containing yellow and dark brown spots suggesting chorioepithelioma. The growth was not over three-quarters of an inch in its greatest diameter. Microscopic sections showed chorionic villi, syncytial masses, and a large number of Langham's cells and numerous congested areas with heavy fibrin, and in places occasional mitotic figures and coagulation necroses. Along the course of the perforation were found syncytial masses, chorionic villi, Langham's cells and mitotic figures, evidently a secondary growth. The diagnosis was chorioepithelioma.

Two Cases of Extraperitoneal Rupture of the Lower Uterine Segment.—Dr. HERVEY C. WILLIAMSON reported these cases. He stated that the first case, a III-para, 32 years of age, was admitted to the Bellevue School for Midwives, December 18, 1916, expecting to be confined in January, 1917. She gave a history of having had a gynecological operation six years previously, the exact nature of which was unknown to the patient. Subsequent to delivery the uterus was found adherent to the abdominal wall. Her menstrual history was normal. She had had one long labor followed by forceps delivery, the child being still-born, and one spontaneous abortion at two and one-half months. The external and internal measurements of the pelvis were within normal range. The patient was seen on January 20, 1917, after having been in active labor more than twenty-four hours. The position was right occipital-anterior, and the cervix four fingers dilated. The membranes were ruptured and there was no fetal heart. The patient was transferred to the obstetrical department in Bellevue Hospital. She was prepared for operation and anesthetized. The cervix was dilated manually and the head perforated in the usual manner. After the solid blade of the Braun cranioclast was introduced within the cranial vault the cervix was found to be so firmly contracted about the head that the fenestrated blade could not be introduced. The Tarnier forceps was then applied with difficulty, the compression screw tightened, and the head delivered. There was some difficulty in delivering the shoulders, but clidotomy was unnecessary. After delivery a deep tear was discovered on the left side of the cervix, extending through the vaginal vault and about 9 or 10 cm. into the lower uterine segment. The tear was vertical and extraperitoneal. The placenta and membranes were removed manually and the body of the uterus packed firmly; the tear was loosely packed. The cervix was united with three interrupted sutures and the vagina packed. The patient lost only a moderate amount of blood, as the tear apparently did not traverse vessels of large caliber. The patient left the operating room in fairly good condition with a pulse rate of 130. Hypodermic injections of pituitrin 1 c.c. and ergot were given. The packing was cautiously removed twenty-four hours later and pituitrin (1 c.c.) given. The puerperium was uneventful aside from a mild abdominal distension for the first three days. The dystocia in this case was probably caused by irregular uterine retraction the result of ventrofixation.

The second patient was a X-para, 32 years of age, admitted to the Bellevue School for Midwives December 12, 1920. She expected confinement in January, 1921. She gave a history of amputation of the cervix and perineorrhaphy in September, 1915. She had given birth to four full-term children with normal labors had had three miscarriages and three abortions, all spontaneous. The pelvic measurements were within normal range. The membranes ruptured spontaneous-

ly on the day before admission. The patient was examined at home and a transverse presentation, left scapulo-posterior, was found, with the cord prolapsed and pulsating. On examination at the hospital the cord was presenting at the vulva; it was strongly pulsating. The cervix was two fingers dilated, but felt soft. When the cervix was about two-thirds dilated the left side suddenly opened into the uterine segment. The tear was vertical, about 10 cm. in length, and extraperitoneal. As there was very profuse bleeding the hand was immediately passed into the uterus and an internal podalic version and breech extraction performed. A premature living baby was delivered, but it could not be resuscitated. The placenta was immediately expressed by the Cr  de technique. The uterus, tear in the broad ligament, and the vagina were tightly packed, using about thirty-five yards of gauze. The tear was about 12 cm. in length. As the patient was in shock a hypodermoclysis of 1,000 c.c. was given. Ergot, pituitrin, camphor, and strychnine were given by hypodermic. Later a Murphy drip was employed intermittently for twenty-four hours. The patient recovered from the shock. On the following day the vaginal and a little of the uterine gauze were removed. On the second day the remaining portion was removed. On the fifth day, for no apparent reason, a hemorrhage occurred. This was controlled by massage of the fundus, ergot by mouth, and morphine by hypodermic. Nothing further happened until the nineteenth day, when a femoral phlebitis was in evidence. On the twenty-ninth day the patient complained of pain in the right chest, and on the thirty-second day of pain over the region of the spleen. The phlebitis later extended to the opposite leg and to the pelvis. Vaginal examination showed an extensive pelvic thrombophlebitis. The patient had an irregular temperature until the sixty-seventh day, when it became normal and remained so. She went home on her own responsibility on the seventy-fourth day, though there was still some edema of the lower extremities.

Dr. GEORGE W. KOSMAK said that these cases demonstrated the conservative method of handling rupture through the lower uterine segment where the peritoneal cavity was not involved. He cited three cases in which rupture of the lower uterine segment had occurred. Two of these were in tenements. Gauze packing was introduced; they were sent to the hospital, and made good recoveries. A third case occurred recently in a para II following a difficult labor. In this case there was a history of spontaneous rupture of the membranes, unaccompanied by pain. There was a breech presentation and the cervix was dilated two fingers. The liquor amnii had drained away. A No. 4 Voorhees bag was inserted without anesthesia at about 10 o'clock in the morning. In a few hours active labor pains set in and the patient was delivered without difficulty in the course of the afternoon. About two hours after delivery the patient went into shock, the placenta in the meantime having been retained. She was seen by a member of the attending staff, who attempted to deliver the placenta, but could not do so. Dr. Kosmak then made an examination and found a tear extending through the lower segment of the uterus up to the round ligament. There was no tear in the cervix. As the woman was in shock a gauze packing was introduced and hypodermoclysis given. She ran a temperature for two or three days. The temperature then subsided. An attempt had been made that afternoon to get the placenta, but it could not be found. The patient was making a complete recovery. This was simply another instance demonstrating that these cases could be treated conservatively with good results.

Dr. CHARLES GARDNER CHILDS called attention to the fact that in the first case rupture occurred because the cervix was not fully dilated, before the forceps was applied, while in the second case rupture occurred because the cervix was rapidly dilated. The second case was an example of the fact that manual dilatation was not always accomplished without danger, and sometimes was followed by very untoward results. He felt that manual dilatation was far more dangerous than instrumental dilatation.

Dr. WILLIAM E. STUDDIFORD said that, as he understood it, in the first case there was ventral fixation,

which did not allow of regular uterine contraction, and there was imperfect dilatation of the lower segment. In such cases rupture of the uterus usually occurred higher up. The second case gave the not uncommon history of a hurried effort to dilate the cervix after labor had begun. He thought one reason for this rupture was failure to recognize the relation of the fascial supports in doing the repair at the previous operation. In doing an ordinary circular amputation the fascia should be stripped free from the muscles; the muscle fibers should be brought together first and the fascia brought together over the muscle, and then one would be less likely to have a rupture in a subsequent delivery. It was observed that there was little hemorrhage in these cases. This was because the rupture did not usually involve the uterine artery. These ruptures were not accompanied by acute hemorrhage unless these vessels were involved.

A Twin Monster.—Dr. W. W. MOTT of White Plains presented a twin monster. These babies had been delivered in private practice. They were fused at the buttocks. At the time of labor a breech presentation was found and then three feet presented. The obstetrician tried to push one leg back when he found that all three legs belonged to the same body.

The Blood Picture in Normal and Abnormal Pregnancy.—Dr. WILLIAM E. CALDWELL read this paper in which he presented the results obtained from the chemical analysis of the non-protein nitrogen constituents of the blood as they were found, first, in normal pregnancy, and then in the toxemias of pregnancy and in eclampsia. As a result of more than 5,000 chemical examination carried out in the Harriman Research Laboratory they had come to regard the following nitrogen partition (per 100 c.c. of blood) as a normal blood picture in a healthy non-pregnant woman: Non-protein nitrogen, 35 mg. or less; urea nitrogen, 18 mg. or less; creatinine, 2 mg. or less; uric acid, 3 mg. or less, and the ratio of urea nitrogen to non-protein nitrogen, 50 per cent. These figures corresponded to the generally accepted standards of other investigators. A study of the blood pictures of 150 pregnant women, all of whom were clinically free from disease, with negative Wassermann reactions; systolic blood pressures under 130 mm. of mercury; urine free from albumen and casts, and all of whom went through a normal labor and puerperium were as follows: Non-protein nitrogen, 29.69; urea nitrogen, 11.51; creatinine, 1.05; uric acid, 1.73, and the ratio of urea nitrogen to non-protein nitrogen, 39 per cent. A grouping of cases according to the period of pregnancy disclosed no significant differences between the successive periods, although twelve cases in the ninth month showed a slightly higher average for non-protein nitrogen, urea nitrogen and uric acid. A comparison was made of maternal and fetal bloods at the end of labor which showed that the non-protein nitrogen, urea nitrogen, creatinine and uric acid in the two circulations at the end of labor were practically identical. He had also found in the blood of primipare, immediately following labor, an increase of uric acid, although it was not great nor was it constant. Slemmons and Bogart had found a much greater increase and suggested that the increase was the result of muscular effort during labor. The writer was disposed to regard the retention as due to the renal insufficiency that frequently accompanied long labor and multiple birth. Having established a standard blood picture for normal pregnancy, this was compared with the blood picture found in eclampsia and toxemia of pregnancy. Unfortunately our knowledge of hepatic function in terms of blood chemistry was not sufficiently advanced to permit of their taking it into consideration in studying the blood pictures of eclampsia, nevertheless in the light of this investigation blood pictures resulting from renal lesions had a clearer meaning. Analysis of the change in the blood content, both relative and absolute, of the several nitrogen waste products, had led to the belief that uric acid was the most difficult to eliminate and creatinine the easiest. The retention of waste products in the blood of eclampsia and toxemia was very much lower than in uremia and lower than in acute nephritis. The blood pictures did not correspond with any of the usual nephritis pictures, but came closer to those found in the so-called perenchymatous nephritis. The average blood

picture of thirty-four cases of eclampsia and toxemia of pregnancy was as follows: Non-protein nitrogen, 49.7; urea nitrogen, 26; creatinine, 2.17; uric acid, 6.19, and the ratio of urea nitrogen to non-protein nitrogen, 52 per cent. In this series, in every case in which there was a high retention of all the blood constituents, indicating a marked kidney insufficiency, the patient died. In some cases the kidneys were but slightly involved, as shown by the fact that the blood taken two days post-partum gave practically a normal blood picture. The significance of a high creatinine retention in denoting kidney insufficiency was well shown by these tables. Out of nine cases showing creatinine above 3 mg. as many as five died; and two afterward developed into chronic nephritis. The remaining two, when seen thirty months later, had had normal pregnancies and showed no signs of nephritis. In none of the cases that recovered did the patient show any symptoms of nephritis where the uric acid returned to normal early during convalescence. On the other hand, when the uric acid remained high throughout the obstetrical period, especially if there had been a high creatinine retention, the follow-up notes about thirty months later showed that the patient was a chronic nephritic. A question with which an obstetrician, after taking care of a case of eclampsia, was invariably confronted was whether this woman could safely go through another pregnancy, or whether future pregnancies would again endanger life. Clinically, he depended for an answer upon the rapidity with which the urine improved and the blood pressure returned to normal. If the kidneys had not been seriously injured the patient would probably not have eclampsia again. The blood pictures added to the clinical findings were of great value in making this prognosis. The blood pictures in preeclamptic conditions were of value both in prognosis and in outlining treatment. The histories in this series of eclampsias emphasized the importance of prenatal care.

Dr. W. G. LYLE stated that he had studied the blood in twenty pregnant women and in only four was there a high uric acid content. In each of these there were conditions that would account for it. The theory had been advanced that in prolonged labor the increased muscular exertion caused a rise in the uric acid. So far as he had gone he disagreed with Slemmons and Bogart that muscular contractions raised the uric acid in the blood. The non-protein nitrogen in all these cases was below 30. A comparative study of the bloods of mother and child in twelve cases showed that they were the same in every instance. If one doubted the uric acid method of Benedict one could check up the blood on the basis of the similarity between the blood of the mother and that of the child. The highest non-protein nitrogen he had found was 83. The urea nitrogen remained low even in eclampsia. The theory might be advanced that the urea and non-protein nitrogen remained low because it did not have time to become high. The patient either died or recovered before the urea nitrogen and non-protein became high. He could not subscribe to that theory, as he had seen cases of uremia in which within three or four days the non-protein nitrogen went up to 200, and hence felt that there must be some other factor concerned. Possibly it was the liver. It was well known that in cirrhosis of the liver the urea nitrogen and non-protein nitrogen were low.

Dr. S. R. BENEDICT said it was difficult to attempt a summary or any conclusions of any type from so much data without an opportunity of examining them more in detail. A few points, however, might be touched upon. This was a very important contribution and helped to complete the picture of metabolic studies reported by previous investigators. Perhaps the most striking results reported were the tendency to low protein nitrogen and urea. Such figures as three to five milligrams of urea nitrogen per 100 c.c. of blood, such as were reported here in some cases, had, he believed, not been duplicated in any other condition. It was obviously difficult to attempt an interpretation of these findings, but they suggested a line of reasoning that might be attractive. We must bear in mind that in pregnancy a condition existed in which a circulating fluid must supply both a growing and a stationary organism. A similar condition existed to a varying de-

gree in cases of cancer, and it was interesting to note that Miss Theis and Dr. Stone reported low urea and non-protein nitrogen figures for cases of rapidly growing carcinomas of the breast and uterus. If we applied a primary law of physical chemistry to the growth process we should infer that the growth of cells could be augmented by either increase in concentration of the reacting substances (food products) in their surrounding medium, or by decreasing the concentration of the products of reaction (waste products). From this standpoint, then, the lower concentration of urea in the blood in pregnancy would tend to favor growth of the fetus. The similar finding in cancer was in line with this point of view. Although Murlin and Bailey reported that the urea elimination in the urine during pregnancy was below normal, due to retention of nitrogen by the fetus which would ordinarily be eliminated as urea, this fact offered no explanation whatever of the low concentration of urea found in the blood in pregnancy. It must be that the condition of pregnancy offered a very specific stimulus to the kidney, which responded by maintaining a distinctly lower level of urea concentration in the blood than obtained under usual conditions. The study of amino-acid nitrogen in the blood of both mother and fetus should be extended. This fraction of nitrogen in the blood was probably used for tissue building, and it was interesting to note in the few studied cases reported that there was a definite increase in the animal acid content of the blood of the cord. In reference to the rise of uric acid in the blood reported for eclampsia and previously noted by certain observers during labor, it might be stated with reasonable certainty that this finding could not be explained through the increased muscular activity of the uterus, but that we must regard such uric acid accumulation in the blood as indicative of kidney insufficiency. The main problem of the intoxication in eclampsia remained unanswered. At least there was nothing in the present findings which would tell us whether the failure of the kidney at a certain stage was cause or effect of toxemia. Probably both factors were involved.

Dr. CALDWELL, in closing the discussion, stated that in one case that died autopsy revealed an acute kidney condition and a typical eclamptic liver. This case had the highest ratio of urea nitrogen to non-protein nitrogen, a ratio of 76. The cases in which there was a low ratio of urea nitrogen to non-protein nitrogen recovered, while those with a high ratio died. There was, however, not sufficient uniformity in the ratio of urea nitrogen to the total non-protein nitrogen to permit one to classify the eclamptics into groups on that ground.

Focal Infection of the Cervix with Its Relation to Systemic and Mental Diseases.—Dr. F. W. LANGSTROTH read this paper. (See page 857.)

Dr. MAURICE O. MAGID said that when he saw the title of Dr. Langstroth's paper he had assumed that the writer meant chronic endocervicitis. He regretted that he did not use that term in the title, because chronic endocervicitis was now coming to be recognized as a pathological entity. They used to speak of endometritis until it was proven that endometritis did not exist, that the changes in the endometrium were those taking place during the menstrual cycle. When Sturmdorf reported the results of his studies on chronic endocervicitis he called attention to the pathological possibilities that might accompany this local infection. There was proof in the literature that adnexal disease, such as tubal distortion and cystic disease of the ovary, had as its primal cause this focal infection. The cure for this focal infection had been described as a conical enucleation of the cervical mucosa. It was too bad Dr. Langstroth did not use the word tracheloplasty when he spoke of the operation, as he really performed the operation devised by Sturmdorf. When this operation was described by another name, many men did not immediately grasp the fact that it was really the tracheloplastic operation. If Dr. Langstroth had proven to the satisfaction of all present that systemic and mental disease might be benefited by this operation, he felt that they had just cause to disagree with the older authorities, who maintained that any repair on the cervix of women in the child-bearing period should not be attempted. Such contentions were correct if one considered the Emmet operation by which

the two raw surfaces of the lacerated cervix were sewed together. With this operation a great deal of the diseased cervical canal was retained and continued to act as a focus of infection. Sim's operation also had disadvantages. On the other hand, following the tracheloplastic operation, patients might readily conceive and there was seldom, if ever, any dystocia encountered in labor. Dr. Magid said he had a series of cases operated upon by this method in which labor had been precipitate rather than prolonged. A number of his patients who had remote disturbances in their joints were cured by the tracheloplastic operation. Dr. Magid said he was sorry to have to disagree with Dr. Studdiford, who stated that a possible cause for rupture of the lower uterine segment was the inclusion of the fascia when suturing the stump after amputation. There was no fascia under the mucous membrane covering the cervix. According to Sturm-dorf the muscle fibers were arranged spirally and did not at any point completely surround the cervix. These muscle fibers ended in the cervix in a serried succession of oblique circle segments which uncoiled when the uterus contracted. This dilated the os like the iris diaphragm of the microscope. After amputation the mechanism was disturbed because the muscle tissue in the stump was bound down in the scar, thus producing difficulty in dilatation with the possibility of rupture of the lower uterine segment.

Dr. HENRY A. COTTON of Newark emphasized the need of cooperation among the various specialists in attacking such a problem as they had tried to attack at the State Hospital at Trenton. Scarcely any medical problem could be worked out by one set of men alone. From time immemorial psychiatrists had taken care of mental cases and only when they came to a realization of how much help might be contributed from other sources did they obtain good results. Where there was infection there was no doubt that good results might be obtained by eliminating the source of infection. Dr. Cotton related the history of one girl who came to them when she was sixteen or seventeen years of age. She became better and was discharged. Six years later she returned and was under their care for two years. She was found to have an impacted molar and an infection of the tonsils following an endocervicitis. The removal of these foci of infection resulted in wonderful improvement. The girl was now doing nursing work in the hospital, something she could not have done before the removal of the foci of infection. Following the elimination of a cervical and other foci of infection he had had patients recover and remain well long enough to warrant the statement that their recovery was not merely temporary.

Dr. GORDON GIBSON agreed that focal infection had a great deal to do with systemic disease, but he could not say that it caused insanity or that its removal would cure insanity. They had not gone so far as to say that they had cured insanity, but they had grouped their cases into two general types: First, those characterized by dementia. In these they had found that no operative procedure or medical treatment helped the patient, so they had disregarded dementia precox and epilepsy, conditions in which the patients were badly deteriorated, and they confined their work to those psychoses not characterized by deterioration. It was just these cases where the removal of the teeth, tonsils, scar tissue, tumors, old adhesions, pustules, or any irritation at all might be beneficial. It was well known that in some women such irritations might give rise to nervous symptoms, and that the removal of the source of irritation would relieve the symptoms. Again, they had classified these cases in respect to attack. If they saw the patient in the first attack they knew that sooner or later there would be another attack and they had tried to ward off the next attack. They had operated upon some in the seventh attack. In those having the first attack they hoped to do as to put the patient in the best possible physical condition and thus possibly remove the exciting cause of the insanity. Then they had to watch these patients ten, fifteen, twenty years and see what happened to them; that was what they were waiting for. Of those operated upon during the first attack they had found in a large number of cases

that if there was a secondary admission the attack was milder and of shorter duration. In a series of cases operated upon in the second attack and seen in the third attack it was interesting that in at least five they had been able to increase the duration of sanity between the attacks. One must remember, however, that about 80 per cent. of these patients came from neuropathic stock and that any little disturbance or shock or toxemia or systemic disease would bring on an attack. These patients just on the borderline were easily pushed over, and if one could demonstrate pathological processes that could be removed one was justified in operating in that type of insanity, and the prognosis would depend upon the type of insanity with which one was dealing. Acute intoxications might cause a woman to become insane and if the infection was removed the woman recovered, but there was one dealing with the actual cause of insanity. Dr. Gibson stated that when he first started out with his investigations he was very enthusiastic, but after studying a thousand cases he became somewhat discouraged. One reason results were not satisfactory was that the women who went out from the hospital did not get good obstetrical care with subsequent babies. Some of them had puerperal mania, which, by the way, was a misnomer: the term puerperal psychosis would be better. Where there was an underlying neuropathic condition, pregnancy, or labor, or the puerperium might be an exciting cause of insanity and therefore better care during pregnancy, labor, and the puerperium would help in lessening the liability of these women to insanity.

Dr. LANGSTROTH, in closing the discussion, emphasized the importance of removing all the cervical endometrium up to the internal os. That was very important and in his previous papers on endocervicitis he had given credit to Dr. Sturm-dorf, describing his operation, and he had mentioned twice in the paper just read that the operation of choice was Dr. Sturm-dorf's. He had no intention of detracting from Dr. Sturm-dorf's work; quite the opposite. The operation acquired Dr. Sturm-dorf's name early; he believed many termed it a plastic conical enucleation of the cervix. He had named the condition a focal infection deliberately because he had never seen anything written as to the part played by the cervical endometrium in focal infection. He wished to put it on the same basis as infections of the tonsils and the teeth. Dr. Sturm-dorf might have called attention to that, but he felt that this work had put chronic endocervicitis on a different basis, namely, the basis of focal infection and nothing else. Furthermore, he believed that this was the first series of cases in which the attempt had been made in cooperation with other workers to benefit insanity and the neuroses, and certain cases had been helped by nothing else than the removal of this focus of infection. This was a report on focal infection and not on endocervicitis. The emphasis was laid on the removal of the focus of infection and was not a discussion of the methods of removal. In seventeen cases a complete recovery was made and so they stood. They were practically all out of the hospital. With reference to the type of insanity, he believed that practically all the cases cured were of the type which he understood did not show any destructive lesion in the brain substance. Manic depressive insanity, he understood, did not show any microscopical alteration in the brain structure. His personal explanation of the whole subject was that toxemia of whatever kind was circulating in the blood and in some cases it caused rheumatism, etc., and in some cases mental disease, and in certain types of cases removal of the focus of infection entirely cleared up the mental disease.

Dr. HENRY A. COTTON said they had a functional group, so called, of dementias, of which 77 per cent. recovered. He thought Dr. Gibson's trouble was in limiting his work and in not giving attention to teeth and tonsils as well as to cervical infections and gynecological conditions. That the removal of foci of infection had cured some of these patients and benefited others had been definitely proven. The hereditary and psychogenic factor was contributory, but the infection was primary and this fact would be recognized in a short time.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

OHIO STATE BOARD OF MEDICAL EXAMINERS.

Columbus, December 1-3, 1920.

(Concluded from page 805.)

SURGERY.

1. Describe a common fracture of the leg just above the ankle, giving physical signs and x-ray findings.
2. Describe technique of enterostomy, omitting opening and closing of abdominal wall.
3. Give indications for and against operation in ruptured ectopic pregnancy.
4. What class of patients take ether better than chloroform? What class chloroform? What class neither?
5. Name one of the chief complications of skull injury and outline procedure.
6. Describe operation for empyema of the antrum of Highmore.
7. Give surgical treatment and technique in carcinoma of breast.
8. Give indications for vaginal hysterectomy and describe operation.
9. Give surgical treatment of carbuncle.
10. Give procedure in a case of diabetic gangrene.

OBSTETRICS.

1. What interval should elapse after the birth of the child before (a) tying the cord? (b) delivering the placenta? How would you proceed in a case of retained placenta?
2. What is the significance of albuminuria in pregnancy? When is treatment indicated? Give an outline of treatment you would advise.
3. What causes predispose to hemorrhage in labor? Give prophylactic treatment.
4. Give symptoms and treatment of puerperal eclampsia.
5. Diagnose breech presentation. Enumerate some of the dangerous complications of this condition.

SPECIALTIES.

1. *Syphilology*: What is the period of incubation of syphilis? How soon thereafter do secondary manifestations appear? Name some lesions of the tertiary period.
2. *Eye*: Name some causes of corneal ulcer and give treatment.
3. *Ear*: Give diagnosis of inflammation of the mastoid cells.
4. *Nose*: Name some forms of nasal polypi and describe operation for their removal.
5. *Throat*: Give symptoms, diagnosis, and treatment of follicular pharyngitis.

ANSWERS.

SURGERY.

1. "In Pott's Fracture sudden abduction, usually combined with eversion, of the foot results in severe strain upon the internal lateral ligament, which gives way, or the base of the internal malleolus is torn off. The astragalus is at the same time driven outwards against the external malleolus, and the force is thence transferred up the fibula, which bends and breaks at some weak spot. Generally this line of fracture runs obliquely from above downwards and forwards through the malleolus; less frequently it is situated in the position originally described by Pott, viz., about three inches above the tip of the malleolus and is transverse, the upper end of the lower fragment being displaced inwards towards the tibia. The inferior interosseous tibio-fibular ligament remains intact, and hence the foot itself is merely rotated outwards and abducted, and the heel is drawn upwards, whilst the toes point downwards. If the internal lateral ligament alone is torn, the malleolus projects beneath the skin, and may, indeed, protrude through it; there is always much bruising and ecchymosis on the inner side of the ankle. If the malleolus itself is broken off, a distinct sulcus

can usually be felt between it and the lower end of the tibial shaft. In both these types the ankle-joint is necessarily laid open, and there is probably much hemorrhage into neighboring tendon sheaths." (Rose and Carless' *Manual of Surgery*.)

2. *Technique of enterostomy*. "(1) Having followed the steps of the intramuscular incision of the abdominal wall and retracted the lips of the wound, the cæcum is sought with the finger and located as a rallying-point. The site of the obstruction is then located if possible, and, if so, the first distended coil of intestine above the obstruction is caught and brought into the wound. Where the source of obstruction cannot be found, any distended coil of intestine is taken and brought forward (which will probably be a portion of the lower ileum). In bringing the gut forward into the wound, its normal relations and direction should be maintained, as far as possible—and only its convex, antimesenteric aspect should project from the wound, but this aspect should well fill the portion of the wound to be left open, and any excess of intestine from above should be returned to the cavity, that the upper part may not sag down upon the lower. (2) The excess of length of the wound is now closed from either end, either by through-and-through suturing of all layers with silkworm-gut or silk, or by layer-suturing with chromic gut. When shortened to the desired extent, in cases where the length has been excessive—or from and beginning with the first suture at either end, where the length has only been moderate—the serous and muscular coats of the intestine are included in the suture at either end of the wound, thus fixing the gut to the abdominal wall at the same time the lips of the ends of the wound are approximated. If necessary, two fixation-sutures may be applied laterally, passing through serosa and musculosa of the intestine and all the layers of the abdominal wound. (3) An elliptical area of the presenting gut is now sutured to the parietal peritoneum by a continuous or interrupted fine silk suture, passing through serous and muscular coats of the intestine, on the one hand, and peritoneum and transversalis fascia, on the other. A second row of continuous or interrupted silk or gut sutures may then be placed, uniting the skin of the abdominal wound to the serous and muscular coats of the intestine, including the free margin of the parietal peritoneum external to the elliptical suture in the presenting gut. Or the second row of sutures may simply unite the edge of the abdominal skin to the free margin of the parietal peritoneum. A union considered firmer by some may be secured by first suturing the parietal peritoneum to the skin all around the permanent opening—and then suturing the intestine to this. (4) If haste be necessary, an opening is at once made into the lumen of the gut, by a quick, controlled stab with a narrow, sharp knife and increased to the desired extent with blunt scissors (having ascertained that all the coats of the intestine have been pierced before inserting the blade of the scissors). If no haste be necessary, a delay of two or three days for union of the serous surfaces and exclusion of the abdominal cavity is preferable (operation in two stages). The intestinal contents are allowed to escape of their own accord." (Bickham's *Operative Surgery*.)

3. On the question of operation in ruptured ectopic pregnancy, Cragin gives the following rule: "If the patient is seen at the time of tubal rupture or abortion, operate and check the hemorrhage as soon as careful preparations for the operation can be made, unless the patient is in such extreme collapse that the operation in itself would probably prove fatal. In this case watch the patient carefully, noting the condition of the pulse at short intervals to see if the patient is improving or losing ground. If improving, wait and operate when the patient is in better condition. If losing ground, operate rapidly, seeking to check the hemorrhage with as little manipulation as possible, perhaps having an assistant infuse the patient during the operation, and leaving considerable warm salt solution in the abdomen when closing it."

4. The following contraindications for ether and chloroform are from Hare's *Practical Therapeutics*: "Ether should not be used by inhalation in bronchitis or acute nephritis, because of its irritant properties; in peritonitis or gastritis, because it is apt to induce vomit-

ing; in aneurysm or in the presence of marked vascular atheroma, because it may rupture a blood-vessel by raising arterial pressure; nor in diabetes, lest it produce diabetic coma; and if anemia is present and an examination of the blood shows that the hemoglobin is below 50 per cent., the use of the drug should be avoided if possible.

"Chloroform is not to be used in cases of fatty heart or dilatation of the heart, in those with a known idiosyncrasy, nor in the so-called lymphatic persons with overgrowth of lymphoid tissues, as, for example, adenoids. In the latter case it is particularly apt to cause sudden death. In valvular disease of the heart chloroform may be used with caution, although ether is preferable. Given a case of valvular disease that must be subjected to operation, the chances are bettered with an anesthetic than without it, as the pain and mental shock are worse for the heart than is the anesthetic."

5. Fracture of the skull may be complicated by rupture of and hemorrhage from the middle meningeal artery. The treatment of this hemorrhage "consists in trephining, removing the blood-clot, and stopping the bleeding. A flap is turned down, and a trephine hole made over a spot $1\frac{1}{2}$ inches above and behind the external angular process exposes the anterior branch. After the blood-clot is removed the bleeding-point is searched for and tied; if it is not seen, more bone must be clipped away. If the bleeding comes from a canal in the bone, it may be stopped with gauze, sponge, or aseptic wax. If the brain then expands, the bone may be replaced and the wound stitched up without drainage; if not, the bone must not be replaced, and the wound should be drained for twenty-four hours. The posterior branch can be reached by a hole made just below the parietal eminence." (*Aids to Surgery*.)

6. Operation for empyema of the antrum of Highmore: "Bore a gimlet-hole through the superior maxillary bone, above the canine tooth, or perforate the bone by means of a trocar. Irrigate daily with boiled water or normal salt solution. Keep the opening from contracting by inserting a small tent of iodoform gauze. In persistent cases it may be necessary to draw a tooth, break through the socket of the first or second bicuspid into the antrum, and insert a silver or hard-rubber tube, and also to perforate the antrum from the inferior meatus and keep the opening patent. In very persistent cases osteoplastic resection of a portion of the upper jaw will be demanded." (*DaCosta's Surgery*.)

7. The surgical treatment of carcinoma of the breast is its prompt and thorough removal, together with all the neighboring lymphatic glands. Halstead's operation aims to remove in one piece the entire breast and overlying skin, the costal portion of the pectoralis major, the pectoralis minor, and all the fat and glands of the axilla. The supraclavicular glands are removed in a second piece. An incision is carried through the skin and fat, and a triangular flap turned back. The costal portion of the pectoralis major is divided close to the ribs and separated from the clavicular portion, which with the overlying skin is divided up to the clavicle, exposing the apex of the axilla; these flaps are drawn upward with a retractor and separated from the underlying tissues, and the muscle further split as far as the humerus, where it is severed close to the bone. The breast, pectoralis major, and all fat are stripped from the chest wall, including the pectoralis minor, which is divided at each end, thus exposing the entire axilla, which is cleansed of fat and lymphatic glands from above and within, downward and outward, all small vessels being ligated close to the axillary vessels, which, with the nerves, should alone remain. The triangular flap of skin is drawn outward and the lateral and posterior walls of the axilla likewise cleared, the subscapular vessels being ligated, and the subscapular nerves preserved if possible. The mass is then turned inward and removed from the chest. A vertical incision is now made along the posterior margin of the sternomastoid, and the supra- and infra-clavicular fat and glands removed by dissecting from the junction of the internal jugular and subclavian veins downward and outward. The cervical wound is sutured, and the edges of the chest wound approximated by a buried purse-string suture of silk, which includes the base of the triangular flap, the apex being

spread over the axilla. The rest of the wound is covered with Thiersch's skin grafts. The axilla is not drained. The disability resulting after such an extensive operation is surprisingly slight. The entire wound may be closed in most cases by fashioning two flaps from the lower lip of the wound. A small gauze drain should always be placed in the axilla, preferably through a small incision at its posterior margin, in order to drain the large quantity of fluid which escapes from the severed lymph vessels." (*Stewart's Surgery*.)

8. The indications for vaginal hysterectomy, are: Bilateral suppurative conditions of the appendages; prolapse, cancer, pregnancy with cancer before the sixth month; certain septic conditions of the uterus; certain rare conditions which may require the ablation of a small movable uterus.

Technique of vaginal hysterectomy: "(1) The lips of the cervix are caught and drawn down with vulsella, or tenaculum-forceps—and are sutured together with strong silk (to prevent escape of contents). The silk ligatures may be left as long traction-loops. The uterus is thus drawn well down into the outlet (by forceps or loops)—while the vaginal walls are retracted downward and outward. (2) With a knife, or sharp curved scissors, an incision is made entirely around the cervix, passing through the thickness of the vaginal vault down upon the substance of the cervix. (3) With the right index, the cellular tissue plane is opened up in front (between uterus and bladder) and behind (between uterus and Douglas's cul-de-sac)—by pushing up and peeling back the tissues with the pulp of the finger always directed against the cervix, to prevent the fingers from slipping off violently in the wrong direction. This separation is done anteriorly and posteriorly—but not done laterally, where the vessels enter from the broad ligament. Posteriorly, Douglas's cul-de-sac is recognized by a slight amount of fluid present within its cup-like cavity and by the smooth surfaces gliding over each other. This is caught with forceps, drawn down and incised with sharp scissors to a slight extent, the opening being increased to the broad ligaments on each side by two fingers introduced and separated. Anteriorly, the separation is continued until the anterior vesico-uterine peritoneal fold is reached—which is recognized by its gliding surfaces—and which is drawn down with forceps and incised with sharp scissors to a limited extent—the opening being increased to the broad ligament on each side by fingers introduced and separated, guided, if necessary, by a sound in the bladder. The peritoneal cavity is thus opened in front and behind and the uterus is left hanging from the broad ligaments. (4) The broad ligaments are now tied off. The uterus is drawn well down and to the side opposite that upon which the ligature is to be passed, while the corresponding vaginal wall is retracted. The left index-finger is passed in through the posterior opening behind the broad ligament and near the cervix. A strong silk ligature, carried by a laterally curved aneurism-needle, is passed from before backward, and from above downward, and about $\frac{3}{4}$ inch to the outer side of the cervix, and including about $\frac{3}{4}$ inch of broad ligament tissue. The ligature is firmly tied and the broad ligament included is immediately divided with scissors, rather nearer the uterus—being careful not to make the division higher than the ligature has gone. Two or three ligatures can generally be applied to one side before placing the same number on the opposite side, during downward traction of the uterus to the side where the first ligating was done (always drawing it to the side opposite the one upon which the greatest exposure is wished). Or the ligating may be continued on one side as far as convenient, even to the cornu of the uterus, and then upon the other side. The uterine vessels are generally included in the second or third ligature, being found close to the cervix uteri near the os internum. The position of the uterine artery should be determined as soon as the opening through the posterior fornix is made. Especial care is here taken to avoid the ureter. When the ligating and division have progressed nearly to the cornu of that side, the finger can be passed in behind and hooked over the remaining broad ligament, fallopian tube, and round ligament, and these brought down and ligated—this last ligature being tied par-

ticularly well and the tissues cut at a distance. Often it is easier to alternate—by tying two or three ligatures on one side—then on the opposite, and so on. When all of one side and nearly all of the opposite broad ligament has been tied, the finger may be introduced and hooked around the fundus of the uterus and the organ delivered sideways—the remaining ligatures being applied either from below upward or from above downward, as most convenient, while the organ lies in the vulval fissure. (5) The right and left groups of sutures are separated and held aside and the lower pelvic cavity irrigated and mopped or sponged out. Each line of broad ligament ligatures must be inspected—suspicious ones replaced—and additional ones applied where indicated. The ligatures of each side are tied together in one group and cut near the knot, closely within the vagina. (6) The cut edge of the vesico-uterine peritoneal fold in front is sutured at its middle with gut to the middle of the cut edge of the utero-rectal peritoneal fold behind—either by a single mattress suture bringing the central portions of the two peritoneal folds together, or by a continuous suture bringing together the central portions—leaving, in either case, a gap at either side for possible drainage in cases where the vaginal vault is not sutured, or only sutured in part. Where the vaginal vault is entirely sutured, the two edges of the peritoneum should be sutured together throughout. (7) The vaginal vault may be left entirely unsutured—in which cases it is packed loosely with gauze, and the vagina is then packed rather snugly. In other cases, which method is to be preferred, the vaginal vault is entirely closed by a line of continuous or interrupted gut sutures bringing the cut edges of the fornices together and crossing the dome of the vagina from before backward. But at each side the lower portion of the ligated broad ligament is caught and drawn down into the upper part of the vagina, and the sutures which pass through the lips of the vaginal vault also pass through and include some of the broad ligament stump—the stumps on the two sides thus projecting into the vagina, thus insuring drainage.” (*Bickham's Operative Surgery.*)

9. *Treatment of carbuncle:* “The most thorough and satisfactory is to lay the carbuncle freely open under an anesthetic, and scrape with a sharp spoon or cut away all sloughs until healthy tissue is reached, and then to disinfect the cavity thoroughly with pure carbolic acid or peroxide of hydrogen (10 volumes). The hollow thus formed is packed with gauze soaked in an iodoform emulsion (10 per cent.), and allowed to heal by granulation. Good food, iron, quinine, and alcohol according to judgment, must be administered, whilst appropriate medicine (e.g., codeine or opium) and limitations of diet are necessary in diabetic patients.” (*Rose and Carless' Manual of Surgery.*)

10. *Treatment of diabetic gangrene:* “In the less severe cases, limited to one of more toes, it will often suffice to keep the part warm and aseptic, until it is separated by natural processes, or at any rate the surgeon merely completes the work by dividing or dissecting out bones. Naturally, the elimination of sugar must be checked, if possible, by suitable diet and the administration of codeine. In more extensive trouble the character of the treatment turns largely on the amount of vascular disease and the degree of the accompanying inflammation. If the vessels are tolerably healthy, amputation not very much above the upper limit of the gangrene is justifiable; but if the main trunks are probably affected, a high amputation will be required, if the patient's general condition permits, although there is some risk that diabetic coma may supervene. When extensive suppuration is present, it is sometimes wise to lay the parts open for awhile and drain away the inflammatory exudations before considering the question of radical treatment. The choice of the anesthetic will also require careful consideration; and spinal analgesia should be employed when the lower extremity is involved.” (*Rose and Carless' Manual of Surgery.*)

OBSTETRICS.

1. *The cord should be tied when respiration is well established, and marked pulsation in the cord ceases, or the child cries lustily; say about ten minutes.*

The placenta is generally delivered in about fifteen to thirty minutes.

Delivery of retained placenta: “A finger—one or two—must be insinuated between the uterus and placenta at some point already partially separated, or, if no partial separation exists, at a point where the placental border is thick, and then passed to and fro, transversely, through the uteroplacental junction, acting like a sort of blunt paper knife, until separation be complete. Another mode is to find or make a margin of separation as before, and then peel up the placenta with the finger-ends, rolling the separated portion toward the palm of the hand upon the surface of the still adherent part. Great care is necessary to avoid peeling up an oblique layer of uterine muscular fiber, which might split deeper and deeper until leading the finger-ends through the uterine wall into the peritoneal cavity. Should such a splitting begin, leave it alone and recommence the separation at some other point on the placental margin. It is sometimes only possible to get the placenta away in pieces. These should be afterward put together and examined to indicate what remnants are left behind. It may be quite impracticable to get out every bit, but small remnants or thin layers too firmly adherent for removal do not distend the womb enough to create hemorrhage from their bulk, and the subsequent danger of septicemia from their decomposition may be obviated by injecting warm (2 per cent.) creolin water into the uterus twice daily, until everything has come away.” (*King's Obstetrics.*)

2. *Albuminuria* in small amounts, at irregular intervals, has been regarded as physiological on account of its frequent presence without apparent unfavorable symptoms. The anatomical basis for this has been supposed to be the so-called pregnancy kidney, which has been described as a congestion from the pressure of the altered circulation. The safer position is to assume that any amount of albumin is pathological, provided we have the assurance that it is not due to the admixture of discharges from the external genitals. Its clinical significance may be unimportant in some cases. The amount is generally small, not even appearing in some of the severest types until late in the disease. This may be true even in the later months in the form that terminates in *eclampsia*, in which it may suddenly appear as the attack begins. In such cases daily and even hourly examinations may be necessary.” (*Jewett's Obstetrics.*)

Albuminuria with no uremic manifestations: “The urine should be examined every month in the first six months of every pregnancy, no matter how normal it may seem, and every fortnight in the last three months. If albumin is present, the amount should be estimated in an Esbach tube, and the urea in a Doremus ureometer. The total quantity of urine per diem should also be ascertained. The principles of treatment are to relieve the kidneys by free elimination by the bowels and skin, and by diminishing the nitrogenous part of the dietary; and at the same time to prevent any further interference with the renal functions by guarding against cold. In mild cases where the albuminuria is the sole symptom, the patient should be warned to rest and guard against cold. The diet should be restricted to milk food, with bread and butter, and a little fish or chicken once a day, and the bowels should be made to act freely once every day. (*Johnstone's Textbook of Midwifery.*) And see below Question 4.

3. *Hemorrhages of labor:* Caused by (1) placenta previa; (2) premature separation of a normally situated placenta; (3) relaxation of the uterus; (4) laceration of cervix; (5) rupture or inversion of the uterus.

Prophylactic treatment consists in keeping the patient quiet, if necessary in bed, and conducting the labor with the utmost care.

4. *PUERPERAL ECLAMPSIA. Symptoms:* Headache, nausea, and vomiting, epigastric pain, vertigo, ringing in the ears, flashes of light or darkness, double vision, blindness, deafness, mental disturbance, defective memory, somnolence; symptoms easily explained by the circulation of toxic blood through the nerve centers. These may be preceded by lassitude, and accompanied by constipation or by diarrhea. Headache is perhaps the most significant and common warning symptom. In bad cases the urine is reduced in quantity (almost

suppressed), very dark in color, its albumin greatly increased, so that it becomes solid on boiling. Next comes the final catastrophe of convulsions. The convulsive fit begins with twitching of the facial muscles, rolling and fixation of the eyeballs, puckering of the lips, fixation of the jaws, protrusion of the tongue, etc., soon followed by violent spasms of the muscles of the trunk and limbs, including those of respiration; hence lividity of the face and stertorous breathing, biting of the tongue, opisthotonus, etc. The fit lasts fifteen or twenty seconds, ending in partial or complete coma, possibly death; or consciousness may return, to be followed by other convulsions."—(King.)

"The treatment of the attack consists of the administration of chloroform by inhalation, chloral hydrate (gr. 60) by enema, and the fluidextract of veratrum viride hypodermically (gtt. 15 followed by gtt. 5 repeated frequently enough to keep the pulse at about 60 beats a minute), to control the convulsions, and free purgation by croton oil (gtt. 2, or 3, in sweet oil or glycerin), free sweating by the hot pack, and sometimes depletion by venesection to eliminate the poison. The after treatment consists of free purgation by the salines, restriction of diet, and later the administration of tonics and stimulants. The obstetric treatment is usually noninterference."—(*Pocket Cyclo-pedia*.) Sometimes *accouchement forcé* is indicated.

5. *Diagnosis of Breech presentation.* Abdominal palpation reveals the head above, which is round, hard, and freely movable; the breech below, soft and irregular in outline. The heart-sounds are heard above the umbilicus. Vaginal examination shows a high position of the presenting part; after dilatation of the os the characteristic features of the breech may be detected—the sacrum and coccyx, the external genitalia and anus, the nates and thighs. There is usually evacuation of meconium.

The dangers to mother and child in a case of breech presentation are: (1) Compression on the umbilical cord; (2) premature respiration; (3) asphyxiation of the child; (4) the child may suffer from fractures, dislocation, hemorrhage, or paralysis; (5) extension of the head, or of the arms over the head; (6) increased tendency to rupture of the perineum.

SPECIALTIES.

1. The incubation period of syphilis is usually two to three weeks. Secondary manifestations usually appear from one to three months after the infection, or about six weeks after the chancre. Some lesions of the tertiary period: Gumma; lesions on the skin and mucous membranes; visceral lesions (in liver, kidneys, lungs, bones, heart and arteries, and nervous system).

2. Corneal ulcer is caused by an external wound leaving an opening for the entrance of a suppurative process, by intense conjunctival inflammation, or by some deep inflammatory process that leads to a destruction of the superficial layers and epithelium.

Treatment of corneal ulcer: The treatment consists in putting the eye at rest, instilling atropine, and the application of a bandage. Leeches to the temple will relieve the pain. Hot compresses have the same effect. The eye should be douched with sublimate solution, 1:5000, and iodoform dusted upon the cornea. Stronger sublimate solution, boroglycerid 50 per cent., and formalin 10 per cent. are sometimes necessary. Cauterization is occasionally indicated. If perforation seems probable, it should be hastened by a puncture.—(*Cyclopedia of Medicine and Surgery*.)

3. Inflammation of the Mastoid cells is diagnosed by: Tenderness, pain, swelling and redness over the mastoid; bulging of the superior and posterior parts of the auditory canal; temperature variable, from normal up to about 104° F.

4. Forms of nasal polypi: Simple or mucous, and fibrous or fibro-sarcomatous.

Operation for removal of mucous polypi: "In undertaking avulsion by forceps, the patient is seated in a chair, and the surgeon sits or stands in front of him. The nasal cavities are well sprayed with a solution of eucaine or cocaine (5 per cent.) and adrenalin (5 per cent.), and the situation of the pedicle ascertained by inspection and by the use of a probe. The forceps employed should be long, with delicate, though strong, blades, which are deeply serrated on either side of a

median groove. They are introduced open, with a blade placed horizontally on either side of the growth, and are gently pressed upwards until the pedicle is grasped as close to the turbinated bone as possible. The blades are then closed firmly, and the polyp twisted off and removed, a certain amount of hemorrhage resulting. The same process is repeated to the smaller tumours until the nostril is clear. It may be plugged with a strip of sterilized gauze if there is much bleeding, but such should never be left unchanged longer than twenty-four hours. The plug is then removed, and the base of the growth carefully examined and cauterized with the galvano-cautery by the aid of a nasal speculum. This cannot be so accurately accomplished immediately after removal, as the bleeding interferes with clear vision. The cauterization of the base is a most important item in the treatment, as without it the growths are sure to recur. The patient should be again examined after a short interval, so that any smaller polypi which have commenced to develop may be suitably dealt with." (Rose and Carless' *Manual of Surgery*.)

5. CHRONIC FOLLICULAR PHARYNGITIS. *Symptomatology and Diagnosis.*—"There is a sense of ever present irritation of the throat. The amount of secretion varies according to the pathological change and may be profuse, thin, viscid or scanty. Huskiness of the voice and coughing follow the prolonged use of the voice in the adult. The quality of the voice is notably impaired. The general appearance of the pharynx varies and is that of a venous engorgement, of a pale pink, resembling the normal. The follicles appear red and project above the surface, sometimes surrounded by varicosities. The tonsils may be enlarged and cryptic, containing infected cheese-like debris.

Treatment.—"The treatment is directed to the correction of any gastro-intestinal disorders, injurious habits, rest of the voice, general tonics and training in the correct use of the voice. The local treatment consists in the removal of any nasal obstructions and cryptic tonsils. The destruction of large follicles and varicosities is best done with the galvano-cautery. Care should be taken in the use of the cautery to avoid too great destruction of tissue at one time on account of the tendency to produce cicatrices which become a permanent source of irritation. Previous to the use of the cautery, the pharynx should be sprayed with a five per cent. solution of cocaine, which renders the application of the cautery painless." (Kyle's *Diseases of Ear, Nose and Throat*.)

Pyosepticemia Simulating Generalized Tuberculosis.

—Achard and Gardin relate a case in *La Médecine* for December, 1920, ii, 3, in which, after a history of tuberculous coxitis, ordinary septicopyemia developed from the joint focus. The patient when first seen was a man of twenty-five. As a child he had suffered from hip disease on the left side and had been treated by resection of the head of the femur. The cicatrix, which was in evidence, had remained quiescent. Three weeks before consultation the present affection had begun by pain in the affected hip, with temperature of 104° and pulse 120. The diagnosis was typhoid fever or acute general tuberculosis. Hemoculture, however, disclosed streptococemia without the coexistence of any other microbism. The clinical picture of sepsis appeared later, with its chills and abundant sweats and its temperature fluctuations, but for a considerable interval the patient did not look septic and the general condition in this respect was still good. There were symptoms which suggested secondary foci of sepsis, but they were abortive until an arthritis of the left knee developed. There were no further foci apparent, but the general condition became aggravated and after the development of oliguria, insomnia, anxiety, dry tongue, etc., the patient died, his temperature having become almost normal. Autopsy showed no serious anomalies of the intrathoracic organs. There had been a slight swelling in the suprahyoid region and a little pus was found here. The kidneys were only congested. There had been an abortive arthritis of one elbow and a focus in the base of the right lung had been limited to congestion and a little dry pleurisy. The total evolution of the process measured six months.

Miscellany.

NEW BOOKS AND OLD.

VI. THE FITZ-PATRICK LECTURES AND MEDICINE IN ENGLAND DURING THE REIGN OF GEORGE III.

By JOHN RICHARD, M.D.,
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THE College of Physicians of London boasts a lectureship devoted to the history of medicine. The first Fitz-Patrick lecturer in 1903 was Joseph Frank Payne, Harveian librarian of the College of Physicians. His lectures were entitled "English Medicine in the Anglo Saxon Times," and of these entertaining addresses more at another time. From his introduction, however, we learn that the lectureship was established by Mrs. Fitz-Patrick in memory of her husband, Thomas Fitz-Patrick, himself a member of the college, and as Payne says, "A physician of great worth, learning, and accomplishment." The lectureship was to promote an object in which Fitz-Patrick himself was much interested, the advancement of medical history.

Dr. Fitz-Patrick was born in 1832 at Virginia, a little town at the end of Lake Cavan. He was educated first at the college in the town of Carlow, and afterwards in Trinity College, Dublin, where he was graduated M.D. After practising a short time in one of the villages not far from his birthplace, he went to India in the medical service of the East India Company. Owing to a serious illness while in the East, he repaired to London, where he practised throughout his life.

The district of Ireland in which Fitz-Patrick was born, according to Norman Moore, is the birthplace of several old Irish poets, musicians, and historians, and in the eighteenth century, the home of such writers as Henry Brook and Thomas Sheridan. Moore believes that the literary association of his early life had much to do with the influencing of the later tastes of Dr. Fitz-Patrick. He was a man of great learning, well read in the classics, a lover of Don Quixote, which he read in the Spanish text; he was also familiar with Italian, French, and German as well as some of the other languages.

The idea of a lectureship devoted to the history of medicine is said to have originated with Norman Moore, who has done so much for the study of the history of medicine in Great Britain.

Medicine in England During the Reign of George III.—In 1917-18 the Fitz-Patrick lectures were delivered by Arnold Chaplin, who took for his subject "The Development of Medicine During the Sixty Years Reign of George III." The book is one which can be recommended for the historical section of any library, and while it is not as readable as some of the other lectures, contains a vast amount of interesting material, accessible otherwise, it is true, but put together in such a way as to give a good picture of the medical profession of the times. This was the period of the systems in medicine, the Animism of Stahl, the Ether of Hoffman, the Solidism of Cullen and others. This was the period when physicians were more given to theorizing concerning disease, than they were in making clinical studies, or observations on the

post mortem table, but the work of Morgagni and others was soon to make a change for the better.

I must refer the reader to the volume in question for his entertaining account of the conditions of medical practice in London, for the medical laws and relations, and medical education. I cannot refrain from quoting, however, Chaplin's account of the medical societies of the times.

Further evidence of medical activity in this reign is found in the rise of the numerous societies devoted to the advancement of medicine. Probably the earliest society of this kind of which we have any record was one founded by Glisson about 1650, and mentioned in his work on Rickets. The next was the Society of Naval Surgeons, which began its career in 1746. This society engaged Mr. Sharp to deliver lectures on surgical operations, and met at a house in Covent Garden. Sharp was soon succeeded by William Hunter, who continued the course for several years. In 1752 a Medical Society of Physicians was founded, chiefly owing to the energy of Fothergill, and met at the Mitre Tavern. The next to be formed was the "Society of Licentiate Physicians" in 1764 by Fothergill and Alexander Russell. Licentiates of the College only were eligible for election, and the meetings were held at "Old Slaughter's Coffee House," but once a quarter the members dined at the "Crown and Anchor." In 1767, at the instigation of Dr. Heberden, the "Meetings of the College of Physicians" were begun, and between that date and 1820 six volumes of transactions were issued. 1771 saw the foundation of the "Guy's Physical Society," by Dr. William Saunders, and the same year witnessed the establishment of the Physico-Medical Society. The Medical Society was founded in 1773, and in the following year the "Middlesex Hospital Society" began its career. Mr. John Sheldon formed a Medical Society in 1779, which met at his house in Great Queen Street, and in 1762, owing to the efforts of Dr. Simmons, Dr. Fordyce, and John Hunter, the Society for the Improvement of Medical Knowledge was established, the meetings being held at "Old Slaughter's Coffee House." Fordyce was also responsible for the foundation of the "Lycæum Medicis Londinense" in 1785. Finally, the "Medical and Philosophical Society of St. Bartholomew's," renamed in 1832 the "Abernethian," was formed in 1795, the "Medico-Chirurgical" in 1805, and the "Hunterian" in 1819. A Society of Physicians to Dispensaries met in the Borough about 1780, but the exact date of its foundation is uncertain.

It will thus be seen that twelve medical societies were formed during the reign of George III, and three only before that period. Many of them came to an end after a few years of usefulness, but six remain and are flourishing at the present time. Among those who did so much to encourage the formation of these London medical societies the names of Fothergill, Simmons, Lettsom, Fordyce, and William Hunter must be forever honored. They toiled, not unsuccessfully, for the advancement of medicine, and for a wider medical polity where men holding diverse opinions could meet and exchange their views.

In the provinces also three medical societies were formed during the reign. The first one being the Colchester Medical Society in 1774. This was followed by the Plymouth Medical Society in 1794, and the Leicester Medical Society in 1800, but previous to the formation of these three societies there is no record to be found of any similar society existing in the provinces. To complete the review of the establishment of medical societies, it remains to be said that toward the end of the eighteenth century six medical benevolent societies were founded in the provinces and one in London, all of which are flourishing at the present day.

The first English medical journal was printed in 1684, but only two numbers appeared. The only other medical journal prior to George III. was *Medical Essays and Observations*, started in Edinburgh in 1737, and continued to 1757. In those days when one addressed the medical profession, or any other group of readers, for that matter, it

was done by the means of "Letters," "Observations," or "Considerations." The library of the College of Physicians contains a very large collection of such contributions. We may quote Chaplin on the subject:

In 1757 *Medical Observations and Enquiries*, promoted by a Society of Physicians, was established, and for many years enjoyed a considerable popularity. The next journal to appear was the *Medical Museum* in 1763, a volume devoted to "Select Cases and Experiments and Discoveries in Medicine and Pharmacy." The following year "Medical Essays and Observations" made its appearance, and was composed of abridged Memoirs of the Royal Academy of Sciences in Paris. After this in 1767 the "Medical Transactions" of the College of Physicians was begun, at the instigation of the elder Heberden. Six volumes of these "Transactions" were published, the last appearing in 1820. The *London Medical Journal* was founded in 1781 by Dr. Simmons, who was its first editor, and in 1791 it was continued as *Medical Facts and Observations*. Dr. Simmons was also responsible for the *Medical Communications* which began in 1784 as the journal of the "Society for Promoting Medical Knowledge," but after two volumes were issued it ceased in 1790. Three volumes of the *Medical Spectator* were published between 1791 and 1796, and two of the *New London Medical Journal* in 1792-3. In 1793 the "Society for the Improvement of Medical and Chirurgical Knowledge" issued its first volume of Transactions, and at intervals two other volumes were published, the last appearing in 1812. They were all edited by Dr. Wells. The *Medical and Chirurgical Review* began its career in 1795, and continued until 1807. In 1799 the *Medical and Physical Journal* first appeared, and survived until 1833. The *London Medical Repository* was first published in 1814, and under various titles continued to appear until 1836. Besides these periodical publications, the Transactions of the Medical Society and of the Medico-Chirurgical Society were being issued from time to time. The list is a full one, and bears striking testimony to the great activity taking place in every branch of medicine during the closing years of the eighteenth century.

It was not until 1832 that the *Lancet* appeared and quickly enjoyed a wide popularity. The cause of its success was to be found in its powerful advocacy of medical reform, which was sadly needed, and in the great ability with which it was conducted. It not only appealed to the strictly medical mind, but also to the more progressive spirits in the profession, who relished its truculent tone toward existing medical authority. Its methods were sometimes questionable, but always undeniably clever, and when such matter as the incomparable "Intercepted Letters" by Wardrop appeared, although the medical world was convulsed with laughter, the fact cannot be denied that the good taste of such journalism was doubtful.

The memoirs of many of the most celebrated physicians of the period are to be found in the Roll of the College of Physicians, which will ever be a monument to its able compiler, Dr. Munk, and in the Dictionary of National Biography, most of the sketches in this were written by Norman Moore.

As Chaplin says, a very excellent idea of what was taught in the first thirty years of George III's reign can be gained by looking over the popular text book of the period, "The Elements of the Practice of Physic." George Fordyce, the author of this popular work, is more famed for his wonderful gastronomic feats at Dolly's Coffee House than for his contributions to medicine. This was the period of Heberden, Fothergill, of the Hunters, Baillie, all of whom, and many others, are commented on in the volume in question. He also touches briefly on the achievements of Thomas Young, one of the great lights of British medicine

and science, and as some one has said, "the last man to know everything."

Chaplin also traces the changes in the care of the insane, the advent of vaccination, public health, and devotes a certain amount of attention to army and navy services.

Perhaps the most interesting part of the book is his account of the illness of the king, and the physicians who looked after him. Chaplin truly remarks:

The lot of kings when stretched upon the bed of sickness is far less enviable than that of humbler mortals. Politics and the august presence of royalty seem to conspire together to paralyze the efforts of physicians, and it may be doubted if the prognosis in cases of illness among kings can ever be regarded in so favorable a light as in those of more lowly beings.

He goes on to state that great figures in literature are able to command the ability and sympathy of the physicians who attend them, and to illustrate this point he gives an account of Samuel Johnson's last illness. This is much too long to quote, but is well worth perusal. I can, however, take up space enough to give to the last two pages of Chaplin's lecture, which need no comment.

Although the days have long since passed when the mere mention of medical history raised a smile of genial sarcasm, many of us would be glad to see a still wider interest shown in the subject. Sound arguments may be advanced in support of this desire. At the present day, the immense range covered by the word "medicine" leaves but little time for the cultivation of extraneous studies which both elevate the mind and increase its usefulness in human life and endeavor. For this reason the title of "physician" is not now so synonymous with culture as it was in former years. Indeed, with the multifarious duties which fall to the lot of physicians in these days, it is wellnigh impossible to expect of them a wide and profound acquaintance with subjects outside the sphere of their immediate and pressing work. But a study of the history of medicine would permit the physician, while still tethered to his life work, to roam in a wide circle into the realms of history, biography, philosophy, and all the activities of the human mind. It would, at least, be a hobby, and so long as a hobby does not overwhelm the main purpose in life, it implies no disgrace, but rather operates as an agent of high recuperative value.

It has been urged that a study of this subject cannot advance our knowledge of present-day medicine. That may be true. But how can knowledge of any part of medicine be complete without an investigation of the early steps taken from hypothesis to accepted fact. The Church, the law, politics, art, and science all have their histories. Why should medicine, the meeting point of all human emotions lag behind?

If medical history be deemed worthy to form part of the education of physicians, surely no more fitting place can be found for its abode than the College of Physicians, the ancestral home of physicians for four centuries. The College has founded the Fitz-Patrick Lectures for the purpose of encouraging the study of the history of medicine, and is thus the first medical body in this country to accord recognition to this particular subject. The connection between the College and medical history is of the most intimate nature, and it is impossible for those belonging to it to remain uninfluenced by its great traditions. There everything around reminds them of the history of British medicine. On the staircase, in the reading room, and in the Censors' room they gaze on the portraits of physicians who have labored to advance the knowledge of medicine. The choice and magnificent library contains rich stores contributed by the great master-builders of the past. At the College meetings the Fellows occupy seats once filled by their great predecessors, Heberden, Baillie, Arbuthnot, Freind, Young, and Bright. The Presidential Chair recalls to them the long line of distinguished physicians who have adorned that emi-

nent position, down to the present occupant, who has done so much to encourage learning and the study of the history of medicine. It is a great heritage, and in proof of its vitality, it need only be stated that, while dynasties and empires have risen and crumbled in decay, the Royal College of Physicians is still, after four centuries, at the full tide of its strength and influence.

We cannot afford to neglect the study of this branch of medicine. Veneration for those who have labored to perfect the knowledge of our art, and the desire to be exactly informed concerning their work make it incumbent upon us to include this subject among those required for a complete medical education.

The Doctor.—The alleged rapacity of doctors is one of the meanest of libels. It is contradicted by common knowledge and every-day experience. The physician who thinks first of his fee is a rarity. The young woman of Trenton who was ready to sell herself in marriage for \$1,000 to pay for an operation on her mother need only have gone to the nearest hospital and not a cent would have been asked. A Brooklyn doctor a few days ago got up from a sickbed to take a bullet from the brain of an insane prisoner. His fee was—nothing.

From the time of Galen the medical profession has been the butt of the jesters. Most of the jokes are variants of "The surgeon buries his mistakes." Addison, in *The Spectator*, thought it good humor to write: "We may lay it down as a maxim that when a nation abounds in physicians it grows thin of people. . . . This body of men in our own country may be described like the British army in Cæsar's time. Some of them slay in chariots and some on foot. If the infantry do less execution than the charioteers it is because they cannot be carried so soon into all quarters of the town and dispatch so much business in so short a time." Yet there were doubtless fifty doctors in London who would have given their days and nights to Addison, though he hadn't a guinea to pay.

It is only in modern letters that we find real appreciation of one of the noblest of professions—in the poems, for example, of William Ernest Henley, who knew what it meant to be In Hospital. It is good to feel that these lines from his sonnet "The Chief" truly express a sentiment that is general to-day:

If envy scout, if ignorance deny
His faultless patience, his unyielding will,
Beautiful gentleness and splendid skill,
Innumerable gratuities reply.

Doctors are no doubt lower than the angels, but in whose daily labor is there more of unselfish service to fellow human beings?—*New York Tribune*.

Pneumonic Plague in Vladivostok.—A serious outbreak of pneumonia plague has occurred in Vladivostok, according to a cablegram received at the National Headquarters of the American Red Cross in Washington, from its representative there, D. O. Lively, of San Francisco. Pneumonic plague appeared once before in the Far East in the winter of 1910-11 when it exacted an enormous toll of lives before an international commission of medical experts found a means of checking it. Appearing without warning in Manchuria this pestilence not only killed thousands of natives with

almost unbelievable speed but caused grave concern to the rest of the world.

Unable to cope with the situation at that time, the Chinese government appealed to the nations of the world. The United States government turned to the American Red Cross which commissioned Dr. Richard Pearson Strong, who at that time was studying tropical diseases in the Philippines, to proceed to the stricken area. Dr. Strong was accompanied by his assistant, Dr. Oscar Teague, and they spent five weeks studying the plague at first hand before the international commission of medical experts met at Mukden to begin an organized fight against the disease.

The measures proposed by the international commission were put into effect, with the support of the Chinese government and the scourge, which had threatened to spread all over China, to the Pacific Islands, and possibly to this country, was finally suppressed. It was not overcome, however, before 65,000 natives and several of the foreign doctors and nurses had succumbed. The report of the international commission traced the outbreak to the Russian tarbagan or marmot, which had long been known to be the victim of a mysterious malady and from which some Manchurian hunters were found to have contracted the plague.

A Thirty-seven Day Therapeutic and Ambulatory Fast.—According to Babonneix in the *Gazette des Hôpitaux*, one Dr. Maglionni happened some time ago to read of the hunger treatment of disease, and was the more interested because he chanced at the time to be suffering from duodenal ulcer. A surgeon himself, he would on no account submit to gastroenterostomy and began to practise short fasts followed by longer ones. He first went only two or three days and then jumped at once to a fast of 19 days. Having learned the art of therapeutic fasting he went to London to undertake a prolonged experiment. This was begun June 20, 1915. Evidently his ulcer had benefited as a result of his earlier fasts. He for some reason found his London fast very different and was with difficulty able to deny himself at the outset. He took but little water and slept well, but on waking there was at first the obsession to eat. He had a special longing for dishes which he had liked as a young child—such as boiled sheep's head, tongue, and brains. He tried partaking of mental meals. He had formerly amused himself in this way, reading the menus posted at the entrance of public restaurants and eating in imagination the various courses. He would weigh himself on the public scales and note his weekly losses. He conducted his fast in a lodging house and came and went like any inmate, so that his landlady knew nothing of what was going on. He was, in fact, away all day, stating that he went to the clinics and ate in restaurants. Startling to relate he pursued this course for 25 days before he became too weak to climb stairs. On the 37th day he capitulated. He had no unusual appetite when he broke his fast. The sheep's head dish had ceased to tempt him and anyway he could not find one in London. He began on rice, beans, potatoes, apples, and oatmeal. He seems to have been the one faster who did not fast for exhibition or political purposes.

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GASTRIC ULCER AND ITS TREATMENT.*

By SIR J. BERKELEY MOYNIHAN,
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WHEN the subject of "Gastric Ulcer and Its Treatment" is announced in connection with so important an event as the "Wesley M. Carpenter Lecture" I can well believe that many physicians and surgeons will wonder if any new matter, or any revision of old matter can justify the orator in his choice. Yet I am quite unabashed. I believe that error has crept in upon the subject to a degree which is even now quite inadequately recognized; that for many of the statements which readily find acceptance, and that for much of the treatment to which patients are still submitted there is no real foundation in adequate knowledge. For every one must agree that unless the diagnosis of Gastric Ulcer is accurately made, any kind of medical or surgical treatment based upon it is irrelevant and wasteful, and any conclusion drawn therefrom necessarily false.

The literature of the subject is illimitable; it is in medicine as in finance, much paper and much poverty may coexist. Much dross has been foisted upon us as pure gold, and we have meekly accepted it as such because of the high authority or the specious phrases of the writer

As on the finger of a thronéd Queen
The basest jewel will be well esteemed,
So are those errors that in them are seen
To truths translated and for true things deem'd

All that has been written requires I think the most ruthless scrutiny in the light of the new truths disclosed by the work of the surgeon and of the radiographer. Heartless as it may appear, I venture, with diffidence but with hope, to suggest that a complete reconsideration of this subject by physicians may be undertaken. It is I think true to say that any one who has been engaged in a study of the subject will agree that gastric ulcer has been regarded as a disease of frequent occurrence, and of easy diagnosis, with the application of the ordinary methods of clinical inquiries. By degrees, however, it has become incontestable that the disease is uncommon, less frequent than duodenal ulcer, that it is closely mimicked by several other disorders, and that consequently its recognition, even after the most meticulous care has been exercised in the review of all the clinical facts, is by no means easy or

certain. If my own experience can be taken to have a representative value it is true to say that in more than half the number of cases in which the diagnosis is made in every day practice, and by the ordinary methods, it is inaccurate.

In the early days of our consideration of this subject we did not discriminate with accuracy between a gastric ulcer and a duodenal ulcer, and even today the differentiation is not understood as it ought to be. In recent Swiss and French literature the frequency of "pyloric" and "juxtapyloric" ulcers makes the total number of gastric ulcers larger than the number of duodenal ulcers, and a French surgeon possessed of one of the most acute intellects of the day has recently written, "Ulcer of the lesser curvature of the stomach is a special type of Cruveilhier's disease as clear as is pyloric ulcer," and I have seen in France and elsewhere, ulcers spoken of as "pyloric" and "gastric" which quite unmistakably lay in the duodenum. There is no excuse for these errors, for errors they certainly are. The stomach is marked off from the duodenum by the pyloric vein and the pyloric white line so distinctly, that the possibility of a mistake is certainly less than 10 per cent. Any one who cares to examine the points which I have previously described in detail, or who will make sections of the pylorus for examination by the microscope, will be satisfied as to the accuracy of these statements. Ulcers occurring no near to this boundary line as to be entitled to the term "pyloric" form almost exactly 1 per cent. of the total number of ulcers in the stomach or duodenum. Ulcers on the proximal side of the boundary are "gastric," on the distal side "duodenal." In the last 10 years I have operated upon 5 duodenal ulcers for every 2 gastric ulcers. Before that time the proportion of duodenal ulcers was even larger.

The symptoms of gastric ulcer are said by all authorities to be pain, vomiting, and hematemesis. Now these symptoms alone, or any combination of them are common enough; if their presence in any case is taken, as it so commonly is taken, as a warrant for a diagnosis of gastric ulcer, we can realize how it came about that the disease was considered to be of so frequent occurrence. Nothing but the closest analysis and the most anxious scrutiny of each of these symptoms individually, and of their grouping in any case, will sanction even the suspicion of the evidence of an ulcer, and before that suspicion can be confirmed, other methods of investigation must also be employed. What, then, are the characteristics of these several symptoms?

Ulcer of the stomach occurs twice as often in men as in women; its chief symptom is pain. All

*The Wesley M. Carpenter Lecture at the New York Academy of Medicine, October 21, 1920.

the attributes of this symptom merit and must receive the closest scrutiny. The chief attribute is, I think, regularity. In all cases of gastric ulcer there are periods of intermission, longer or shorter, at one period of the year or another; but when the attacks are present the pain, which is then the chief complaint, always displays regularity. It comes after all meals, even light meals; it is not present after breakfast on one day, after dinner on another, and absent entirely on another day. If during the attack a meal is eaten, pain follows invariably. The interval between the taking of the meal and the onset of pain is fairly constant. As a rule the earlier the pain is felt after a meal the nearer is the ulcer to the esophagus. That is to say, if pain comes, regularly, one hour or one hour and a half, the ulcer that causes it is in the stomach, it is a "prepyloric" ulcer. If the pain comes two, three, or four hours after a meal the ulcer lies generally beyond the pylorus. This period of relief from pain after a meal is constant and invariable, both in gastric and duodenal ulcers, until stenosis, subacute perforation, or the formation of crippling and embarrassing adhesions takes place. These conditions may lead to a delay in the time of the appearance of the pain in cases of gastric ulcer, or to the hurried appearance of the pain in cases of duodenal ulcer.

In over three cases in five of gastric ulcer, seen during operation, the pain came within one and a half hours of the taking of food; in rather more than four cases in five of duodenal ulcer the pain appeared two hours or more after food. In some cases of gastric ulcer the history was considered quite typical of duodenal ulcer. In most of these the pancreas was eroded. The pain in cases of gastric ulcer very often disappears after an hour, or even less, and may be completely relieved, indeed it generally is, before the next meal is due. The pain of duodenal ulcer, on the other hand, appearing later, generally persists, often with a slowly increasing severity, until the meal is taken. The character of the meal influences the pain. A generous meal of heavy foods causes severe pain to appear at an earlier time in gastric ulcer; it delays the appearance of the pain in cases of duodenal ulcer. Smaller meals of soft, pulaceous food, easy of digestion and easily propelled, produce less pain, and the interval of relief brought by the food is longer. An indiscreet and hasty meal, especially of fruits, or salads, or pastry, may give instant and grievous pain. A bland and blameless diet taken in small quantities at brief intervals may reduce the chances of pain appearing or even afford complete relief. In a small proportion of cases pain may not be influenced by food in the manner and to the extent now described. When the ulcer is near the cardia there may be no relief from taking food, or pain may immediately be made worse; each of these features is present in approximately 4 per cent. of the cases.

The pain is variously described: it is a deep, "boring," "burning," or "aching" pain; there may be "gnawing" or a sense of "acidity" and a desire for food or warmth. The pain in a majority of cases is said to be on the left side or high in the epigastrium; in some severe types there may be great complaint of pain in the back. In twenty-three cases in which there was a deep excavation in

the pancreas consecutive to a subacute perforation of the ulcer on the lesser curvature or posterior wall of the stomach, seventeen patients complained bitterly of the intolerable aching in the back. As we know, many patients attacked with acute pancreatitis suffer most from pain in the back, and it is an old observation and an accurate one that a deep eroding ulcer of the pancreas may also produce this most distressing symptom.

The position of the ulcer, its freedom from adhesion to neighboring parts, and its size, all seem to affect the type of pain, its period of latency, and its time of onset after meals. When ulcers are small and seated high upon the lesser curvature, or just on the posterior surface, the symptoms are shorter in duration, but more prone to recurrence. They are often, as we learn from the radiographic examination, attended by severe forms of local spasm, which are responsible for the sensations of distention, weight and pressure, which appear to accompany these ulcers more often than those of other types. If the ulcer is large, excavating the liver, or burrowing deeply into the pancreas, or if it is fixed by firm, broad adhesions to the abdominal wall of the liver, the symptoms are less likely to show those intermissions which are so characteristic of the earlier stages. If, therefore, in the history of an individual case we learn that the periods of freedom from suffering have become by degrees shorter, and have finally vanished, we may often predict that some of the conditions named are present. If, in addition, there are wasting and especially anemia, we may be very suspicious of the onset of malignant disease.

About one-fifth of the patients who are found to have gastric ulcers complain not only of pain, but of great prostration, feebleness, or lassitude coming on just at the time when the pain is due. On close inquiry this most distressing symptom may be found to have preceded the experience of pain by weeks or months. The periodicity of the two is identical.

It is not possible to emphasize unduly the importance of ascertaining all these various modifications of the one symptom, pain. The constancy of the sequence—food, comfort, pain, comfort; food, comfort, pain, comfort—is the most important of all the clinical matters concerned with the diagnosis of gastric ulcer. In duodenal ulcer the rhythm is food, comfort, pain; food, comfort, pain, and so on.

The next symptom in point of frequency is *vomiting*. In all forms of ulceration of the stomach or duodenum vomiting is an inconspicuous feature, unless obstruction has developed as the result of the cicatrization of the ulcer. Indeed a degree of obstruction which is by no means trivial may be present, and yet vomiting be very infrequent or entirely absent. It is no uncommon experience to hear a patient say, "I never vomit," and for an operation to disclose an extensive ulcer or a moderate degree of stenosis in the body or near the pyloric orifice of the stomach. Patients seem to have a great capacity for estimating the degree of tolerance possessed by the stomach, and of taking only such foods, or foods in such measure as will arouse no resentment. In the earlier stages of the development of their malady vomiting is not seldom self-induced in order to ease the stomach of a heavy load and a sense of

pressure and distention. But a very little experience seems to teach the greater number of patients the quantity of food that is appropriate for them. Thereafter vomiting occurs quite infrequently. It has probably been present on a few occasions in more than half the number of patients who have suffered in many attacks; but it is rare to find that quick reference is made to it when the history is being disclosed.

When in the record of any patient suffering from "dyspepsia" there is a story of frequent vomiting of the foods, or even fluid nourishment sparsely taken at once rejected, the thought that gastric ulcer is the cause should be driven from one's mind. The type of history, which is commonly heard, is, I find, rarely present in cases of organic disease of the stomach. The vomiting due to the presence of an ulcer is infrequent, and occurs almost always not immediately after food, but after a shorter or longer interval. The meal at first causes relief, and only after that period of relief does it cause disturbance.

Hematemesis also occurs far less commonly than is supposed. Hemorrhage manifest as melena, or in the vomit, is recorded in less than 25 per cent. of my cases; in the majority of these the amount of blood lost was trivial, and of many in which "hematemesis" is recorded it is at least doubtful whether blood was, in truth, present. I think it is true to say that when blood is discharged from the stomach either in a fresh state or as "black vomit," it is commonly believed that a chronic ulcer is present. There is a great fallacy in such opinions. That gastric hemorrhage occurs, and occurs profusely, in ulceration both of the stomach and duodenum, is certain; but the number of other conditions that give rise to hemorrhage is so large that the possibility of a gastric ulcer being the source of the blood should not be strongly or exclusively held. I have so often seen hemorrhage of the most abundant kind described as "gastric ulcer," which was caused by such other conditions as splenic anemia, cirrhosis of the liver, appendicitis, and other infective conditions within the abdomen, that in the elucidation of the cause of such a condition as profuse hematemesis I seem to turn to other possibilities than gastric ulcer in the first instance. It is true that there may be a confusion as to terms here. For when a patient dies of such hemorrhage a very close examination of the gastric mucosa may reveal the existence of tiny chaps, or cracks, or fissures from which blood has certainly issued. And when in the old days of unwisdom we operated upon such patients and explored the cavity of the stomach the mucous membrane was said to "weep blood," little trickles of blood could be seen to issue from many points. But these little gaps in the mucosa are not ulcers of the kind that produce symptoms. If a patient has suffered for months or years from dyspepsia, and then is seized with an acute attack of vomiting and hematemesis, and if an operation urgently performed reveals the condition of the mucosa I have just described, it is the worst of fallacies to connect the dyspepsia with the "ulcer" or ulcers then supposed to be present in the stomach. The ulcer which has caused repeated attacks of indigestion is always a gross lesion, a lesion in which there are present not only the evidences of destruction, but also of defense; around the crater of the ulcer is an area,

greater or less, of inflammatory action, and the serous coat of the stomach is plainly involved. If the breaches of continuity which permit the escape of blood in cases of cirrhosis of the liver, splenic anemia, and the toxic conditions which, as a rule, have their origin within the abdomen are called "acute ulcers," as they often are, it is essential to remember that such ulcers are recognizable by no other clinical evidence than hemorrhage, or in exceedingly rare instances by perforation; they are never the cause of a continuing or recent dyspepsia.

The radiographic method is, in expert hands, the one certain method of diagnosis, and is now an indispensable addition to the older and far less accurate methods of inquiry.

Of the chemical examination of the stomach contents I do not speak with any enthusiasm. For several years my patients were submitted to this form of investigation, but I cannot think that the evidence thereby obtained enabled a greater accuracy to attach to the diagnosis or justified the increased trouble it gave to them. Hyperchlorhydria is present in so many other diseases than gastric or duodenal ulcer that its presence does not offer positive or even contributory evidence of any real value. In rather over 40 per cent. of the total number of cases in which an ulcer is present there is no hyperchlorhydria, and in a small number, estimated at from 10 to 20 per cent., there is a reduction in the gastric acidity. I have not yet sufficient experience to speak with authority about the newer methods of Rehfuess and others, but it is already certain that they give us far more accurate information than the earlier procedures.

Physical examination, in the absence of obstruction in the body, or at the outlet of the stomach, reveals very little. There is a record of tenderness in the epigastrium in almost every one of the patients who are subsequently found to have an ulcer in the stomach. In ulcers of the lesser curvature I have sometimes found great tenderness high up on the left, along the costal margin—tenderness which becomes more acute when the patient breathes deeply. The kind of sensitiveness is then present on the left side which on the right establishes "Murphy's sign." When an ulcer crater is seen on x-ray examination it is almost always possible to elicit pain by direct pressure over the affected areas. The signs in pyloric obstruction and in hour-glass stomach are, of course, well known.

It must now be generally recognized that many of the diseases arising in connection with the abdominal viscera are, for months or years, looked upon as cases of gastric disorder. I pointed this out a few years ago in two papers published in the *British Medical Journal* (October 18, 1907, "Pathology of the Living," and November 28, 1908, "Inaugural Symptoms"). Up to the time of the publication of these articles it had not been generally recognized that in cholelithiasis, for example, all the prodromal symptoms were attributed to defects in the stomach, and the medicaments administered were in consequence those used in gastric diseases. The same statement holds good with regard to chronic disease in the appendix, in the small or in the large intestine. We are now familiar, as the result of x-ray examination and of the chemical examination of the gastric contents, with the truth

that all these conditions express themselves in terms of gastric disturbance, of irregular hypersecretion, and of spasm. And at the time when operations are performed we can discover by inspection of the stomach such conditions as enable one to predict that a lesion will be found on closer manual examination, not in the stomach, but in the appendix or its neighborhood.

If, for example, a patient has had a type of dyspepsia which has led to a diagnosis of gastric ulcer and an operation is performed, the stomach may show no scar, nor can any examination, however careful, display the ulcer whose presence was predicted. If, however, the stomach is closely inspected before it is handled, the following conditions may be seen: the pyloric part of the stomach is decidedly redder than natural—there is a "pyloric blush." That part of the stomach is soon observed to contract eagerly and vigorously; sometimes the spasm is so severe and so prolonged that there may be a suspicion of a tumor, but by degrees the spasm relaxes and the parts become supple again. The spasm may be irregular, now at one part, now at another; now slow and deliberate, now fugitive. Along the greater curvature the glands are enlarged. When these three conditions are seen the prophecy may be confidently made that the stomach is healthy and that the appendix (or one of its neighbors in the alimentary canal) is diseased. In such cases gastro-enterostomy has often been performed, sometimes, it is curious to note, with benefit, but as a rule with disastrous effects. It has been my lot to perform a secondary operation upon many such patients, and to remove a badly diseased appendix or to resect a tuberculous intestine, and perhaps to undo the anastomosis which should never have been made. The work of Cole, Barclay, Carman, and others explains quite clearly how it comes about that these intestinal disorders affect the stomach and cause its musculature to contract in the irregular and painful manner which raises the suspicion or seems to make certain the opinion that an ulcer is present. But there is also the infective element in such cases, as Wilkie has shown experimentally, and it is the toxemia which is its outcome that leads, as Spencer and Hutchison have noticed, to profuse hemorrhages from the stomach.

The stomach is an organ full of sympathy for other sufferers. Hardly any of the viscera connected with the intestine, or the bowel itself, can be affected without the stomach playing its part in the disturbance also. This it does by pouring out an excess of secretion and by tumultuous and irregular activities. It speaks so loudly that its voice only is heard. Its tears of sympathy are spoken of as hyperchlorhydria.

The whole subject now briefly mentioned requires close and prolonged investigation. We must seek to find out as accurately as possible the clinical indication that will lead us to diagnose a veritable lesion of the stomach in certain cases, and in others to be able confidently to say that the stomach is intact, and that other organs are telling the story of their own disease in terms of stomach discomfort.

Differential Diagnosis.—The very great difficulties in the diagnosis of gastric ulcer are due to reasons which we can now fully appreciate. An ulcer of the stomach does not arouse symptoms

merely because of the gap in one or more of the several layers of the stomach. We may be certain of this because, after an "attack" of gastric ulcer is over, and the patient is wholly free from symptoms, an operation may disclose the open crater of an ulcer large or small. The exact cause of the symptoms is uncertain, but, so far as we know at present, other conditions, in addition to the structural defect, must be present before the symptoms appear. These are:

1. Evidences of infection around the ulcer, such as induration, local peritonitis, the deposit of fat in and around the base of the ulcer, and enlargement of neighboring glands. The "sentinel gland" of Lund is constant in cases of active ulceration.

2. Spasm of the musculature of the stomach. Of the presence, severity, and duration of this condition we had very little knowledge until the methods of examination by x-ray became perfected, chiefly by R. D. Carman. We now know that a high degree of spasm is present and constant in examples of ulcer of the stomach, and present, though inconstant and variable, in those cases where there is no primary lesion in the stomach.

3. An increase in the acidity of the gastric juice. This hyperacidity is by no means constant either in gastric or in duodenal ulcer, but it is possibly a factor of importance in the awakening of symptoms.

These three conditions—infection, localized spasm of the gastric muscle, and intermittent hyperacidity—are all present not only in true ulcer of the stomach, but also in varying degrees, in most of those distant conditions which are able to arouse a gastric reflex; and it is their presence which causes that mimicry of the symptoms of gastric ulcer by other lesions which may be so exact as to deceive the most expert inquirer. My own strong feeling is that in order to obtain precision where so much has been vague, no diagnosis of chronic ulcer should now be confidently accepted unless the ulcer is diagnosed by x-ray examination or is displayed upon the operation table. A fresh start in the whole matter must really be made. We can no longer accept a diagnosis of "gastric ulcer" which is based only upon clinical and chemical inquiries. We must have the additional evidence which skilled radiography now places at our disposal. The results of medical treatment cannot be estimated at their just value unless we know, with fullest accuracy, that the patients treated were in truth suffering from an ulcer in the stomach. This is a matter for the physician to settle. Will not some physician bring forward evidence that all may accept? We ask for a series of cases in which the physician, the surgeon, the radiographer are agreed that a gastric ulcer is present, in which medical treatment has been tried, in which all are confident that a healing of the ulcer has taken place, and that the healed ulcer has not again broken down. The truth as to the value of medical treatment is not revealed by the assertion that cases diagnosed as "gastric ulcer" remain well for short periods after one or other of the several methods of "cure" which bear the name of their creators. Unless evidence can be produced to show that the real chronic gastric ulcer, not the phantasm which wrongly bears the name, can be healed by medical treatment, the surgeon, who in the diagnosis of the condition walks by sight and not by faith, is

entitled to claim that his methods alone can secure the end desired. At present I do not know of any such evidence that I can accept.

SURGICAL TREATMENT OF GASTRIC ULCER.

When the diagnosis of chronic gastric ulcer is made and confirmed, the treatment of the condition may be either medical or surgical. Of the former, it is not my province to speak, but I may be permitted the reflection that as customarily carried out it cannot possibly be of real value. In England certainly, and probably in every country, the hospital accommodation is not available for the prolonged treatment of such a large group of medical cases. When a chronic gastric ulcer, the cause of recurring attacks, is seen at the time of operation, it is perfectly obvious that the healing of a condition when such gross anatomical changes are present can only be brought about by long-continued and rigid treatment. If we are to have accurate knowledge of the efficacy of such methods we must see that they are controlled from time to time by a radiographic examination. In past times, even in present times, there is too much make-believe. Of many cases we do not know that an ulcer is present, of many we know nothing as to the progress or as to the completion of healing. The result is that no evidence has yet been furnished by any physician, so far as I know, of the value of the medical treatment that he has adopted. If once the early recognition of gastric ulcer is made a matter not of surmise but of certainty, as it can surely be, and if then the most exacting and scrupulous medical methods are adopted to secure healing, and if also the radiological evidence supports the views of the physician responsible for the conduct of the cases, then, and only then, shall we be placed in possession of the truth as to the several matters I have mentioned. When medical treatment can attain these possibilities it is certain that the surgical treatment of the disease will less frequently be needed, and when needed will not be of the drastic kind that is now so often required.

The surgical treatment of a chronic gastric ulcer may call for the performance of any of the following operations:

1. Gastroenterostomy.
2. Excision.
3. Gastroenterostomy combined with (a) Excision, (b) Cauterization (Balfour),
4. Gastroenterostomy combined with jejunostomy (Moynihan).
5. Median resection of the stomach: "sleeve resection."
6. Partial gastrectomy.

1. The operation of gastroenterostomy has been the most frequently performed of all operations. In the earliest days most of the cases coming to the surgeon for relief were those in which pyloric obstruction was present. The results of the short circuiting operation were very striking and immediate and the mortality was low. Largely owing to the advocacy of Doyen the range of the operation was extended, and cases of gastric ulcer in which the lesion was in the body of the stomach, or even at the cardiac end, were treated by this operation. The results were by no means so good; there were still satisfactory recoveries, but there were many that

gave dissatisfaction. A revision of my own early cases showed that the results could be classified into three groups:

a. The Results Were Excellent.—With the same alacrity that is witnessed in cases of duodenal ulcer, or in cases of pyloric stenosis, the patient lost all discomforts, and made a speedy and excellent return to health. I had not then in all cases indicated in a diagram made immediately after the operation as I do now, the exact position and the approximate size of the ulcer; and therefore I am not able to say exactly what the condition of the stomach was in this group of cases. But in many cases it is certain that the ulcer was near to the pylorus; and that the gastroenterostomy opening was on the proximal side of it. In others the ulcer was on the lesser curvature and was small, and free from adhesions. It had not, that is to so, perforated the coats of the stomach to become adherent to the abdominal wall, liver, or pancreas.

b. The Results Were Indifferent.—Some patients were found to have improved, in many cases for periods of months or years, others were known to have relapsed. At a subsequent operation the ulcer was found to be still present; it was then removed by local excision by the cautery, or by the performance of the operation of partial gastrectomy.

c. The Results Were Bad.—In this class of cases malignant disease developed in the base of the ulcer, and so near to the ulcer as to make differentiation impossible. It was of course possible in such cases that the disease had been malignant from the first and had been unrecognized as such by the surgeon. But the lapse of time in many of them was such that even when all allowance was made for the occasional chronicity of malignant disease of the stomach there could be no reasonable doubt that the cancerous change had taken place in an ulcer that at first was simple.

The evidence as to the value of gastroenterostomy in my own cases and the conflicting views of many surgeons of equal experience led to a consideration of the means by which the operation produced its results. Two views were held:

1. That the operation was purely mechanical in its effects. The making of an opening between the stomach and the portion of the intestines created an alternative and easier route for the passage of food. Retention, therefore, did not occur; indeed, the emptying of the stomach proceeded more rapidly than normal. Now retention in the stomach is due to many causes connected with a chronic ulcer. Some of these are: (a) Cicatricial stenosis. (b) Spasm at the level of the ulcer, as shown by the "incisura" of the radiographers. (c) A spasm of the pylorus not constant but occasional, occurring even when the ulcer was in the body of the stomach or at any part of the lesser curvature. Gastroenterostomy attained its greatest efficiency when a scar at or near the pylorus was causing a high degree of obstruction. The fact that an obstructive spasm is present even when the ulcer itself does not obstruct accounts, I think, for the relief which gastroenterostomy gives in such conditions. Radiography shows that a pyloric spasm is present in about one-third of the cases of gastric ulcer on the lesser curvature. This is roughly the proportion of cases improved by gastroenterostomy.

2. The second view was that the operation possessed a "physiological" value. On this hypothesis the entrance of the alkaline bile and pancreatic juice through the anastomotic opening produces in the stomach a medium whose reaction is favorable to the healing of an ulcer. Now a cell of the gastric mucous membrane is born in an acid medium, lives its life and performs its due functions in an acid

medium, and perishes in an acid medium. If the conversion of this medium from an acid to an alkaline one is to be described in a word, it should surely be "anti-physiological." Is there any reasonable proof that an alkaline medium favors the healing of an ulcer? Of surmise there is no end. Among the methods of treatment by medical means that of Sippy of Chicago is probably as good as any. It relies, or is supposed to rely, for its efficiency upon the neutralization of the acid gastric juice by the frequent administration of alkalis. But there are many other phases in the treatment, including lavage of the stomach. The cure of an ulcer, assuming an ulcer to be present (it is an assumption rather than a certainty unless the radiologist has confirmed the diagnosis) and to be healed by the method, may be due to one or other of the constituent parts of the procedure or to the special union of them advocated by Sippy. We cannot be sure. And it is at least conjectural as to what influence the neutralization of gastric acidity may possess. The fact, too, should be remembered that a notable proportion of the cases of gastric ulcer proved to exist by operation are accompanied not by increase but by a diminution in the amount of free HCl. I cannot be brought to believe that the "physiological" action of the operation of gastroenterostomy can be supported by any argument or any experience that will bear discussion.

The following conclusions may be drawn:

(a) The results, even when the operation was "successful," were not so satisfactory as those which now follow gastrectomy. The morbidity was greater, the return to health slower, the ability to take food early and generously was wanting, a more watchful after-care was necessary.

(b) Some cases returned with the ulcer still open and a further operation was required. In such cases the ulcer had almost always perforated all the walls of the stomach, and adhesions had occurred to the liver, pancreas, or abdominal wall.

(c) Some few cases returned with carcinoma of the stomach after so long an interval as to make it probable that the cancerous change had occurred after the operation had been performed. Estimates of this sort are, I admit, fallacious, for the chronicity of some forms of malignant disease of the stomach is remarkable. I have recently been consulted, on account of a return of her symptoms, by a patient upon whom four years and seven months ago I performed gastroenterostomy for carcinoma of the lesser curvature of the stomach, causing obstruction, when secondary deposits were present in many glands, in the falciform ligament (one of these nodules was removed for microscopical examination and confirmed the diagnosis) and the liver.

It is interesting further to note that when gastroenterostomy has been performed for duodenal ulcer a gastric ulcer may develop. Sherren and I have both observed this and cases are reported from the Mayo Clinic. And Sherren records also the development in such a case of gastric carcinoma. For all these reasons I think that gastroenterostomy should be reserved for those cases in which the ulcer is distal to the opening to be made, in which no reasonable doubt can be entertained as to the benignity of the ulcer, and in which the patient's condition renders a more extensive operation too hazardous.

2. *Excision*.—The operation of excision was introduced with great hopes, which unhappily have not been gratified. I have practised excision by several routes and have removed ulcers of various sizes.

A small ulcer on the anterior or posterior surface has been excised, and the opening left in the stomach either closed by interrupted sutures of catgut or utilized to form an anastomosis with the jejunum. Wedge-shaped excision of ulcers on the lesser curvature has been carried out, sometimes with ease, oftener with difficulty, and with a resulting deformity of the stomach. Ulcers on the posterior wall, perhaps burrowing into the pancreas, have also been removed through an incision in the anterior wall of the stomach. I have been profoundly disappointed with the results. My colleague, Mr. Collinson, in a paper read before the American Medical Association in 1914, found that in thirty-nine cases of excision there were fifteen in which severe recurrence of symptoms was observed. Eleven patients were submitted to a second operation, and seven of them showed active ulceration at the site of the excision, one had developed a fresh ulcer distal to the original one, and three had extensive adhesions which crippled the action of the stomach. The operation may fail on account of technical errors. Too small an area of induration surrounding the actual crater may be removed; the hard, stiffened edges of the wound which remain, infiltrated by inflammatory products which have long been there, may not heal kindly or rapidly, and fresh ulceration may start before cicatrization is complete. Of such a condition I found evidence in a case of my own, related by Mr. Collinson, in the paper to which I have referred. In other cases a deformity of the stomach may be consequent upon the removal of an ulcer, especially of one which lay upon or near the lesser curvature; the normal peristaltic movements will then be checked at the line of suture, as a radiological examination will plainly declare. The use of unabsorbable sutures, especially continuous sutures, may lead, as shown by C. H. Mayo, to secondary ulceration. All continuous "seromuscular" sutures probably penetrate to the mucosa in more places than one; if this occurs, the suture will eventually ulcerate its way through to the lumen of the bowel and be discharged, or hang loose at the suture line for months or years. Finally, even with a careful technique, adhesions may form between the suture line and any viscus or the abdominal wall in contact with it, and some embarrassment of the action of the stomach will then certainly result.

For these reasons, and in spite of some very satisfactory results, I have abandoned the operation altogether in cases of gastric ulcer. The disappointments it brings are too many and are neither easy to foresee nor certainly to be prevented.

3. *Gastroenterostomy combined with (a) Excision, (b) Cauterization* (Balfour).—Early in our experience with excision it was found that so much deformity of the stomach might be produced by the suture or by subsequent healing along the suture line that a short-circuiting operation became necessary. A combination of excision with the anastomosis then became the rule.

Balfour, of the Mayo Clinic, to whom we owe much in connection with gastric surgery, simplified this method and improved it considerably. Instead of removing the ulcer he destroyed it by cautery. The advantages of this were many: there was adequate destruction of the ulcerated area, and in addition an effect produced in all the area around the

ulcer of such a kind as would, by the selective action of heat, destroy any tissue undergoing an early malignant change; there was less sacrifice of normal tissues; there was no difficult suturing to be undertaken; as was not seldom the case after excision, when the wound reached around the lesser curvature on to the posterior surface. The operation was shortened and made safer.

The method has proved itself one of the best ever devised in the treatment of this disease. In my own practice it has not been widely used, because at the time when it was first introduced I was being gradually persuaded by my own experience to adopt the more radical method of gastrectomy. It is, however, a most valuable measure to have at one's disposal.

4. *Gastroenterostomy Combined with Jejunostomy.*—This is a method which I have advocated and practised in cases of grave difficulty. The results have been excellent. There are ulcers of the stomach so large, so awkwardly placed, and so deeply penetrating the liver or the pancreas, in patients whose general condition is so poor that any operation becomes serious. Such cases may be unsuitable for Balfour's operation, by reason of the size or remoteness, or deep perforation of the ulcer; and for the operation of gastrectomy by reason of the extremely feeble condition of the patient, who has perhaps recently suffered from a copious hemorrhage. In all such cases I perform gastroenterostomy in "Y," generally by the anterior route. The intestine is cut across about 12 to 15 inches below the flexure, the distal end closed, and the side of this distal part united to the anterior wall of the stomach. As large an opening as possible is made proximal to, or in the zone of, the ulcer, and extending sometimes over the fundus of the stomach. The proximal divided end of the jejunum is then anastomosed to the side of the distal limb a few inches below the gastroenterostomy opening. Into this proximal part at a point about three inches above the junction which has just been made with the distal limb a tube is introduced and fixed by the method of Witzel. The tube passes for several inches down through the enteroanastomosis into the jejunum. It is brought out of the abdominal wall through a small separate incision to the left of the umbilicus. It is through this tube that all nourishment is given for months, or for years, until a radiological examination shows that the ulcer is healed, and until a trial then of one month, during which food is given, discloses no return of the symptoms. During this time the greatest care is taken to keep the mouth clean by friction, the use of chewing gum, and frequent washing. I have never had any difficulty with a patient craving for food. The sufferings endured before operation and the relief immediately afterward, by their sharp contrast, make the patient disposed to do all one asks. One patient whose stomach showed the largest ulcer I have ever seen (we described it as resembling the mouth of a letter box through which the hand passed deeply into the liver), took no food for two years and nine months after this operation, although I gave her permission to do so. She took food generously through the tube and gained over 50 lb. in weight. Since removing the tube, now a few years ago, there has been no recurrence of symptoms. Indeed, up to the

present time, in no case in which this operation has been practised has the ulcer returned.

5. *Median Resection of the Stomach—Sleeve Resection.*—This method enjoyed a great vogue in many clinics, but its end results were not satisfactory. Contraction at the suture line followed in many instances and necessitated further operations. Kummell in ten cases found that in all an hour-glass stomach was produced; and Faulhauer and Redwitz in their experimental work found that in every instance tight constriction of the body of the stomach was caused when healing was complete. The method is one I have not performed for many years.

6. *Partial Gastrectomy.*—My experience of these operations has led me by degrees to abandon all of them except that in which gastroenterostomy is combined with jejunostomy. For a great variety of adequate reasons I think it is safer to be rid of the greater part of a stomach in which a gastric ulcer has formed. If for any reason removal is impossible, then the combined operation of gastroenterostomy and jejunostomy allows the ulcer tissue time to heal while the feeding of the patient is continued.

My choice of operation, therefore, now always falls upon partial gastrectomy, whenever it can with reasonable safety be performed. The risk is not great: over a period of ten years it is less than 2.5 per cent. All things considered, and account being taken of the five years succeeding operation, it is probably a safer operation and is certainly more immediately satisfactory than gastroenterostomy alone. It cannot always be practised. The condition of the patient may forbid it. The ulcer may be so large and so placed as to make removal a matter of so great technical difficulty that the immediate hazards are unfair to the patient. But as experience grows the number of such cases diminishes. Nowadays I rarely practise any other operation than partial gastrectomy or my own method of gastroenterostomy in "Y" combined with jejunostomy. The details of the operation of gastrectomy are briefly these: the duodenum is divided just beyond the pylorus, after ligation of the pyloric and gastroduodenal arteries. An opening is made in the transverse mesocolon, in the arch of the anastomosis of Riolan, in order to guide the surgeon in his ligation of the omentum below the greater curvature, so that the middle colic artery may be avoided, and in order that the conditions at the back of the stomach may be early and fully investigated. After division of the great omentum as far toward the left as the point at which the stomach is to be divided, the whole organ is turned over to the left edge of the parietal wound, until the coronary artery is brought into view and ligatured with great ease at exactly the place required. As soon as this vessel is cut an anchor is "let go," and the stomach is moved more freely. Then, while the stomach is held as a retractor, an anastomosis is made between it and the jejunum. I now always apply the end of the stomach to the side of the jejunum.

In my early cases I twice encountered a little difficulty in making the jejunum so apply itself to the stomach as to avoid a kink at the upper end of the anastomosis. In both cases some bilious vomiting occurred. In order to prevent this I now usually divide the jejunum completely across, about 6

or 8 inches below the duodenojejunal flexure, close the distal end, apply the side of the closed distal end to the cut end of the stomach, and then unite the proximal cut end to the side of the distal end about 4 inches below the stomach, thus making an anastomosis in "Y." This takes a few minutes longer, but the expenditure of time is worth while. Time is saved when the stitches which close the opening in the mesocolon are applied round the suture line; by this method they are easily and quickly inserted. The results are excellent. The condition after operation is remarkably good; in almost all cases the patients have the most tranquil progress that one could wish. And not one single case I have ever operated upon has had a recurrence of the ulceration. Once the convalescence is complete the history is without incident.

Whatever the operation from among all those mentioned which may be selected in each individual case, regard must always be paid to the power of the patient to bear it, and to its exact application to the particular conditions disclosed when the parts are directly examined. Before the operation commences the surgeon should never reach a definite decision to perform any one procedure; he must apply at the moment of operation the method which best meets the indications in each case. And here, as elsewhere, the little things count. Care in preparation, scrupulous exactitude in every detail, gentleness, deliberation, with such speed as comes naturally from much practice and is unsought as a special feature, all these together will sometimes turn what would otherwise be failure into easy and certain success.

My record of cases since 1909 is as follows:

Gastrostomy	96 cases, 2 deaths = 2.08%
Gastroenterostomy:	
Posterior	701
Anterior	8
In Y	13
Author's operation, gastro-	
enterostomy in Y with	
jejunostomy	14
Gastroenterostomy in Y	
with gastrostomy	2
In many cases the appendix	
was removed, and in some	
the gall bladder drained or	
excised. In two cases ovar-	
ian cysts were removed also.	
Excision of gastric or duodenal	
ulcer with or without gastro-	
enterostomy including Bal-	
four's operation	43 cases, 1 death
Hourglass stomach, treated by	
multiple short-circuiting opera-	
tions; gastroenterostomy com-	
bined with gastrogastrostomy,	
etc.	19 cases, 1 death
Jejunostomy	4 cases, 1 death
Total	316 cases, 12 deaths = 3.8%
or excluding 22 cases of gastric	
ulcer in which there were	
two deaths, the total number of gastric and duodenal ulcers	
is 375, with 10 deaths, a mortality of 1.11%.	

HORMONES AND EMOTIONS.*

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THE clinical and experimental researches of the last twenty years regarding the glands of internal secretion have notably contributed to medicine and to biological sciences in general. Notwithstanding the great difficulties presented by the study of these glands, and the many points of obscurity that still remain to be cleared up in regard to their function, endocrinology acquires constantly greater importance, and is becoming a separate branch of medicine, with periodicals of its own.

*Read before the Italian Medical Society of New York.

It may be said that there is no subject which has claimed more attention, and which today is more discussed in speech and in writing, than that of the endocrine glands. The discussion is so suggestive that it often departs from the medical and biological field to interest the psychologist, the sociologist, the philosopher, the educated public, and even those persons whose education and whose intellectual capacity are not above the average.

Last year the account of the experimental researches in regard to the thyroid gland conducted by Voronoff, made the round of the French and Italian newspapers, according to which Voronoff succeeded in restoring youth to aged animals by injecting into them the thyroid of young animals; thus the thyroid came to represent, for the public, a sort of elixir of life. An English translation of Voronoff's work has now been published in America.

Soon thereafter it was the turn of the English newspapers, which announced extraordinary results attained in the laboratory at Oxford by T. S. Huxley, nephew of the great zoologist, T. H. Huxley.

According to these newspapers, the results of experimental research in the laboratories at Oxford and Liverpool show the thyroid to possess the properties of renewing vital energy, of determining sex, and of regulating growth.

Huxley's experiments deal chiefly with the metamorphosis of tadpoles, which is retarded by the removal of the thyroid and hastened by the administration of thyroid substances; also with the transformation of the Mexican batrachian *Axolotl* into the American salamander *Amblystoma*, a transformation which is assisted by subjecting the animal to forced respiration, but still more by administering bovine thyroid.

As is well known, the experiments of Huxley which so greatly excited the English press are in no sense a scientific novelty. For years past the same questions have occupied Goudernatsch, Allen, and others in America, Boulanger, Kollmann, Chauvin, Jensen, Vaillant, Perier, Vecchi, Cotronei, and others in Europe.

The publication of the results of Professor Steinach's experiments with the "puberty glands" gave also the German press, both in Austria and in Germany, a pretext for reporting sensational accounts and raising false hopes among the laity on the matter of "Rejuvenation of the Aged." Steinach's grafting experiments were made on old impotent male rats, some of which became sexually potent and procreative, and on two old men, aged 65 and 71, who two months after operation lost the characteristics of senility and regained vitality and sexual vigor.

Reports of this kind are becoming rather frequent in the daily papers of every nation. This accounts for the interest which the laity takes in biological problems connected with the endocrine glands.

The results thus far obtained are far from justifying the extreme statements made by the press. Endocrinology is still a young science, and as such is full of uncertainties and of unfilled gaps which, while for the true scientist they represent a field of research, represent for the amateur a fertile field for the wildest speculations and hasty conclusions with which to fascinate and delude the lay public. Unquestionably a careful study of the endocrine glands will reveal to us the now hidden

solution of many biological problems. Such studies require fewer hypotheses and more experiments, although we are aware of the fact that hypothesis and theories are the yeast of science when timely and properly advanced. Charles Nordmann¹ in a reviewing article on this subject has put forward the hypothesis that variations of species are to be accounted for rather by the endocrine glands than by the environment, as supposed by Lamarck. An accidental disease of an endocrine gland, resulting in a suppression or increase of its function, might produce profound modifications in the morphogenesis of the animal, as in the case of Axolotl, which undergoes variations of species. This hypothesis, however, forgets that the inheritance of acquired characters is still far from having been demonstrated.

A most suggestive problem which is being followed with keen interest concerns the relation existing between the emotions and the internal secretory glands. Notable experimental contributions to this subject in this country have been given by Crile,² Cannon,³ and many others. Cannon and his school claim to have demonstrated that there exists a close relationship between certain emotions and the secretion of adrenin. Although Stewart and Rogoff⁴ have contradicted many of the assertions of Cannon, it cannot be denied that Cannon's work has opened a new field for psychological as well as physiological experimentation. We do not possess as yet laboratory methods for the isolation and study of the hormones of the endocrine glands with the exception of adrenin; nor do we possess laboratory proofs that certain hormones are increased or decreased in some abnormal psychic states. However, we possess many clinical indications which tend to confirm that not only the adrenal glands but the whole endocrine-sympathetic system is upset in disturbances of the emotional life.

Laignel-Lavastine⁵ and others quite often found thyroidal and ovarian disturbances among hysterics. Levy and Rothchild⁶ call the thyroid "the gland of the emotion" because of the active part which it plays in regulating the nervous mechanism of emotional discharge and its external display. In fact, the manifestation of some emotional states—fear, anxiety, worry, despair, intense expectation—corresponds to the symptoms found in diseases in which the thyroid secretion is in excess, viz.—frightened appearance, exophthalmos, tremor, tachycardia, dyspnoea, vasomotor, and secretory changes of the skin. Other authors called the thyroid "the gland of intelligence," because its secretion seems to stimulate the intelligence. We think that in hysteria, in anxiety neurosis, and in all the so-called emotional psychoneuroses, definite disorders of the thyroid and adrenals exist, to speak of only two glands, whose symptomatology is better known.

The essential characteristics of hysterics are: instability, suggestibility, hyperemotivity. The last one is responsible for the other two. These manifestations are found mostly among women who are more unstable, suggestible, and emotional than men. Such peculiarities of women must be connected with the variability of the thyroid function produced by the periodic changes of the sex glands whose hormones are in intimate functional relationship with those of the thyroid. In normal children before the

appearance of secondary sex characteristics there is no marked emotional difference between the two sexes. Mild nervous symptoms of hysteric character are found in children in whom a state of thyroid dysfunction exists, which Levi and Rothschild call "hyperthyroid temperament." These children are very unstable, irritable, highly emotional, subject to excess of anger, laughter, crying, peevishness, and at the same time show a certain degree of vivacity and intelligence. In physiologic states corresponding to certain periods of development or morphological changes of the organism, in which we know the thyroid and other glands are called for a more active function, we find a suggestion of the same nervous symptoms, e.g. at the seventh year of age and at adolescence in males and during the premenstrual periods, pregnancy, and the preinvolutional period in females. Typical hysterical symptoms may appear during those periods in normal women, while the same are increased in women already suffering from hysteria. For this reason hysteria was formerly alleged to be dependent upon disorder of the ovaries by some gynecologists who advocated different operations, but with negative results. At that time hysteria was considered almost exclusively a disease of women.

We cannot dwell too long on the many theories concerning the genetic mechanism of the emotions. The conception expressed by James and Lange in their somatic theory appears so much greater today inasmuch as practically nothing was known at their time of the relationship existing between the central nervous system and the endocrine-sympathetic system.

We think that emotion is the expression of hormonal actions. Emotions start very early in life and are coupled up or attached to the instincts by means of the endocrine secretions. In virtue of this early association or attachment, emotion becomes an instinctive reaction and is excited by any situation in which the gamut of the instincts is called into action. Conversely emotional states reinforce the instincts and tend to discharge themselves through the instinctive reactions. At first it would seem that each emotion is the manifestation of the hormonal activity of a particular gland and is attached to a definite instinct. The emotions of fear and, in a measure, anger seem to be attached through some of the hormones of the thyroid to the instincts of self-preservation and somatic integrity; the emotion of love (sex of the Freudians) seems attached to the instinct of preservation of species, through sex glands; anger seems more attached to some hormones of the pituitary. But it is not so. All the internal secretory glands together with the sympathetic nervous system are at the bottom of the emotional life. The organic reaction which accompanies the emotion is probably the same in quality in all the emotional states; what varies is the intensity and the duration. The different names created for so many emotional states are artificial inasmuch as they indicate objective states; in the same way as the old psychologists used the term "faculty" to indicate performances or phenomena corresponding to what seemed to be a particular mental activity. Who can draw a line between fear and anger in some of our subjective states? Cannon has taken only a relatively

small fraction of the organic manifestations which take place in anger, fear, hunger and pain, but we must not consider that fraction as the whole of a by far more complex mechanism.

It is known that there exist innumerable interrelations among the hormones of a same gland and among these and the hormones of other glands; these interrelations explain why all emotions may be aroused even when one or more endocrine glands are removed. It is true that in such instances the peculiar emotional responses are greatly diminished. In fact when the thyroid is removed a state of apathy follows which is characterized by slow ideation, late perception, poor imagination, aboulia, drowsiness, and great diminution and even loss of reaction to emotion. The same apathetic state is encountered when the pituitary is removed as well as in nearly all the well known syndromes due to insufficiency of parathyroids, sex glands and adrenals. Demonstration that such a state is due to the absence of hormones and not intoxication of the brain centers by substances which were not neutralized, is given by those opposite conditions in which an excess of internal secretions is known to exist; *e.g.*, witness the exaggerated emotional reaction to fear, worry, and anxiety, the live ideation, the prompt perception, the hypersensitiveness to sensory stimuli, the restlessness and instability met with in cases of hyperthyroidism. Some authors explain the mental deterioration consecutive to removal of thyroid as a myxedematous infiltration of the brain, but while the brain edema and its deleterious influence cannot be denied, it must be granted that the infiltration starts after the mental dullness has already begun; therefore, in the first period of athyroidism the mental symptoms are due to lack of hormonal stimuli.

The objection of those who attribute the mental symptoms of athyrosis to inadequate general nutrition of the organism and consider the mental symptoms secondary and consecutive to the physical ones, cannot be accepted in the case of adults. Here we have organisms which have reached their full physical and psychic development; therefore, arrest of growth cannot be taken into account for the disorders of the psychic sphere.

Von Monakow⁸ says that the internal secretory glands influence the nervous system in general and the sympathetic in particular, and so provide a diffuse mechanism which regulates the vegetative or instinctive life of the organism. He thinks that moral traumata, severe psychic conflicts, unsatisfied strong instinctive tendencies, produce functional disorders in the endocrine glands through the sympathetic system. This is followed by biochemical changes in the blood, which, combined with the protracted psychic stimulation, produce nervous disorders which constitute neurasthenia, hysteria, phobias, and hypochondriasis.

In mild emotions in which the connection with an instinct can hardly be detected, the hypersecretive stage must be short and so inconsiderable that the corresponding increased brain activity does not appear. Thus behavior seems not at all influenced. From such mild forms of emotion in which secretion is scarcely affected, we pass through a long series of graded strong and violent emotions which may be the expression of ever-increasing secretory actions.

The more the secretion which the strong stimuli call for, the longer will last the repercussion on the behavior, as any abnormally increased secretive state tends to pass from a transitory stage to a permanent one. It is almost the same thing which happens in the case of a rubber band. Gentle tractions will not produce any permanent changes in its shape and dimensions, but continuous strong tractions will produce each time a weakening of its inner resistance, a diminution of its power of contractibility and retractibility, and consequently it will tend to assume a permanently altered shape and dimension corresponding to the traction exerted.

"Every emotion leaves a sequel, an affective print, an orientation more or less definite, more or less durable, of the moods which cannot disappear with the ease and with the promptness of the representations of the provoking happenings. Hence a parallel orientation in the conduct. . . . This influence of the moods and of the prolonged protracted emotions on the motivation of the consecutive acts, influence which is due to the blind somatic mechanism of the emotions, suffices to explain, without the *deus ex machina* of a psychic unconscious, the phenomenon of *conversion*, which Freud puts as a base of his doctrines, or at least many of them." But what is the energetic factor of the affective tension which follows the emotion? A psychic manifestation is of course the transformation of another action, physical, chemical, biological; in the same way as an electric current or a magnetic action, a protracted light or sound sensation cannot exist independently from a still active physical or chemical stimulus. The laws of preservation of energy, of transformation of matter, the laws of action and reaction, cause and effect govern also the biological as well as the physical and chemical phenomena. An emotional state which continues to exist long after the removal of the sensitive or representative stimulus indicates that there is a physiological action or some irritation somewhere within the organism. This action, this irritation, or, to use an appropriate term of Woodworth, the originator of the dynamic psychology, this "drive," must be kept on by the hormones or by unknown substances set free by the hormones during the emotional discharge. The emotional experience will drop out of consciousness and memory, but the hormonal action will outlast it and will have impressed a durable course to the behavior, thus causing incongruous external manifestations which are usually attributed to the blind activity of a subconscious life.

The hormonal "drive" which is so frequently the mischief-maker of many pathological manifestations in the field of thought and action, is also very frequently the generator of many useful and genial activities. We all know the great part emotion has always played in historical events and in the great achievements of human progress. A life without emotions would be a life without action. The history of art and literature shows how many masterpieces were inspired by the emotion of love. Probably a well-coordinated and well-balanced hormonal flow due to an emotion equals *inspiration*. Hormonal actions must probably take place in human *intuition*, which Bergson¹² keenly compares to animal instinct. Thus the creations of geniuses in arts, science, and literature may have some rela-

tions with the hormones. Apparently it would seem that the cold man of science has no emotion which may be accounted as driving force for his discoveries. But this is not true. He has the interest, the expectation, the determination, the ambition which act as protracted emotional states in keeping on the harmonic flow necessary to the productive activity of the brain. As Woodworth² observes, "Anger, zeal, determination, are closely allied and probably identical in part. Certainly they are aroused by the same stimulus, namely, by obstruction encountered in the pursuit of some end."

Probably with the same mechanism of physiological hyperactivity of some hormones must be explained the sudden exhaustion of the so-called *enfants prodiges*, who during adolescence show signs of unusual intelligence and promise but afterwards barely reach the mark of mediocrity. For some unknown reasons, a state of hyperactivity of some psychostimulating hormones surpassing a great deal the physiological limit of that age, appeared at the time when many endocrine glands are called for more function, but such a state is like the apparition of a luminous meteor. Sometimes those same subjects, who were plumed for geniuses, may develop some sort of degenerative or constitutional psychosis, because to the period of abnormally increased harmonic production another period of marked hypoactivity or alteration of the same hormones may follow.

Emotions are original tendencies only in the sense that they are early attached to the instincts. There is no definite time in which each emotion makes its first appearance in the child. Without the occurrence of a certain situation, the emotion could not appear, and many times observers of children's behavior have failed to detect the first situation which made the earliest connection, and called original a response which was acquired after a series of similar situations, of which they saw only one of the later, and erroneously considered it the first one. We agree with Bechterew's idea of conditioned reflex, inasmuch as the emotional response is conditioned to a situation which calls for some internal glandular hyperactivity. The fear response is not provoked by the situation "a variety of objects and sense impressions which is difficult to discover," as McDougall says, but which experience suggests a personal danger. It is danger calling for the instinct of self preservation which acts as conditioned reflex in setting up the harmonic drive that gives the fear response. The child is not instinctively afraid of the dark, as most psychologists think; it shows the fear response to such a situation only when the darkness has become a conditioned reflex for the said emotion. Powerful instincts which come into action at the first indication of the individual's danger set up the harmonic drive, such indication being supplied in the earliest moments of life by some sensations of which we do not know the essence or the action. From that moment the fear response will follow the situation darkness until we are able to detach such emotions from such situations through training by attaching it to other pleasant situations in the dark. The new situations will gradually eliminate the element of danger, which first set up the harmonic drive by calling upon the corresponding instinct. But usually in adults

the situation darkness is followed by a fear response, because it implies the idea of danger.

The first fear and anger responses of a kitten to the situation "dog" are original, inasmuch as the instinct of self preservation which warns the animal of the immediate danger (olfactory stimulation probably) must initiate the harmonic drive. But the response of anger to the situation dog can be detached, if the cat is allowed to grow up with the dog, and thus is given opportunity to convince itself that the dog is not a danger to its life.

The sight of an aeroplane, the whistle of a siren, the ring of bells did not provoke any fear responses before the war. They provoked curiosity, wonder, interest. During the war, however, these same stimuli provoked strong fear responses, because they were associated with the aerial bombardment whose consequences called for the most powerful of primal instincts common to men and animals.

Emotions, having their physiological seat in the endocrine-sympathetic system, are involuntary, automatic, instinctive; they are unconscious when they start, and become conscious only when the centripetal harmonic stimuli reach the brain centers. But as the will tends to take control of the instincts in human ontogenesis, so training and the superior feelings which appear later (altruistic, social, esthetic, etc.) tend to inhibit or to discipline the emotions by rendering them independent of the instincts, namely by detaching them from the instincts. That is the reason why educated persons who possess such feelings, and have developed orderly habits of reflective thinking, are seldom dominated by the emotions as are children, intellectual inferiors, uneducated, infantile, and senile types of individuals in which every emotion finds an outlet through instinctive egoistic reactions. It is easy to understand why these infantile and inferior types are those who will react more promptly in a pathological manner to strong emotions. War experience demonstrated that among officers the emotional neuroses were less frequently met than the asthenic forms; the opposite was found among troops, who are usually less educated than officers.

In normal individuals an ordinary emotion of fear or anger produces a very short hypersecretive state, a stronger emotion is followed by a longer period of hypersecretion, but the interharmonic equilibrium is soon restored. If it is not restored, either on account of the extreme violence of the emotional stimulus or on account of its unusually long duration, or because of lack of resistance of the subject, nervous symptoms will ensue, which will have in an enlarged scale manifestations as manifold and various as the many reactions met with in ordinary fear responses. If we compare these with the many hysterical manifestations, we will see that the latter are merely the correspondents of the former enlarged in dimension and prolonged in duration. Aproxia, which is met so frequently in severe emotional syndromes, is nothing else than the continuation or the fixation of the responses "withdrawal of attention from everything save the exciting situation." Hysterical paralysis, astasia-abasia, correspond to the fear responses "falling down, remaining semiparalyzed, remaining stock-still." Convulsion, tics, spasms, are the correlative of the responses, "trembling, shuddering, shiver-

ing." "Blindness, mutism, deafness, anesthesia and analgesia are the continuance of the magnified subjective sensations experienced at the time of the emotion, viz., darkness of the visual field, tightness of the throat, and inability to utter words, paracusiasis, feeling of numbness, and insensitiveness to pain.

Those who ask why it is that hysterical symptoms are so manifold and so variable even in the same subject under different circumstances, find an answer to their question in the original nature of man, which has provided for hundreds of different responses to the same situation. In the matter of instincts we know that the instincts have not the same dominancy in different people. Apart from the individual deviations and variations due to nurture, this is true even with the strongest and the most primal instinct, "the will to live," which Schopenhauer considered as the metaphysical principle of the universe. Genetically the emotion of fear originated as a useful reaction intended to warn the individual whenever the attachment to life, "the will to live," "the joy of living," is menaced, in order that he might bring into action all his "reservoirs" of power, to use an expression of William James, against such menace. For instance, in battle we find all the elements indicating that such a menace is imminent and effective; there many and extremely frequent are the situations producing fear responses. In such circumstances the endocrine sympathetic system is kept under a severe stress, but as long as its physiologic limit of resistance is not surpassed, the emotional responses do not take a pathological course. Once, however, an unusual situation or a series of situations arises, this being beyond the individual's expectation and resistance, more or less permanently breaks up the endocrine equilibrium and so upsets the whole mechanism of the emotion. From this moment a permanent emotional period corresponding to the hormonal dysfunction and to sympathetic irritation, starts and continues until the equilibrium is restored again. This period will characterize the emotional psychoneurosis during which the personality will lose control over the emotions; strongly repressed infantile instincts and impulses will break through and we shall witness a sudden reversion to the stage of mental childhood. In this stage, in the same way as the subject has become the toy of emotions, he will become also the victim of the suggestion of other people or of his own. Moreover, the facility by which the emotions are formed and are let govern the actions, will consequently lead to the formation of the particular unstable character which plays such a prominent rôle in hysteria.

When after a strong emotion the endocrine equilibrium has been disturbed, this may be gradually restored by the natural resources of the subject, without any therapeutic intervention. In this case the time for the complete functional *restitutio ad integrum* of the endocrine-sympathetic system is dependent on the intensity, quality, and duration of the emotional trauma and on the individual constitution. If the natural resources are insufficient to obtain the *restitutio*, it will be obtained by means of psychic stimuli which should counteract or neutralize the action of the emotion responsible for the

breaking-up of the endocrine equilibrium. It is obvious that such state of dysfunction may continue to exist even if the emotional experience is not known or has been forgotten by the patient, causing those functional disorders of the nervous system of which we are unable to discover the origin or the motivation. This well-known process of forgetfulness which is due to the physiologic mechanism of the gradual obliteration of the mnemonic impressions and to the superposition of new ones, has received the name of "repression" and is considered by Freud as a mental mechanism. An inference which seems opportune at this point is that so many sexual complexes found by the psychoanalysts in neurotic women are nothing else than artificial productions of their own imposed on the minds of weak plastic personality open to suggestion and eager for recovery. Speaking from a strictly psychological standpoint, the good and original in the Freudian doctrine has been greatly abused and misinterpreted, especially in this country where Freudism has been blindly accepted and has received a much larger advertisement than in the country of its origin. The whole group of concepts—the "unconscious," "repression," "sublimation," "conversion," etc., with the exception of the "*Uebertragung*" (attachment and detachment of the emotion) are not new acquisitions of psychology; they are old ideas expressed with new terms taken from chemistry, physics, physiology, and other sciences.

We meet every day with cases of neuroses which recover either without or with psychotherapeutic procedure and also with individuals who wander from the office of the psychoanalyst to that of the Christian Scientist. In the first cases, viz., those who recovered without treatment, the environmental and the inner conditions of the patient sufficed to restore the normal function to the deranged endocrine-sympathetic system; in the second, viz., those who recovered after treatment, the normal function was restored by emotional psychic stimuli; in the third, viz., those who didn't recover at all, morphological and structural changes had occurred within the endocrine-sympathetic system following a long period of dysfunction, therefore nothing could reintegrate the lost equilibrium. When further researches enable us to discover such fine anatomical or biochemical changes within the endocrine sympathetic system, many of the so-called functional cases will be classified among the organic. We explain the successes obtained through psychoanalysis or through other psychotherapeutic procedures as due to the reestablishment of the endocrine equilibrium and of the normal sympathetic function, by means of psychic stimuli. Thus we explain also the relapses of those hysterics whom the psychoanalysts have pronounced definitely cured. These subjects, having a very unstable endocrine sympathetic system, offer limited resistance to emotional traumata, which will once again produce more or less temporary disorders of secretive nature within its chain and lead to the same neurotic symptoms or to different ones.

In conclusion, in matters of emotional traumata there are four elements to be considered: (1) the quality of the emotional stimulus; (2) the intensity; (3) the duration; (4) the endocrine-sympathetic make-up of the subject. Regarding the first

three elements, we know how variable they are. If we were to make a graded scale of the emotions containing these three elements, we would have a very long list and would convince ourselves of the extreme rarity of meeting with two identical situations containing the said elements in the same proportion. In war and in some of the collective disasters in civil life, we have examples of groups of individuals exposed to the same emotion in which the three elements of quality, quantity, and duration are practically equal. The fourth element varies in individuals and is the one responsible for the behavior at the time of the emotion and for the diversity and duration of symptoms later. When the endocrine system is thus upset, a more or less long period of dysfunction follows, during which, if it lasts too long, structural changes within the endocrine glands may occur. Such anatomical changes may be macroscopic, as in Graves' disease,* or they may be such as to escape detection. To such changes must be attributed those chronic cases of so-called functional nervous diseases which never yield to treatment, and are bound to continue throughout life. A practical point which comes from this consideration is that during the period of dysfunction of the endocrines and before structural changes have occurred, the treatment should be conducted in order to obtain successful results. This is the period of greater plasticity or permeability of the endocrine system and, consequently, also of the nervous system in general. If the psychic and physical treatment is not applied in time, then the endocrine-sympathetic dysfunction tends to assume a permanent course, either for the law of adaptation to which man is subjected as to the laws of habit, exercise, and effect; or because of structural changes which occur within the endocrines.

Predisposition to psychoneuroses really means an instability, inherited or acquired, of the endocrine sympathetic system. Neurotics in general and hysterics particularly are individuals possessing a labile endocrine system whose equilibrium may be broken at any time by a strong emotion and upset when submitted to the continuous emotional "surmenage" of a too intensive life.

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242 WEST FORTY-NINTH STREET.

PETROLEUM GAS POISONING.

ESPECIALLY IN THE MEXICAN FIELD.

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No medical man can be long in the vicinity of the Mexican oil fields without the arousing of his curiosity as to what the frequently mentioned "gas poisoning" really is. Especially after experience on the Western Front, the reports of sudden loss of promising young lives lead to investigation of what it is, what it does, and the possibility of devising practical methods for resisting its attack.

At a recent meeting of the Committee on Safety and Sanitation of one of the larger oil companies, the question arose as to which gas was the more poisonous, natural or illuminating gas. The answer was illuminating gas, and was based on the analyses of the two as found in Pittsburgh by G. A. Burrell of the Bureau of Mines.

To get a basic idea of the components of some of these gases, the analyses of these follow:

Natural Gas:	
Methane (CH ₄)	84.7
Ethane	9.4
Propane	3.0
Butane & C.	1.3
Nitrogen	1.6
Carbon Dioxide	A Trace
Illuminating Gas:	
Hydrogen	37.0
Methane	31.0
Carbon Monoxide	13.3
Illuminants (C ₂ H ₂ & C)	8.7
Nitrogen	4.8
Carbon Dioxide	2.6
Ethane	1.3
Oxygen	0.8

In mines the danger from methane is the danger from explosion and dilution of oxygen inhaled. An atmosphere containing 0.25 per cent. carbon monoxide inhaled for twenty minutes produces impaired sight and hearing, staggering, confusion of ideas, with nausea and headache lasting twelve hours, while 10 per cent. CO₂ is necessary to cause symptoms of marked distress (heavy panting, palpitation, flushed face, stupefaction and severe headache). Methane is known as "fire damp" and is guarded against by the "cap" on the safety lamp flame.

Carbon dioxide (with nitrogen) is "black damp." Carbon monoxide is the "white damp." A canary collapses in eighteen minutes in a 0.15 per cent. carbon monoxide atmosphere and shows signs of distress in three minutes. If the gas contains any

of the sulphur combinations (0.05 per cent. in air of H_2S , SO_2 , or CS_2)—there is immediate distress in canaries and mice. Hence the lamp and canary carried into the mine. All this has a bearing on an analysis of gas poisoning later on.

Now if the question asked had been: "Which is the more poisonous, illuminating gas or the natural gas from the Mexican oil fields below Tampico?" the answer would have been "Mexican gas," emphatically. Cattle, horses, burros, mules and men are felled by some of it as by an axe. In the petroleum industry danger lurks from the well to its final consumption. The giant wells of the "lower" fields, near Tampico, Mexico (about Tepetate, Obando, "114," etc.), have been born under very high pressure. The wells in the Mexican field about Panuco have not as impervious a super-stratum, there is less pressure, and the gas is distinctly less toxic; the final product of the latter is asphalt, and of the former frequently a paraffin base. A gas from wells of the lower fields is especially toxic; one inhalation and consciousness ends. The gas from these giants has become ignited, burning for weeks before controlled, and lighting up miles of the surrounding country with a light much brighter and purer than that from the gas of the "upper" fields. The pressure of the released oil, and the birth of gas through the volatilization of certain components by the release from pressure, is enormous. They pour out 100,000, 200,000, even 300,000 barrels a day of "Mexican Crude." It is free from sand and is, therefore, capable of control by valves in spite of the pressure; an oil pump is unknown in the Mexican fields. But there are, of course, leakage and frequent tragedies. The necessity of reducing this mortality led to an investigation of work done on petroleum gas poisoning. It was noted (as far back as 1872) that there was a difference in the physiological effects of different kinds of petroleum¹ and Sharp² summed up the situation by stating that the difference in the effect of American petroleum on the workers was due to their different compositions. Where natural heavy oils were obtained, asphyxia from gas was unknown, whereas with light oils suffocative attacks may not be infrequent. Some petroleum, it was found, irritated the respiratory passages, while others affected the central nervous system. Scheller and Strauss³ reported carbon monoxide as the cause of death of a man repairing a leak in a still, from its presence in the gases, resulting from the distillation of *petroleum residues with a paraffin base*. But on a tanker, carrying Mexican Crude with a paraffin base, escaping gas was detected. The man sent below did not return, the man that went after him did not return, and, when the third failed to return, they left the bodies there until sufficient ventilation made removal safe. These men died suddenly and without any outcry, not from any carbon monoxide asphyxiation, but probably from the same intensely toxic gases that overwhelm the medullary centers of workers in the lower field.

The carbon monoxide idea was followed up. Its amount in the distillation of crude oils from different localities varied from 1.1 to 8 per cent., and Scheller and Strauss assumed its origin from the decomposition of acids and esters in the residues.

A further analysis of the gases from the distillation of lubricating oils gave the following results:

	Soon After Beginning Distil- lation	After 1 Hr.	After Distil- lation of 1/3	End of Distil- lation
	Per Cent	Per Cent	Per Cent	Per Cent
Carbon dioxide	3.5	6.0	3.0	2.5
Carbon monoxide	16.0	8.5	16.5	10.0
Unsaturated hydrocarbons	3.5	12	3.5	16.5
Saturated hydrocarbons	77	73.5	77	71.0

Refined machine oil yielded no carbon monoxide, but the introduction of air, during distillation, caused the formation of CO_2 . This would be expected, as the reaction of the hydrocarbons, as well as carbon monoxide, with oxygen is CO_2 (and H_2O).

We have reports of poisoning from inhalation of benzene and gasoline.⁴ These range from primary cerebral stimulation (intoxication) to death. Symptoms of chronic poisoning may arise especially among the women workers with benzene. The Union of Chemical Industry in Germany (1905) reports two fatal cases in connection with naphtha stills. This must have been due to insufficient disconnection of the still and the passage of noxious products of distillation backward into the open still, where the men were working.

Rambousek's cases of fatality from benzene he thinks probably due to hydrocarbons of low boiling point present as impurities in the benzene (not benzene).

It is not until we reach the report on the Lima-Indiana and Gulf fields, and the distillation of these sulphur crudes,⁵ that we find a markedly more lethal emanation that requires the greatest confinement possible.

Symptoms.—Poincaré⁶ calls attention to the inhalation of the volatile constituents of crude petroleum in the air, producing symptoms affecting mainly the central nervous system, while some have a markedly irritating effect on the respiratory tract. Further, hydrocarbons boiling at low temperature act as nerve poisons, whereas those boiling at higher temperatures produce the local irritation.

The symptoms may be very acute and promptly fatal by overwhelming the cerebral centers, and from this it grades down to a simple stimulation of the higher centers, and the worker will tell you that the feeling is enjoyable and similar to primary alcoholic stimulation. Others are calmed, as from an opiate. Gowers⁷ describes *chronic poisoning* with slurring speech, difficulty in swallowing, vertigo, general nervousness, tinnitus aurium, hallucinations, loss of memory and anemia. Interest arises as to the possibility of lenticular softening, similar to that found in carbon monoxide poisoning. Intrinsic poisoning (toxins) may enter into these cases, though we are dealing with the poison as *extrinsic* only. Idiosyncrasy, however, may play a part in increased susceptibility to inhibitory influences, leading to partial or complete heart block or even ventricular fibrillation. There is also the *local skin effect* noted among workers on unpurified oils, liquid petroleum and its semi-solid and solid residues after distillation, and paraffin. Eruptions, papillomata (warty), acne ("paraffin eczema"), and a pustular eczema of hands, face and ears, also even abscesses and ulcers.⁸

Thompson⁹ mentions similarity between naphtha poisoning and benzol poisoning. He states death

may result from hemorrhage from the respiratory mucosa or paralysis of the heart. Autopsies on cases lasting a few days show fatty degeneration of heart, kidneys, and liver.

According to Jaffe,¹⁰ benzene is chiefly, if not entirely, excreted through the lungs, and when the process of resorption and excretion is rapid, extensive pulmonary hemorrhages are found. Resorption through the stomach, though slow, leads to extensive necrotic and inflammatory changes in the lungs.

It has been found that 0.05 gram of benzene per liter of air is poisonous, while 0.02 gram per liter causes local symptoms. It is well to call attention to the danger of poisoning also from poor combustion of any gasoline engine working in a poorly ventilated structure. With good combustion, the CO₂ is (approximately) three times the CO, but with bad combustion the CO is three times the CO₂—in cubic feet given off.

A man prostrated by "Mexican Crude" gas is pale, not cyanotic. The surface of body tends to be moist and clammy. The expression is staring. The pupils may be somewhat dilated or unaltered. The muscular system is relaxed. The breathing is superficial or suspended, heart action laboring and slowed, and pulse almost imperceptible. There is no irritation of respiratory mucous membrane then or later in case of recovery.

Affected to a less degree, some men suddenly feel that the knockout is coming, and on recovering consciousness find themselves with their arms extended, running excitedly across the open country, yelling or laughing hysterically. Their ideas are confused for several minutes, but there is no respiratory or cardiac distress. A headache may follow. There may be also a conjunctivitis.

Legludic and Turlais¹¹ state that the heart action of dogs on inhaling the gas was increased in force and diminished in frequency. If the gas is pushed, the heart stops in diastole. The action is through the vagi, as proved by their section.

Treatment.—The protection against poisoning has been the employment of a mask, with attached tube leading from clean air. In a case of prostration, the man is carried to good air, his clothing is loosened and a more or less faulty artificial respiration performed. One day a man happened to come along during this battle with death, who had an amyl nitrite pearl in his pocket. On a chance he broke it; some was inhaled and in six minutes the man was walking about, unaided, and reported for work the following day, feeling entirely well. In amyl nitrite an excellent physiological antidote apparently exists. Through dilatation of the peripheral vessels, pressure and distention of the left ventricle is relieved. Blood flows through the dilated coronaries. The high carbon dioxide content of the blood stimulates the respiratory center in the medulla. Several cases have been reported to me regarding the effect of the amyl nitrite. In all the cases so far heard from there has been recovery, and to such an extent that in from five to eight minutes the man has been on his feet, walking about; has walked back to his camp and has been at work the next day without any after-effect. Headache is complained of on regaining consciousness, but is only temporary.

The first point in the line of attack is *instruction* in the proper method of doing Schaefer's artificial respiration. The left arm is generally flexed and placed under left side of head, which is turned toward the right. They make sure the tongue is forward. The danger is that, in excitement, the thoracic cage will be compressed and released too rapidly; so, as they bear downward and inward, with tips of thumbs touching along margin of ribs, they say slowly, "Out goes the bad air"; then on easing the pressure, but without removing the hands, "In comes the good." This will make the respiration just about the required sixteen to eighteen per minute. At the same time a handkerchief or piece of shirt, in which the ampule or "pearl," if not in a fabric container, has been broken (two generally used), is held or placed over mouth and nose. Cold-water affusions are good, if handy. If the sufferer is thin, a coat, rolled up, is placed beneath the lower part of sternum. They must be cautioned, of course, to give nothing by mouth until complete consciousness is regained. A pulmotor is excellent if on hand and in working order. Camphor in oil, and atropin, hypodermically, would undoubtedly be of use, but the beauty of the amyl nitrite is the simplicity of its use in any hands and the almost immediate availability. Time lost in preparing a hypodermic may be fatal. The stimulant is immediately applicable, if the men are properly supplied and instructed. It is a sudden skirmish, quickly finished one way or the other. The construction of a gas mask, or helmet, that will safely destroy the toxicity of this gas or gases, is an important subject for investigation. They are needed about the wells, pipe lines, tanks, stills, and ships.

As to the exact nature of this poisonous gas (or gases), we do not yet know. It is probably some sulphur combination. Communication with Mr. J. G. Detwiler, chief chemist of the Texas Co., elicited the fact that "there are a number of lethal combinations into which sulphur can enter, and it may be possible that some of these exist in these gases." For analysis, he suggested sending ten liters of each gas if not diluted by air, and if diluted, four times as much. This has not yet been accomplished.

It is of interest to note that the industrial treatment of petroleum with sulphuric acid is recognized as an element of distinct danger to the workers (through the evolving of sulphur dioxide).

The Carpathian wells and the wells of the Mexican fields, are "sulphur crudes." Geologically, they occur in the tertiary period. Both affect the central nervous system.

Summary.—In the mystical realm of hydrocarbons we are still at sea. However, it is of greater practical importance to an industry, handling some twenty million barrels of oil a month in the Tampico district alone, to know how to attack this gas, than to know the exact chemical formula. This, however, must be determined and further reports made on the use of amyl nitrite. The gases causing the pulmonary line of symptoms require investigation and a definitely settled method of treatment.

Prophylaxis lies in the proper gas mask, inclosure of gases, and ventilation. The attack on the condition itself demands first aid instruction of all men liable to exposure and a general dispersal of

amyl nitrite, with exact directions, until something better is demonstrated. We are dealing with great depression of the respiratory center and excessive cardiac inhibition (cardio-inhibitory center). Cases of sudden death from chloroform and nitrous oxide gas make us think of the possibility of ventricular fibrillation in these cases. The checking of excessive vagus action¹¹ would make a report on the reaction to atropine very valuable.

The value of our attack lies in efficient and immediate procedure, hence the danger of any reliance on things mechanical, such as pulmotor and hypodermic. There is a Prussian Ministerial Decree, dated January 5, 1909, governing benzine extraction plants in Germany. Most of the large oil companies of this country are working out their lines of safety, with their own special committees. General investigation, with an exchange of reports, should be encouraged. The General Manager of small vision and limited experience and sympathy is a deplorable handicap.

I wish to acknowledge much help in data, obtained from Mr. V. R. Currie, chairman of the Central Committee of Safety of The Texas Co.

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19 PARK AVENUE.

INTUSSUSCEPTION IN INFANCY AND CHILDHOOD.

WITH THE REPORT OF A SUCCESSFUL CASE OF RESECTION FOR GANGRENOUS INTUSSUSCEPTION.*

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THIS subject has been chosen, not with the idea of adding any scientific data to a topic which has already been exhaustively discussed, but rather to bring before you again some of its clinical manifestations, with a plea for the early recognition of the condition and its immediate surgical relief. About 70 per cent. of all cases of intussusception occur during the first year of life, and it is the cause of about 30 to 40 per cent. of all cases of intestinal obstruction. Especially in infancy, intussusception is attended with appalling mortality, some authors giving as high as 73 per cent. Our experience is that the results are directly dependent upon the duration

of the condition prior to operation. The cases operated upon within the first twenty-four hours after the onset, show well over 95 per cent. recoveries in the hands of experienced operators. It is of interest to note the figures which are given by Clubbe of Sydney, Australia. In his first 50 cases, there was a mortality of 50 per cent. In the second 50 cases, the mortality dropped to 25 per cent. The third 50 cases show a mortality of only 8 per cent., and there was not a single death among his following 25 cases. This is, of course, a wonderful tribute to the operator's skill, but I believe that the greatest credit belongs to the practitioner who sees that the case goes to early operation.

The etiology is somewhat obscure, and has been variously attributed by observers to any one, or a combination of, the following conditions; (1) Difference in caliber of large and small intestine; (2) Abnormally loose mesentery; (3) Appendix; (4) Meckel's diverticulum; (5) Ulcers of the intestine due to tuberculosis, syphilis, typhoid fever; (6) Tumors of the intestinal wall; (7) Tumors of the mesentery; (8) Excessive peristalsis; (9) Ileocolitis, etc.

In the vast majority of cases, the beginning invagination is located at or near the ileocecal valve and the degree of telescoping of the intestine may vary from a few inches to several feet. At times the large intestine is invaded throughout its entirety and one easily feels the apex of the intussusceptum by the tip of the examining finger in the rectum. Usually the intussusception is single, but it may be multiple. I have seen a second intussusception in the transverse colon, but never a second one in the small intestine, although they sometimes occur. Recurrences are infrequent, but if taking place within a few days of the primary operation the results seem to be uniformly fatal; however, the cases do well when an interval of months has elapsed. To guard against this distressing condition, I believe that if the patient's condition warrants, the appendix should be removed and, if demonstrable, mesenteric tumors should be excised; likewise the intestine should be resected if a tumor of the same obviously caused the invagination.

The symptoms and course correspond, in general, with any acute internal strangulation, and seldom present any difficulty in diagnosis. Practically always we find a previously healthy and well nourished child and, if an infant, it is usually breast-fed. The child has had apparent, sudden, stabbing abdominal pain with very marked shock and prostration. The onset is usually accompanied by vomiting, with later straining at stool, and possibly some flatus and particles of feces expelled. We, however, practically always find varying amounts of mucus tinged or streaked with blood. After this violent onset, there is a period of apparent well being and the child seems almost normal. This, however, is of short duration and the cramp-like pains return, intermittent and accompanied by rhythmic straining, and larger quantities of bloody mucus are expelled from the rectum.

The presence of a sausage-shaped tumor, appearing not tender and freely movable within the abdominal cavity, makes the diagnosis certain. This tumor may be of any size and be felt anywhere within the abdomen and it is usually tensely elastic

*Read before the Medical Society of the Greater City of New York, January 21, 1921.

in consistency. At times it may be difficult to palpate the tumor; but with a finger in the rectum and the always soft abdomen in children, one should have no difficulty. Clubbe states that in 173 cases, in only two did he fail to palpate the tumor.

Depending upon the completeness of the obstruction, we have in varying degrees, bile, particles of feces, and flatus passed by rectum; in the later stages we find nothing but a mucohemorrhagic fluid. Vomiting is not a constant symptom, and after the onset it may be altogether absent until the later stages of a complete obstruction. When vomiting occurs early and persists one is apt to find an acute strangulation of the blood supply, this leading to an early gangrene. The temperature remains low, even subnormal, but the pulse is greatly accelerated. Later, when gangrene has developed, and the patient becomes toxic from absorption of the necrotic tissue and bowel contents, the picture is the usual one of septic toxemia, and, unless death intervenes, general peritonitis follows. Should this condition be confused with an acute ileocolitis or one of the purpuric diseases, radiography after injection of bismuth solution into the colon, will soon solve the problem.

In a very few instances there has been a spontaneous reduction. Rarely does the intussusception slough off, leaving firm adhesions and a patent intestinal canal. In the very early stages, by careful manipulation, the invagination has been reduced and this also has been accomplished by the use of enemata. However, one must fully realize the danger of these seemingly simple procedures, for the pathology at the site of the lesion predisposes to rupture of the intestine. The above happy and unusual results should never be anticipated, and I positively believe that surgery is not only the safest, but the only certain method of treatment.

The *laparotomy* should be performed as quickly as is consistent with accuracy. I prefer the "compromise" incision, in which the right rectus muscle is split at about the level of the umbilicus. This can be subsequently extended in whichever direction one finds necessary. If possible, deliver the tumor and attempt its reduction by gentle taxis. Begin disinvagination at the apex of the intussusception, and push back to its point of origin. Because of the obstructed blood supply the tissues are very friable, and laceration of the gut and mesentery is liable to happen if attempts are made to "pull it out." If the gut is irreducible or non-viable proceed with resection *immediately*, and do an anastomosis, for now much depends upon the speed of the operator. I close with the usual layer sutures, and the skin with silk worm gut including the rectus fascia, as these wounds do not show the normal rapidity of repair.

The following statistics are from the surgical service at the New York Post-Graduate Hospital, for a period covering the past five years. I wish to thank Dr. R. F. Carter, the resident surgeon, for his kind cooperation in securing these records. There were in all 34 cases, operated upon by six surgeons. The age of those under one year averaged $6\frac{1}{2}$ months. Of those over one year, the average was $2\frac{1}{2}$ years; the oldest child being six. As to the sex, 74 per cent. occurred in males.

It is very interesting to see what the figures show as to the mortality, in relation to the preoperative duration of the condition.

Duration	Number of Cases	Cured	Died
4 days	1	0	1
3 days	1	0	1
2 days	9	0	7
1 day	12	9	3
Less than 24 hours	6	5	1

In four cases no mention was made of duration. Vomiting was present in 77 per cent., and bloody mucus in 97 per cent. of the cases. A mass was felt through the abdominal wall in 16 cases and by rectum in 7 cases. In 5 cases no mass was felt, and in 13 cases no reference was made to this on the chart. As to location, 12 per cent. were limited to the small intestine, the remaining 88 per cent. were at or near the ileocecal valve, involving both large and small intestine. In 71 per cent. of the cases the intussusception was reducible. Resection of the intestine was done in 29 per cent. of the cases, and of these 23 per cent. were gangrenous and 6 per cent. irreducible. Of the resected cases 76 per cent died and 24 per cent recovered; the average amount of gut removed was eight inches. The appendix was removed in 32 per cent. of the cases.

Total cases operated upon, 34; cured, 59 per cent.; died, 41 per cent.

In this series there was one definite recurrence after six months. In one case the gut was perforated while an attempt was being made at reduction. Lobar pneumonia was a complication in one case; one patient died from hemorrhage following an infected wound. One died from a general peritonitis; another from inanition, no surgical cause being found. The remaining cases being profoundly toxic failed to rally.

The following case is of particular interest.

W. L., No. 49,680, age six years. For the past three weeks has had a paroxysmal cough accompanied at times by vomiting; this has improved in the past few days. Twenty-four hours ago he was seized with sudden lancinating pains in the umbilical region, accompanied by prostration. His bowels had moved that day, but an enema was given, and bloody streaked mucus was the only return. Since the onset he has vomited three times. Now the pain has subsided, but returns in rhythmic cramps every three or four hours. Rectal temperature 99° , pulse 128. The child was fairly well developed and did not look very sick. His condition was good. At the left base there were a few crackling rales; heart normal. The abdomen was relaxed and there was no apparent distention. A somewhat solid, gurgling, movable, not tender, mass, about 3 inches long, was felt to the right and above the umbilicus. Rectal examination was negative, excepting there was bloody mucus on the withdrawn finger.

He was immediately taken to the operating room and through a generous right rectus incision the freely movable mass was delivered. Free serosanguineous fluid was found in the peritoneal cavity. The intussusception was found involving only the small intestine; irreducible; very dark in color and apparently non-viable. In all, eighteen inches was resected and an end-to-end anastomosis was done. The wound was closed in layers, silk worm gut in the skin, and a rubber tissue drain inserted. Ether anesthesia was administered, and an infusion of 500 c.c. physiological saline solution was given during the operation. Operative time was twenty-three minutes. On the twenty-first day he left the hospital, and four months later I saw him and found him in excellent condition.

This case serves to illustrate all of the salient points in symptomatology and physical signs of the usual case of intussusception. In addition, operation clearly showed to what extent the gut could be involved after such a short period of time, although the child appeared to be in good physical condition.

The delay of even a few hours in this case, would have unquestionably proved fatal, especially since we know that recovery following resection for gangrenous intussusception is extremely rare.

445 PARK AVENUE.

TREATMENT OF ARTHRITIS BY NONSPECIFIC THEORY.*

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THE treatment of arthritis by nonspecific proteins is still in the experimental stage, and the clinical reports are relatively few. This report is submitted with a view of confirming its undoubted value in a large percentage of cases.

Our understanding of the way in which animal or man combats disease may be grouped under two theories: (1) specific and (2) nonspecific.

1. The specific theory is based upon the assumption that, when an animal is infected with a given disease, we find in the blood specific antagonistic substances called antibodies; and those substances capable of producing these antibodies are called antigens, *e.g.* Tetanus or type 1 Pneumococcus.

2. The second theory, or nonspecific theory, aims to explain that the cause of all diseases is due to the action of toxins that are fundamentally the same.

There exist in the body nonspecific splitting enzymes, protein in character, that attack invading protein toxins, whether they are bacterial, animal, or vegetable. These nonspecific protein enzymes may be activated by the injection intravenously of various foreign proteins in proper dosage. The most frequent protein used is typhoid vaccine, others being milk, casein, peptone, egg white, etc.

Vaughan has suggested that all proteins, regardless of their origin, have nuclear units which are identical, and this basic unit is toxic. Whipple has identified this as a toxic proteose.

I am indebted to Dr. Lintz for the courtesy of allowing me to use the cases in the medical division. Our report includes fifty cases treated in the past sixteen months that did not yield to any other treatment.

Miller and Lusk report 175 cases of acute, subacute, and chronic arthritis treated by intravenous injection of foreign proteins, and they obtained favorable results in all not complicated by adhesions. The proteins used may be bacterial, animal, or vegetable. In our cases, the gonococcus vaccine was used twice; in all other cases the Board of Health typhoid vaccine was employed diluted in 10 c.c. of physiological salt solution. Although we have had no bad results, Thomas declares he knows of several cases in which the treatment was followed by sudden death. According to Snyder all those cases were in such serious condition at the time the vaccine was administered, that they should not have been considered suitable cases for this treatment.

During the last three years, Kraus, Ludke, Jobling, Snyder, Miller, Lusk, and others have greatly contributed to our knowledge of nonspecific therapy, but no satisfactory explanation for the beneficial

results has as yet been advanced. A plausible explanation is the analogy between the typhoid protein paroxysm and the malarial paroxysm. When we consider the phenomena we are impressed with their similarity. The malarial paroxysm is a protein reaction due to the death of the parent cell, setting free in the blood stream dead malarial proteins and this brings about a group of symptoms almost identical with that induced by the intravenous injection of typhoid protein.

Clinical Phenomena.—(1) Chill. The injection of a foreign protein intravenously is followed in fifteen to thirty minutes by a severe chill, similar to the malarial paroxysm as mentioned above. The entire body shakes, the involuntary muscular contractions probably playing an important part in breaking up small adhesions.

(2). *Temperature.*—The temperature rises in moderate reactions to 103°, in severe reactions to 106° or 107°. Ludke states that as a result of the high temperature the organism is either killed or a firmer union takes place between antibody and antigen. Culver has proven experimentally that it is impossible to infect a patient with gonorrhea during an acute infectious disease. This point is important, since many of our cases of arthritis are due to the gonococci.

Following the chill the patient's body is bathed in an acid perspiration and he complains of headache, abdominal pain, backache, pain in the affected joints, nausea, and at times vomiting.

Blood Changes.—Following the administration of the vaccine there is a mild leucocytosis; during the onset of the chill the white cells rapidly decrease, but after the chill a marked leucocytosis takes place—twenty to seventy-five thousand. At the end of 24 hours, the white cells return to normal.

Complications.—In our series of cases we have not had any untoward effects. The kidneys and heart were carefully watched and no cardiac symptoms were observed.

Results.—In our acute cases most of them cleared up after the first injection. In two cases three injections were required. In all the cases the usual rheumatic remedies were tried in vain and every discoverable focus of infection was removed before the protein was given. In our subacute cases 90 per cent cleared up after one or more injections. In the chronic cases with marked ankylosis a moderate improvement was noted in almost all cases. Even a small improvement in old-standing cases is appreciated by the patients because it gives them a little more ability to use their hands and feet.

Contraindications.—Because of the violent muscular contractions abortions may result. Alcoholic patients, according to Miller and Lusk, are inclined to develop dangerous delirium, and high blood pressure is a contraindication to its use. Before using the vaccine, one should inquire as to previous history of anaphylaxis and observe the following precautions: If more than one injection is necessary, it should be given within six days. Start the treatment with small doses—five to ten million. The average dose is fifty million and the maximum dose 250 million; we have used even larger doses, but the reaction is uncertain and dangerous.

Conclusions.—The consensus of opinion among most of the men using intravenous therapy of for-

*Read before the Clinical Society of the Bikur Cholim Hospital.

eign proteins is that, when the usual drug treatment fails, the intravenous injections often give good results. If recurrence does take place the symptoms are milder in type and relapses occur no oftener than in those patients treated by drug therapy. There is no evidence that intravenous injections have an untoward effect on the heart or kidneys. The treatment is not dangerous if the proper precautions are carried out.

108 HARRISON AVENUE.

BLOODLESS SURGERY IN FLAT FOOT.

BY W. T. CLARK, M.D.,
NEW YORK.

THE difference between flat foot and falling of the arch is one of degree.

Falling of the arch may result from dropping of one or more of the tarsal bones forming the arch. In one hundred consecutive cases treated, the first cuneiform has been found most frequently at fault, followed in frequency by dropping of the cuboid, producing medial or lateral falling of the arch, or both in case the two bones are involved. Next in frequency we find malposition of the scaphoid as secondary to falling of the first cuneiform allowing axial rotation of the scaphoid, carrying the tuberosity upward with a corresponding rotation downward of its narrower lateral side toward the plantar surface of the foot. With one or two bones involved there is partial falling of the arch. When all three bones are involved there is complete falling of the arch or flat foot.

Dropping of the tarsal bones causes more or less pain which sometimes becomes agonizing, as in *metatarsalgia*. In this condition, with dropping of the cuboid bone, the bases of the fourth and fifth metatarsal bones fail to articulate properly with the cuboid and third cuneiform, the tubercle on the base of the fifth metatarsal bone is forced outward and upward becoming more prominent and palpable, and the metatarsal heads are drawn slightly backward out of alignment. This causes impingement upon the external terminal branches of the anterior tibial nerve and the branches of the external plantar nerve, resulting in pain often followed by inflammation which can be detected by a rise in temperature of the adjacent tissues.

Falling of the arch (barring trauma) is a gradual process during which there is more or less constant tension and pressure brought to bear upon some of the nerves, tendons, ligaments, interarticular fibrocartilages, and the muscles. Irritation, followed by inflammation is produced, and this is followed later by the formation of adhesions which sufficiently bind the tarsal bones in an abnormal position to prevent permanent replacement unless sufficient sudden force is exerted to break up the adhesions.

The construction of the arch would naturally prevent rupture of any adhesions by any slow pulling, twisting, or stretching process. It can be accomplished, however, by frequent application of firm but moderate pressure over the plantar surface of the misplaced bone, holding the foot firmly in position and delivering with the palm of the right hand a sharp, jerky blow over the dorsal surface of the metatarsal bones, close to the base.

This causes such a sudden elevation of the bone that (instead of stretching) one or more of the adhesions are instantly snapped and the misplaced bone is suddenly forced upward into its normal position—at least for the time being. This operation must be repeated on alternate days until the adhesions have been entirely broken up. Each operation must be immediately followed by vigorous deep massage of the plantar muscles to dissipate any pain, increase the circulation and nerve supply, develop and strengthen the muscles supporting the arch, and retain the bones in their proper position.

In addition to weakness of the muscles supporting the arch, these cases usually show constant extension of the toes with marked prominence of the extensor tendons. Massage should be applied in a downward direction to the first phalanx, carrying every fifth stroke over the phalangeal extremities, bending the toes gently but firmly downward, producing extreme flexion.

The massage is essential in building up the natural arch support and preventing recurrence. It also assists materially in removing the adhesions by the process of absorption. In cases with tender spots, massage should precede and follow the operation. The pain suffered by most of these patients is relieved by the first few treatments, and complete restoration of the arch is accomplished in 85 per cent. of cases in from six weeks to six months, depending upon the reaction and the severity of the case. This has been the history in one hundred consecutive cases treated by this method.

Taking up the subject of arch supporters, I advise patients who have been wearing them any great length of time to continue wearing them early in the treatment by removing them first two hours, then three hours a day until the supports are gradually dispensed with.

Placed in the shoe, arch supports are worn about fourteen hours a day exerting constant pressure, greatly reducing the blood supply and limiting the action of the plantar muscles, resulting in undernourishment and disuse atrophy. Furthermore, the arch support can give only temporary relief by reducing the strain on the arch and elevating the tarsal bones without breaking up any adhesions or replacing the bones to their normal position. Strapping produces no better results, although it interferes less with the circulation.

Turning in of the ankle and turning out of the heel sometimes occur as secondary to rotation of the scaphoid and unlocking of its articulation with the astragalus, but space does not permit taking up the mechanics of this complication further than to state that its correction depends upon restoration of the arch.

239 WEST 51ST STREET.

Dementia Precox Following Epidemic Encephalitis.—Kahn saw two cases of encephalitis, one lethargic and the other myoclonic, in which one subject developed a hallucinatory psychosis and the other paranoid dementia precox. It is well to state, however, that others speak of false dementia precox as a sequel to this affection. The distinction between true and false is based chiefly on the claim that these dementias recover. Recoverable dementia, as seen in pseudoparesis, pseudodementia precox, and certain postinfectious psychoses, has been classed as an autonomous type of psychosis.—*La Presse Médicale*.

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THE PATHOGENESIS OF TRAUMATIC HARD EDEMA.

HARD traumatic edema is a trophic disturbance involving the subcutaneous connective tissue and characterized especially by a non-inflammatory tumefaction of this tissue following a trauma, usually without gravity and never involving the skeleton. The tumefaction is hard and painful, causing a marked disability in the neighboring joints. There are often other trophic disturbances present in the skin, hair and nails, the muscles and bones. Its evolution is slowly progressive, its duration often long and out of all proportion with the intensity of the initial trauma. It disappears slowly, complete recovery is frequent, but it is not uncommon to meet with cases which prove obstinate to all treatment. The pathology of this process is not clear and all that is known is that it is characterized by the abundant neoformation of connective tissue fibers occupying the spaces in the subcutaneous connective tissue and dermis. The skin and its adnexa, the muscles and bones are frequently the seat of trophic lesions. The process sometimes resembles markedly certain categories of edema, especially the hysteric when it occurs after a trauma, but it differs from the latter through certain distinct characteristics.

Feilchenfeld was the first to attribute this process to a trophic lesion of the nerves, but we now know that no separate trophic nerve trunks exist. The change must involve all the nerve endings of the area involved but no microscopical study has ever been made. The surgical neuritides commonly follow a trauma, are usually septic and very minute, often collateral nerves of the fingers or toes participating in the serious ascending type of neuritis. But aseptic neuritides certainly exist and reported cases show that simple contusion may result in nervous lesions in certain subjects, and this is probably due to the soil. The tissues of the same individual are not equally resistant, for example, one person with heart disease will derive his asystolia from the liver, another from his kidneys or elsewhere. It is evident that in the subject under consideration the neuroarthritic soil plays an important part and is eminently suited for the development of hard traumatic edema. Any intoxication

likewise strongly reacts on the nervous system, be it an endogenous intoxication—tuberculosis, syphilis, paludism, diabetes—or an exogenous intoxication—alcohol, lead, etc.

The hypothesis of a change in the nerve endings undergoing its evolution in such soils is, we believe, a sufficiently clear explanation for the symptoms observed in hard traumatic edema. The frequent localization of the process on the back of the hand or foot is explained by the fact that the extremities of the limbs are the seat of election for nervous trophic disturbances. The majority of the disturbances of the sensibility are due to changes in the nerve fibers involved by the trauma. The trophic changes in the skin, subcutaneous connective tissue, muscles and bones all readily explain the condition if a neuritis is regarded as the principal factor. The slowness of the evolution of the process, its usual manner of ending, the uselessness of massage and other therapeutic measures also speak in favor of this hypothesis. A neuritis likewise explains the slowness of cicatrization of wounds or incisions made in the edema for therapeutic purposes and the resulting torpid ulcers with a chronic evolution.

In conclusion it may be said that hard traumatic edema is essentially a trophic disturbance probably following a peripheral neuritis whose causative factor is a traumatism, usually slight, occurring in a predisposed soil. In most cases the process is seated on the dorsal aspect of the metatarsus or metacarpus, but it can also be met with in other parts of the body. The symptoms are very variable, probably because under the name of hard traumatic edema, some observers have described hard edemas of a purely hysterical order. This consists especially in a tumefaction, at first elastic, afterwards hard, of the subcutaneous connective tissue, painful on pressure, usually interfering with the functions of the neighboring joints on account of the pain, frequently accompanied by trophic disturbances of the skin, muscles, and bones, and assuming an essentially chronic evolution. Finally, the skeleton never presents fracture or microscopical lesions as the result of the initial traumatism.

THE UREMIA OF NURSINGS.

Two great syndromes may be met with in nurslings that Widál has described in the nephritides, namely, the chloruremic or hydropigenous syndrome and the uremic syndrome. The latter has been misunderstood until recently but nevertheless its importance in nurslings is very great. To detect uremia in babies, it is impossible to use the blood as it cannot be obtained in sufficient amount. On the other hand, it is easy to withdraw enough cerebrospinal fluid for the purpose of estimating the urea and as Widál has shown, the results obtained are comparable. In the normal state the amount of urea in the cerebrospinal fluid is low in nurslings, being about 10 to 35 centigrams, so that when it attains 50 centigrams or more, there is nitrogen retention. It may remain low in

numerous pathological states, but in others it is notably high. Uremia is common in nurslings and Maillet found it in ninety-six babies from one to eighteen months old out of a total of two hundred and ten cases. It is a very serious symptom, since out of these ninety-six cases seventy-eight ended fatally. Uremia appears in various circumstances, but strange to say it has not been detected in the nephritides in infants. During the evolution of acute affections it is met with principally in bronchopneumonia, and acute gastrointestinal processes. In chronic processes it is quite special to athrepsia and this is the only chronic affection in which it has so far been found. The quantitative estimation of urea may be most important for the prognosis. In the acute processes, if the percentage is high from the onset and continues to increase rapidly, death invariably occurs. If the percentage, although high at the onset, returns to normal and remains there, or only increases temporarily from time to time, the prognosis is favorable. On the contrary, should it go up and remain high, death is at hand. When the urea retention is less important but permanent, the prognosis is fatal; the type is athrepsia. It should be said, however, that in nurslings it is not so much the degree of the uremia that is important, but rather its persistency.

Clinically, retention of urea may not give rise to any particular symptom. Such is the case in acute affections in which the accidents of infection overshadow those of intoxication. These may be termed *associated uremias*. In other circumstances it is accompanied by clinical phenomena which should lead to its diagnosis. This is *pure uremia* and presents itself under two aspects. Either it develops during violent accidents in which case there is an acute uremia, or else it is characterized by signs of progressive cachexia in which case there is chronic uremia. Acute uremia is accompanied by gastrointestinal disturbances, loss of weight and above all, nervous phenomena. There is a meningeal type and especially a somnolent form. It creates diagnostic difficulties with tuberculous meningitis and the cytological examination of the cerebrospinal fluid is insufficient to make a diagnostic differentiation between the two morbid processes in some instances, so that it is necessary to have recourse to chemical examination.

Chronic uremia is essentially a cachectic process and realizes Parrot's description of athrepsia. Clinically, it can be described as an athreptic form of uremia of nurslings. The recent notions obtained regarding the uremia of nurslings therefore explain certain points in nursing pathology whose pathogenesis has until recently been obscure. Its part in athrepsia is perhaps the most important. The principal symptoms of this affection are those which characterize the uremic syndrome of adults and it would seem as if athrepsia might be due to the uremia present in these cases. But it is essential to go still further back and to ascertain why this condition arises. It is probable that it does not

depend upon functional renal disturbances, because these appear to be normal, and only minute lesions of the kidney exist, which are in no way comparable to those of the chronic nephritides of adults. On the other hand, nephritides with important renal lesions give rise only to an unimportant ureic retention. Therefore it is probable that complex factors intervene. The study of urea retentions in nurslings not only brings out certain peculiarities of infantile pathology, but it also would seem that it is a new element in this great problem of general physiology and pathology.

REMOVAL OF TATTOO MARKS.

THIS subject, which is much more ancient and voluminous than has been commonly believed, receives a monographic consideration in the *Schweizerische medizinische Wochenschrift* for February 10, 1921, li, 6, at the hands of Cattani. In ancient Rome it appears that slaves and captives were tattooed as a sort of branding to establish ownership or identity, and these subjects were most keen to have the marks removed. Since Scribonius Largus employed cantharides in his prescription for the removal of stigmata it is inferred that blistering answered in some cases of superficial tattooing. Aetius apparently replaced these stigmata by more equivocal scars produced by caustics. In theory the particles must be either discolored or extracted. The substances used, however, are all colloidal and cannot be dissolved. Extraction must almost invariably leave other marks of some kind. As for methods actually in use the author enumerates thirteen. Constant friction seems able in certain cases to make the marks less conspicuous, but this could hold good only in very superficial cases. Vesication is untrustworthy as a method and this applies also to the use of chemical caustics. Electrolysis is impracticable—tedious, painful, not dependable, and apt to cause keloid formation. Carbonic acid snow is now largely used and has given good results in the more superficial cases, but the method is tedious and leaves scarring. Ultraviolet rays, once thought promising, have not made good. The attempt to tattoo a white substance of colloidal nature over deep India ink marks seems logical but has not given satisfaction. One of the more promising resources is the attempt to digest the particles by the use of papain in glycerin and good results have been claimed for it, but others have had only failures.

In addition to the rough use of strong chemical caustics more refined methods have been advocated in which it is aimed to cause a gradual slough. The applications are relatively mild. The technique is complicated and comprises retattooing. Thus, after tannin has been pricked into the entire design, nitrate of silver in stick is rubbed in and then more tannin is added. After two or three weeks the skin sloughs and in several months' time a superficial red scar remains with the original pattern plainly visible. Eventually the scar is less noticeable. The

amount of time and pains, and the risk of infection when strict asepsis is not practised, are drawbacks to the method. The expert use of the galvanocautery is a rapid method of obliterating the pattern, no trace of which is said to persist. The use of the Forest needle with the pole of a high frequency machine is another method of the same class but the author found the pain too great. The slow and painful use of the harpoon for picking out small specks could hardly come into common use. There is a method for removal of very deep tattoo marks which readily suggests itself as sound in theory and this method has given some good results. Incisions are made through the integument and subjacent tissue, the flaps turned back and the ink removed by various instruments. The curette does not answer, and some cutting instrument is required. Among these is an eyelet punch which cuts through the thickness of the skin. The flaps are then restored and scarring should be absent. Another method adapted to superficial marks is shaving off or decorticating the epithelial layers with a razor; it is recommended where there are many follicles and glands. The scar should not be permanent; or if there is danger of scarring, Thiersch grafts may be used. Finally there is always a resort to excision and suture or autoplasty. To sum up, there is no standard method, but a combination of several suitable to the given case—eliminating the tedious and imperfect ones—should hold out much hope of relief.

A CURIOUS ERROR.

THE Bulletin of the Medical Society of the County of New York, announcing the meeting of May 23, contained the following comment on a resolution which had been offered asking Congress to defer action on the amendment to the Volstead act dealing with the medicinal use of malt liquors until after the meeting of the American Medical Association in Boston.

The Comitia Minora sitting as a reference committee has considered this resolution, has conferred with the legal counsel and recommends to the Society that no action be taken thereon for the following reason: The Volstead Act deals with the regulation of intoxicants used for beverage purposes and not with alcohol used for therapeutic purposes, and therefore does not come within the jurisdiction of this Society; should changes in the Act be made to regulate the use of alcohol when used for therapeutic purposes, then only such action should be taken or recommendations made by the Society as will protect the interests of the medical profession in the therapeutic use of alcohol.

Of course both the Volstead Act and the proposed amendment do deal specifically with the medicinal use of alcohol, and it is incomprehensible that the counsel should have made such a statement or that the members of the Comitia should have been willing to accept the responsibility for publishing it.

SPONTANEOUS GANGRENE OF THE SCROTUM.

GANGRENE of the scrotum, when spontaneous, is often most puzzling to the surgeon, for while a micro-organism may sometimes be discovered, the factor

determining its localization often defies detection. Schönbauer reports two cases of this kind from the clinic of von Eiselsberg in Vienna (*Wiener klinische Wochenschrift*, March 3, 1921, xxiv, 9). According to authors there are at least four separate types of genital gangrene in the male, resulting respectively from some general condition, urinary infiltration, direct local insult, or local inflammation. The author's cases belong under the latter class. In both of them there was at first an intense local inflammation, the scrotum in one being of the size of a child's head. The author is entirely silent as to the presence or absence of erysipelas which is so often mentioned as responsible for scrotal gangrene. In the first case the process ended in sloughing. The patient was septic and blood tests showed absence of typhoid fever and syphilis, and of anaerobic infection. Smears from the local secretions were not illuminating although there were many bacteria of a particular unnamed kind—short, thin, Gram-positive bacilli. The gangrenous process involved secondarily the penis and abdominal wall. The second patient died shortly after arrival at the hospital. He presented an advanced degree of gangrene of the genitals. Sloughing had not occurred and the gangrenous areas were ablated. As in the first case, the vaginalis contained a large amount of offensive fluid. Tests after death showed a bacillus in the blood quite distinct from that in the local secretions of the first case. In this second case the author classified them as anaerobes belonging to the *B. oedematiens*. No point could be found to speak for local infection or trauma, and as is so often the case the motivation could not be explained.

OPIATES IN ANXIOUS STATES.

SINCE the passage of Federal and State Drug Laws articles recommending narcotics are not much in evidence among us. This silence does not exist in other countries and in the *Revue médicale de la Suisse romande* for March, 1921, xli, 3, there is an article by Starobinsky on the use of opiates in anxious states. The latter are known to occur in a variety of conditions from neurasthenia and simple melancholia to manic-depressive insanity, dementia precox, paranoia, etc. Whatever the setting, the anxious state yields to some form of opiate—codeine, laudanum, or morphine, in which case it may be necessary to push the dosage. Devaux and Logre in their monograph on anxious states make this recommendation, but it is with the proviso that bromides, valerian, etc., have proved inefficacious. Opium has of course been the sheet anchor for anxious melancholia for many years and as far back as 1874 Voisin was prescribing morphine hypodermics pushed to the limit. This form of treatment naturally created morphine addicts at short notice. Some years later we find that laudanum was recommended, in doses run up if necessary to 200 drops daily. Among those who used laudanum to some extent was Kraepelin. Its action lay in causing the sense of euphoria and of blunting the hyperesthetic moral sense of the melancholic. In prescribing opiates one should endeavor to use a preparation or formula which will offset the tendency to intestinal stasis. The author cites two

cases, in one of which there was suicidal tendency with inveterate insomnia. Attempts to improve the condition by securing sleep failed and as the insomnia was becoming aggravated with acute anxiety, a preparation of opium was given by the mouth. In three days the improvement was striking and the patient was soon discharged cured. The other patient, who believed herself damned for eternity and suffered acute moral pain, yielded much more slowly to the treatment, but was finally discharged completely cured.

TUBERCULOSIS AND DECALCIFICATION.

THAT tuberculosis is to a certain extent a state of decalcification was shown by Ferrier. Pochon discusses the subject in the *Journal de Médecine de Paris* for March 10, 1921, xl, 7. The belief in a lack of lime in the tuberculous organism does not tally very well with the facts, according to Pochon. The recent famine conditions in Europe have been responsible for much tuberculosis and various conditions of the bones of a decalcifying character, but the two classes of patients seem quite distinct. We sometimes see the statement that scrofulo-tuberculous children often present a slight degree of rickets. To convince one that the average tuberculous individual is more decalcified than the average man it would be necessary to show the coexistence of the deformities of late rickets, brittle bones, etc. Pochon gives an account of a highly tuberculous family in which the disease must have spread from person to person. The normal growth rate and the absence of stigmata of rickets, etc., apparently went to show that the lime metabolism had originally been normal. One of the children who was known to have been tuberculous at the age of 11, later became robust, and at the age of 19 was able to play football. During a game of the latter he developed a fracture which could only be understood by the presumption of fragile bones. Radiographs showed absence of callus during the healing process and the entire skeleton showed low lime content, judging by the weak shadows. The fracture failed to unite firmly and after 6 weeks in plaster a second dressing of the same kind was necessary and at present the patient is wearing a brace. There is no pseudarthrosis but union is not firm and the limb cannot be trusted to withstand a strain. At a later period tuberculosis brusquely reappeared in the lungs, as if associated with the poverty in lime of the organism.

THE SOIL IN ENCEPHALITIS EPIDEMICA.

LEFINE writes briefly on this subject in the Neurological number of *La Médecine*, February, 1921, ii, 5. He is in reality considering "infectious" encephalitis so far as his title is concerned, but apparently refers only to the so-called lethargic form, 50 cases of which he has analyzed for predisposition. He regards his finds as marking an advance in our knowledge. Hitherto the time has not been ripe for this study. The first factor isolated is extreme fatigue consequent on some recent physical effort. A condition known as "encephalitis of fatigue" noted before the outbreak of the epidemic may have been the infectious form. Previous influenza was

an inconstant event. The third factor isolated was constitutional nervous fragility manifested at times by emotional instability or perhaps by the presence of an endogenous hereditary factor. There were several migrainous subjects among the victims. Overwork has been mentioned, and to this history must be added insomnia and other results of bombardments during the war. In some of the patients there was a history of sunstroke. The author found in women a connection between the outbreak of the disease and derangements of the genital functions, as the menopause, establishment of the menstrual molimen, and the state of menstruation in general. The evidence of the author is not of much value in the absence of comparison with controls of miscellaneous every-day types of men and women, a large proportion of whom would doubtless have presented the same phenomena as the victims of encephalitis. The author neglects to tabulate or sum up the percentages of these alleged predisposing factors.

News of the Week.

Certified Water on Steamships.—A further step toward insuring travelers on interstate carriers against the evils of polluted drinking water was taken on April 15, when the laws in force in regard to railway trains were extended, with necessary modifications, to steamships on lakes and rivers and between the United States ports and ports of adjacent countries. Henceforth water used on such vessels for drinking or cooking must be obtained on shore from a source approved by the United States Public Health Service, usually acting in co-operation with State health authorities, or must have been treated by a method approved by the service. If not obtained ashore, the water must be treated aboard ship by an approved method. Every tap or other source of water aboard a ship yielding water unsatisfactory for drinking is required to be marked by properly placed signs, approved by the Public Health Service, stating that the water is unfit for drinking purposes. By these regulations it is hoped to prevent outbreaks of typhoid fever and dysentery such as have occurred in the past on several occasions when passengers were supplied with drinking water taken from badly polluted streams.

Typhus Death on Ellis Island.—A five-year-old Yugoslav immigrant died of typhus fever on Ellis Island on May 18. All the aliens who were exposed to the disease were transferred to Hoffman Island for observation and Ellis Island has been placed under quarantine until fumigation has been completed. Representatives of the Public Health Service regard the case as an isolated one.

Oppose Tuberculosis Hospital.—A mass meeting was held in New Orleans at which over 500 persons joined in protest against the erection of a tuberculosis hospital in Southern Park, as proposed by the State Tuberculosis Commission. The opposition came largely from residents of the vicinity in which it is proposed to build the hospital.

Texas Law Regulates Barber Shops.—Under the new law recently passed in Texas no barber will be permitted to work in a shop unless he has a certificate to show that he is free from all communi-

cable disease. He must undergo an examination similar to that now given to food handlers. Not only must barbers be physically examined, but they must keep hot water handy and sterilize every razor, brush, clipper, comb, or other instrument used in a tonsorial operation before it is used again. Most of these regulations are said to be already enforced by city health officials, so that no considerable changes need be made in order to comply with the new law.

American Journal of Tropical Medicine.—We have received the first number of this bimonthly journal published under the auspices of the American Society of Tropical Medicine. The editor is Major H. J. Nichols, M.C., U. S. A., who is assisted by an advisory board composed of most of the men best known in this country for their work in tropical diseases. The publishers are the Williams & Wilkins Company of Baltimore. The first issue contains a number of interesting contributions and its appearance augurs well for the success of this new undertaking. There is no country in the Temperate Zone where a knowledge of tropical pathology is more necessary than in ours, and the Society of Tropical Medicine is to be congratulated on at last possessing an official organ and one that gives such promise of usefulness.

Schick Tests in Cleveland Schools.—The Schick tests which have been carried on in the Sands School will be continued again next fall. Out of 300 letters sent to parents, asking their consent to try the test, 100 favorable replies were received, and of these 100 children 40 were found to be in need of permanent immunization against diphtheria.

Government Hospitals Destroyed by Fire.—Fire caused by a defective flue in the United States Public Health Service Hospital at Palo Alto, Cal., completely destroyed two wards of the hospital, which is built of red wood, in fifteen minutes. The loss is estimated at \$60,000.

Central Nursing Service.—A gift of \$300,000 from Mrs. Jacob Schiff is announced for the purchase of a central administration building for the Visiting Nurse Service under the foundation of the Henry Street Settlement, New York, as a memorial to Jacob H. Schiff. The building purchased is on Fortieth Street, and is to be used as an administrative center, for registrars, statisticians, the making of medical supplies, staff meetings, and classroom purposes, and will serve as a center of public health interest. At the present time there are twenty-two nursing centers in New York which will work under this center. These centers were manned by a staff of 232 nurses during the month of April. This is said to be the first nursing organization in the world that has established a visiting nurse service available for everyone according to their financial ability to pay for professional care.

Madame Curie Receives Many Honors.—The University of Pennsylvania, for the first time in its history, made a special occasion of the granting of an honorary degree, when it conducted special exercises on May 22, for the purpose of conferring upon Madame Curie the degree of Doctor of Laws. At a meeting held in Carnegie Hall, New York, on May 17, under the auspices of the American Association of University Women, a gift of \$2000 was

presented to Madame Curie as a special prize, awarded by the Association to aid scientific research by women. The National Institute of Social Sciences, at its annual dinner at the Waldorf-Astoria, New York, May 19, presented the institute's gold medal to Madame Curie, Vice-President Coolidge making the presentation. The following day Madame Curie went to Washington where President Harding presented her with the gram of radium for use in scientific research, which was the gift of American women. On May 31 a testimonial dinner will be given in her honor at the Hotel Astor by the Poland-America Society.

Medical Schools Consolidate.—At its first session, held in Richmond May 2, the commission on medical education in Virginia adopted a majority report favoring the location of a single state-supported medical school in Richmond, this school to be the medical department of the University of Virginia, with which the Medical College of Virginia is to be consolidated. This resolution will have to be approved by the Legislature before it becomes effective.

Medical College of University of Cincinnati Makes Changes.—At the regular meeting of the Board of Directors of the University on May 3, Dr. A. C. Bachmeyer was appointed professor of hospital administration and Dr. A. C. Geringer was appointed instructor in serology in the Medical College. A donation of \$500 to the Department of Preventive Medicine by Julius Fleischman, former Mayor of Cincinnati, was announced and also the gift of a cafeteria equipment valued at \$5,000 from Mrs. Bettie Fleischman Holmes, widow of Dr. C. R. Holmes.

Colonel Henry Page, U. S. A., has been chosen dean of the Medical College of the University of Cincinnati, to succeed the late Christian R. Holmes.

Dr. Carl Sawyer of Marion, Ohio, was elected president of the Rush Medical College Alumni Association, at its annual banquet held in Columbus on May 4.

Dr. Carlos Chagas, head of the department of health of the Republic of Brazil, was the guest of honor at a dinner at the Waldorf-Astoria on May 20, given by the Rockefeller Foundation.

Dr. John H. Winn has been elected city physician of Columbus, Ga., to succeed Dr. Blandford, resigned.

Charitable Bequests.—By the will of the late Mrs. William L. McLean of Philadelphia, the sum of \$100,000 is bequeathed to the Germantown Hospital and Dispensary as an endowment fund in memory of her parents.

By the will of the late Frederick Eick of Philadelphia, a sum equal to ten per cent. of the residue of an estate amounting to \$176,300, after deduction of a bequest of \$5,000, is bequeathed to the Lankenau Hospital and to St. Joseph's Hospital, each.

By the will of the late Elizabeth Ziegler of Philadelphia the sum of \$5,000 is bequeathed to the Methodist Hospital.

Corrections.—In the article by Dr. Levinson on "A Clinical Study of Tuberculosis in Children," in the issue of May 7, an error occurs in the table on p. 773. In the column under kidney the number should be 1, and not 21 as printed; on p. 775, second column, 22d line, stereopticon should be ster-

eoscopic; on p. 776, second column, under Summary, read: 2.—Of the 141 cases that reacted positively to tuberculin, only 14 or 10 per cent. of the total showed symptoms, etc.

A Public Health Institute.—In view of the unequivocal interest taken by health workers in the recent institute on venereal disease control and social hygiene, as manifested by the large attendance at this institute, conducted by the United States Public Health Service in Washington, D. C., November 22 to December 4, 1920, the Service is proposing to conduct a General Public Health Institute during the fall of 1921. It is planned to offer 25 or 30 courses of instruction in important branches of public health work, which will be given by leading authorities in each particular subject. The institute will make available to persons interested in the various fields of public health endeavor, the most recent contributions of knowledge and experience in their particular field, and will enable them to come into personal contact with leaders recognized to be the highest authorities in the various scientific and practical phases of the work. Further information may be obtained by writing to Surgeon-General Cumming, U. S. P. H. S., Washington, D. C.

Monument to Dr. Robert Battey.—The delegates to the seventy-second annual convention of the Medical Association of Georgia, held in Rome May 5, 1921, unveiled a monument to the late Dr. Robert Battey. The monument was erected by the Seventh District and Floyd County medical societies.

Bloomington Hospital Centennial.—The Bloomington Hospital at White Plains, N. Y., will celebrate its one-hundredth anniversary on June 26, 1921. There will be meetings attended by psychiatrists, neurologists, and insanity experts from many parts of the country. The Bloomington Hospital is one of the oldest institutions for mental and nervous diseases in the United States.

Utica State Hospital to Dedicate Laboratory.—The formal dedication of the George Alder Blumer Research Laboratory will be held on the grounds of the Utica State Hospital on June 4, 1921. There will be a morning session at which scientific papers will be read by well-known psychiatrists and alienists. The new laboratory will be dedicated in the afternoon, when addresses will be made by Dr. Stephen Smith, Dr. Henry M. Hurd, Dr. Edward N. Brush, Dr. Charles W. Pilgrim, Dr. Charles G. Wagner, Professor Walter G. Everett, Hon. Rathbone Gardner, and Hon. P. C. I. DeAngelis.

The Association of American Peroral Endoscopists will hold its annual meeting in Atlantic City, June 1, 1921, under the presidency of Dr. Henry L. Lynah of New York.

Ask Repeal of Statute for Supervised Anesthesia.—The House of Delegates of the Ohio State Medical Association, at its annual meeting, held May 4, 1921, by a vote of 58 to 10, passed resolutions favoring Senate bill 184, which repeals the law permitting nurses to administer anesthetics. This bill was recently passed by the Ohio Senate by a vote of 29 to 6.

The Alumni of the Norwegian Hospital, Brooklyn, celebrated the double centenary meeting of its association on May 11, with a dinner at the

Norwegian Club. The first seven ex-internes of the hospital organized the association in 1898 and since then only two of its members, Dr. Sewell Matheson and Dr. Eugene Charles Lack, have died. Of the 25 members of the association, all but two are in practice in Brooklyn. The dinner was in charge of Drs. C. C. A. Lange, John H. Ohly, and R. E. Coughlin. The officers of the association are: *President*, Dr. John J. Masterson; *Vice-President*, Dr. G. H. V. Hunter; *Secretary and Treasurer*, Dr. Harry A. Fisher. Addresses were made by Dr. Edward D. Ferris, President of the Hospital Staff; Dr. H. Beekman Delatour and Dr. Edward E. Cornwall of the attending staff, and Dr. Adolph Andersen of the interne staff.

Child Welfare at Roubaix.—The American Red Cross and French welfare societies have been conducting a child welfare exhibit at Roubaix, France, under the auspices of the city administration. It comprises exhibits showing the care of babies, demonstrations of hygiene, and lectures on subjects dealing with the rearing of children.

Accommodations Needed for Mental Defectives.—The State Commission for Mental Defectives has made public its annual report in which it asserts that only one-half of the mental defectives in New York State needing institutional care can be accommodated. The commission recommends the construction of additional facilities as soon as the State finances permit. The report estimates that there are about 40,000 mental defectives in the State, adding that not all of these are in need of institutional care. Approval has been given by Governor Miller to a measure permitting the use of the former reformatory at Napanoch for male defective delinquents with criminal tendencies. Similar provision has been made for women at the Bedford Reformatory by the creation of a special division for defective delinquents.

Future Work of Maternity Center Association.—Lack of funds has compelled the Maternity Center Association to withdraw twelve home visiting nurses from those districts in which other public health agencies and hospitals are doing active work, and where, therefore, mothers and babies will not be left totally uncared for. The Association will continue its open doctors' clinics in these districts, making available pre-natal medical supervision for all patients cared for by cooperating agencies. A doctor and a nurse will conduct the clinics one-half day each week. Information as to the location of these clinics may be obtained from the Maternity Center Association headquarters, 370 Seventh Avenue. The Association declares that it has shown that two-thirds of the mothers who die in childbirth can be saved; that one-half the babies that die under one month of age can be saved, and that one-half the still-births can be prevented. Official statistics of the city show for the first time in history a decrease in the mortality rate of infants under one month of age, which, the Association states, proves the tremendous value of this work.

War Hospitals Prepare for Fifty Years' Service. The Bureau of War Risk Insurance is preparing to take care of victims of tuberculosis as a result of war service up to and including the year 1972, and patients suffering from neuropsychoses up to and including the year 1964. These figures are based

on estimates prepared by Dr. C. W. Rucker, chief of the Bureau of War Risk Insurance, which show that the peak of the load in tuberculosis will be reached in 1923, and in neuropsychosis in 1925. The total number of patients who have been received in the hospitals up to March 24 of this year was 116,449, including 30,231 tuberculosis patients; 18,813 neuropsychiatric, and 67,405 general medical and surgical cases. The Bureau of War Risk Insurance is providing treatment for claimants in sixty-one United States Public Health Service Hospitals, five United States Army Hospitals, fourteen United States Navy Hospitals, nine national homes for disabled volunteer soldiers, in St. Elizabeth's Hospital, Washington, and in 1,565 State, county, municipal, and private hospitals under contract. All applicants for relief are examined at these institutions rather than by designated examiners.

The Disabled of Many Nations.—The International Labor office, at Geneva, has accumulated figures which show that eleven nations have 5,500,000 men disabled in the war, not including those of Russia, Turkey, Bulgaria, Australia. Of this number France has 1,500,000; Germany, 1,400,000; Great Britain, 1,170,000; Italy, 570,000; the United States, 200,000; Czechoslovakia, 175,000; Canada, 88,000; Rumania, 84,000, and Belgium, 40,000. Reports sent by the various governments show that only a few of the disabled remain in military hospitals and that the majority of the severely wounded who were properly trained and provided with suitable appliances are capable of earning their livelihood. The difficulty is and always has been to find them an occupation.

Positions for Roentgenologists.—The United States Civil Service Commission announces open competitive examinations for the position of Roentgenologist, at a salary of \$200 to \$250 per month; Associate Roentgenologist, at \$130 to \$180 a month, Assistant Roentgenologist, at \$90 to \$130 a month, and Junior Roentgenologist, at \$70 to \$90 a month. Vacancies requiring similar qualifications will be filled from these examinations. The minimum requirements for eligibility for appointment to these positions are as follows: For the position of roentgenologist applicants must have been graduated from a recognized medical college with the degree of M.D., and have had at least three years' experience in x-ray physics, technology, photography, interpretation, and localization. For the other positions applicants must have completed at least eight grades of common school or equivalent education and have received a certificate of proficiency from an established hospital medical college, or technical institution in x-ray, physics, and technology. Applicants should apply at once for Form 1312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C. Applications will be received until August 1, 1921.

An Alumni Association of Fordham Hospital has been formed. At its first meeting the following officers were elected: *President*, Dr. Alfred G. Forman; *Vice-President*, Dr. William J. Walker; *Secretary*, Dr. August C. Schwenk; *Treasurer*, John E. Conboy. It was decided to incorporate the Association in the State of New York.

Cooperative Offices for Doctors.—Two five-story

apartment houses in East Fifty-fourth Street are being remodeled for the exclusive use of physicians and surgeons. The title to the property has been taken in the name of the Medical Chambers, Inc. Twenty-four physicians and surgeons have subscribed to the stock in the owner's corporation on the cooperative basis. The building will be ready for occupancy in September.

Obituary Notes.—Dr. Oscaar H. Allis died at Philadelphia on May 16 at the age of 85 years. He was graduated from Jefferson Medical College in the class of 1866. He served as resident physician in the Philadelphia Hospital. He was at one time lecturer on orthopedic surgery in Jefferson Medical College and surgeon to the Jefferson Hospital. He was also surgeon to the Presbyterian Hospital and consulting surgeon to Roosevelt Hospital and the Oncologic Hospital. He was a member of the Philadelphia County Medical Society, the Medical Society of the State of Pennsylvania and a Fellow of the American Medical Association, and a member of the Philadelphia Academy of Surgery.

Dr. LEO J. HINES of Providence, R. I., a graduate of the College of Physicians and Surgeons, Baltimore in 1905, died on May 2, at the age of forty years.

Dr. WALTER DOUGLAS HOSKINS of Indianapolis, a graduate of the Indiana Medical College in 1894, died in a local hospital on April 29, at the age of forty-nine years.

Dr. G. M. STITES of Williamstown, Pa., surgeon of the Susquehanna Coal Company, died in Jefferson Hospital, Phila., on April 29, at the age of sixty years.

Dr. JOHN FRANCIS SNYDER, a graduate of Jefferson Medical College in 1850, died at his home in Virginia, Ill., on May 1, at the age of ninety-one years. He served in the Civil War and later was sent to Congress.

Dr. CHARLES W. DULLES of Philadelphia, a graduate of the University of Pennsylvania Department of Medicine in 1875, died on May 6, at the age of seventy years. He was formerly manager of the University Hospital, and assistant surgeon of the Second Regiment, Pennsylvania National Guard. He was a member of the American Association for the Advancement of Science, the College of Physicians of Philadelphia and the Academy of Surgery.

Dr. JAMES DENNIS V. SHEEHAN, a graduate of the Syracuse University College of Medicine in 1907, died of pneumonia at his home in Syracuse on May 6, at the age of thirty-six years.

Dr. W. W. WALTERS of Greenback, Tenn., a graduate of the Kentucky School of Medicine in 1891, died on May 6, at the age of sixty years.

Dr. E. A. THOMAS of Wyethville, Va., a graduate of the University of Virginia Medical Department in 1891, died suddenly from heart trouble on May 6, at the age of fifty-two years.

Dr. CHARLES ADEN ALLEN of Memphis, Tenn., a graduate of the University of Tennessee Medical Department in 1915, died from tuberculosis on April 26, at the age of forty years. He was a Lieutenant in the Medical Corps of the Army during the recent war.

Dr. J. WEBB CURTIS, a graduate of Harvard Medical School, in 1888, died at his home in Hot

Spring, Ark., on April 6, at the age of sixty-five years.

Dr. BENJAMIN LAIRD, retired, formerly of Vicksburg, Miss., died at his home in Covington, Ky., on May 4, at the age of seventy-four years.

Dr. O. D. RADNEY, a graduate of the Michigan College of Medicine, died in Waco, Texas, on April 26, at the age of fifty-six years.

Dr. FRANK R. LOOMIS of Jefferson, Ohio, a graduate of the Homeopathic Medical College, Cleveland, died from apoplexy on April 24, at the age of sixty-eight years.

Dr. N. B. MORSE of Wyoming, Ill., died of cerebral hemorrhage on April 27, at the age of eighty-three years.

Dr. ARTHUR LEWIS ROOT, a graduate of New York University Medical College in 1883, died at his home in New York City on April 24, at the age of sixty-two years. He was a member of the New York Academy of Medicine, and visiting physician to the Hahnemann and Metropolitan Hospitals.

Dr. GEORGE GLANSVILLE RUSK of Baltimore, Md., a graduate of the University of Maryland School of Medicine in 1867, died on April 13.

Dr. ALFRED BOLEY, formerly a practising physician of Pittsburgh, Pa., died in the Danville (Ill.) branch of the National Soldiers' Home on April 15. He served during the Civil War in the Sixty-third Pennsylvania Volunteer Infantry.

Dr. SAMUEL M. WELLS, a retired practitioner of Orange County, California, died at Virolia, Cal., about April 4.

Dr. ARTHUR BENNETT MORONG of Boston died in a local hospital on May 3 at the age of seventy-two years. He was graduated from Harvard Medical School in 1876, and was formerly professor of physiology in the College of Physicians and Surgeons, Boston. For the past five years he served as ship's surgeon on the lines running to the West Indies. He was a member of the Massachusetts State Medical Society.

Dr. F. H. WIESEWELL, a graduate of the University of Michigan in 1870, died suddenly at his home in Phelps, N. Y., on May 1, at the age of seventy-seven years.

Dr. ROBERT L. JOHNSON, a former practitioner of Alliance, Mo., died on May 5, at the age of eighty-three years.

Dr. FRANCIS L. WATKINS, a graduate of the University of Buffalo in 1891, died at his home in Buffalo on May 13, at the age of fifty-eight years.

Dr. CHARLES W. HALTERMAN of Clarksburg, W. Va., a graduate of the Eclectic Medical College, Cincinnati in 1889, died on May 12, at the age of fifty-three years. He was for several years superintendent of the State Insane Asylum at Weston, a former member of the State Board of Health, and during the late war a captain in the Medical Corps of the Army.

Dr. LEIGH R. GORDON, a graduate of the Louisville Medical College in 1898, died suddenly in Lexington, Ky., on May 8, at the age of fifty-one years.

Dr. HARRY T. INGE of Mobile, Ala., died of hemorrhage from the stomach at his home on May 11 at the age of sixty years. He was a graduate of New York University Medical College in 1883, and one of the founders of the Inge-Bondurant Sanitarium.

Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, May 3, 1921.

Aid from Income Tax for London Hospitals.—In their report just issued the subcommittee appointed by the Executive Committee of King Edward's Hospital Fund to consider the possibility of some form of State assistance to the hospitals by way of allowance in respect of income tax on charitable gifts, suggest a scheme for this purpose which they regard as a practical proposition. It provides that subject to certain limitations, a hospital should be relieved in respect of income tax paid by subscribers and donors in cases where it has received from the contributor a certificate stating that the tax has been paid on the contribution and declaring his desire that relief in respect of that tax should be granted to the hospital. In view of the differences in the "real effective rates of taxes" paid by different individual subscribers, it is suggested that the relief claimable by the hospitals should be based on a flat rate. On the basis of a flat rate of 4s. for every 16s. received the maximum liability of the Government to the London hospitals, based on approximate figures for the year 1920, is £191,000. It must be remembered that, while the total figures shown by the hospital accounts have been taken, certificates would not be obtainable in every case, and that many of the subscriptions would not have been taxed. The subcommittee are of opinion that relief to the hospitals or to a central fund in respect of income tax paid on subscriptions and donations is practicable, that it can be restricted so as not to embarrass the National Exchequer, and that it offers a definite form of financial relief to the hospitals. They believe that the adoption of the scheme would tend to increase subscriptions. They recommend, therefore, that the report be placed before Lord Cave's Committee.

Future of the Hospitals.—Presiding on the evening of April 28 last at the annual meeting of Charing Cross Hospital, Mr. George Verity said when matters were more settled in the industrial and political world a full meeting of the governors would be held under the presidency, he hoped, of Princess Louise, to discuss the threatened altered condition of affairs relating to the working of voluntary hospitals. Chiefly owing to the fight put up by Charing Cross Hospital, the attack on the voluntary system had so far failed. Apart from upsetting the great medical and surgical professions, the Ministry of Health in attempting to interfere with the voluntary hospitals, was very much in line with the old fable of the mountain being in labor and bringing forth a mouse. The present state of uncertainty as to the future was doing an enormous amount of harm to hospitals, and unless it was soon brought to finality the position would be worse than ever. Industrial unrest was having a very detrimental effect upon the income of the hospitals. Although at Charing Cross there had been some loss of income yet, owing to the extraordinary loyalty of subscribers they were able to cover expenditure and

bring forward a balance in what he believed would be one of the leanest years this country had ever experienced. A feature of the year had been the remarkable success of the scheme of voluntary payments. It may be said that Charing Cross occupies a unique position among the London hospitals, nay among the hospitals of Great Britain, in that instead of being in debt it has in hand a balance of more than \$18,000. This result has been achieved by the introduction of organization and business methods in its management. It is not long ago that Charing Cross was in a similar plight to the other hospitals, owed a large amount of money, was running further into debt, and it seemed that there was no escape from the difficulties that beset the hospital. Then Mr. George Verity, a business man who had no experience in the management of hospitals, was induced to try to extricate the affairs of Charing Cross Hospital from the slough into which it had fallen. He consented to make the trial and by the introduction of energetic and original business methods, as by the waving of a magician's wand, the hospital was converted from being almost a Cinderella among such institutions to one of the most prosperous. This example goes to show how much could be done in many of the hospitals if methods of this kind were brought into play.

Surgical Inventions.—It has been stated recently in a daily paper that the London Hospital, in the East End of London, has, by means of the inventions of two members of its staff placed two important additions to the surgeon's art within reach of the profession in all parts of the world. One of these, a new form of sterilized catgut, is the result of over ten years' expert investigation by Mr. H. P. Morley, the chief of the Ligature Department, who has, it is said, produced a catgut that is not only absolutely sterilized, but will "persist" or last for definite periods of ten, twenty, thirty, or forty days in the wound as the surgeon may require, and then become rapidly absorbed after the time specified. The second invention is that of Mr. H. S. Souttar, head of the surgical unit of the hospital, and consists of an eyeless needle. The needle has in place of an eye a minute hole bored longitudinally in the head. An end of the catgut is placed in this and sealed in so that the surgeon can sew with a single thread. Both the inventors have placed their inventions at the disposal of the London Hospital.

The Question of Compulsory Notification for Venereal Diseases.—At a meeting of the London Dermatological Society, held at St. John's Hospital for Diseases of the Skin on April 19 last, a discussion on the resolution, "That the society considers some form of compulsory notification for venereal diseases cases to be necessary," was opened by Dr. W. Knowsley Sibley, the proposer of the resolution. Dr. Sibley said in part, that of the three racial poisons, alcohol, tuberculosis, and syphilis, there is legislation in most countries against alcohol and tuberculosis, but there is still room for legislation in regard to syphilis. Syphilis as a contagious disease, should be taken seriously. In scarlet fever and diphtheria, the infection is of short duration, whereas syphilis, which is not notifiable, may be contagious over a long period.

Dr. Sibley referred to the self-governing colonies and foreign countries in which notification of venereal diseases has proved successful, and of the disadvantages of the voluntary clinic system in vogue in this country. He was of the opinion that if there were some form of even confidential notification a patient would be told he or she must carry out the prescribed medical directions, otherwise such person would be liable to serious penalties. The exact method of procedure following upon notification to the medical officer of health would be a subject for consideration when once the principle had been established. Dr. Dennis Vinrace, who opposed, said that diseases such as scarlet fever and diphtheria were not comparable to syphilis just because of their short duration. The treatment of venereal disease was by far the most important factor to be considered. Prostitutes were the root of the trouble, and until beds could be got to deal with them effectively, venereal disease was bound to continue. No form of compulsory notification could affect this. Dr. Vinrace laid stress on the importance of education of the future generation. He also pointed out the difficulty of diagnosis as an argument against notification. If compulsory notification were brought into force, he believed that the patient would not consult a medical man, but would go to a quack or a chemist. Dr. Maurice G. Hannay agreed with Dr. Vinrace that the question of diagnosis was sometimes extremely difficult. There was also another important question, how long should treatment be continued in any one case infected with venereal disease? In the opinion of Dr. E. F. Bazzard syphilis remains a lifetime. If this is so, it would be a serious thing in the case of compulsory notification. Dr. Charles Banks said that he would support Dr. Sibley's views if it could be so arranged that the notification of venereal disease should be confidential. Dr. A. C. Rebelle felt quite sure that compulsory notification of venereal disease would be of no advantage. No compulsory measures existed in India. The president, Dr. Griffith, said that there seemed to be weighty objections to the compulsory notification of venereal disease. However, the real point was, what would be gained by the compulsory notification of venereal disease, would the disease increase or decrease? The resolution was put to the meeting and was not carried.

Anatomical Study in Great Britain.—A question was asked of the Minister of Health the other day in the House of Commons whether he was aware that there was the greatest difficulty with respect to the proper prosecution of anatomical study in this country, and that in consequence a large number of British medical students were forced to prosecute or complete their studies in foreign hospitals or universities; whether this difficulty was mainly due to the inadequate supply of dead bodies for anatomical purposes, and whether he would consider appointing a select committee to inquire into the matter. Sir A. Mond, in reply, said although it was the case that owing to the difficulty in obtaining subjects, English students have occasionally gone abroad to seek facilities for the study of anatomy in foreign schools, this state of affairs has now been reme-

died by the action taken by my predecessor. There is still a shortage in the case of certain provincial medical schools, but this is being remedied.

Hospital Amalgamation.—At a special meeting of the governors of Alexandra Hospital for Cripple Children the other day, a resolution was passed authorizing the board to enter into negotiations with St. Bartholomew's Hospital with a view to amalgamation.

Influenza in France.—Reports from France on the influenza situation received on April 29 last, state that in some districts there was an extension of the influenza epidemic among soldiers. There were 300 in hospitals in Bordeaux, 240 at Montpelier, and 30 at Troyes, where 8 have died. At Versailles 84 soldiers entered the hospital in one day, and the number being treated there was 250. Three have died. In consequence of the outbreak the cavalry maneuvers on the Chevreuloup Plain have been postponed. More deaths have occurred at Dijon, Grenoble, Perigueux, and Tarbes. A statement issued by the War Ministry recently shows that the evolution of the malady has varied according to the district. In most of the garrisons it is of a benign character, and its spread is due to recruits coming from places where it was prevalent. The French army medical men express themselves as confident that the situation will improve with the return of more favorable weather.

OUR LETTER FROM GENEVA.

(From Our Own Correspondent.)

GENEVA, May 1, 1921.

Serodiagnosis of Syphilis.—Some recent work on the comparative value of certain reactions of serodiagnosis of syphilis, carried out by Dr. Hubert Jaeger at the medical clinic of the University and which has not as yet been reported in the medical press, is not devoid of interest. Wassermann's reaction was found positive in 6 per cent. of nonsyphilitic patients, especially in nephritis and pulmonary tuberculosis. In primary syphilis it was positive in 100 per cent. of the cases; in secondary syphilis it was only once negative, and in this case Bauer's and Bruck's reactions were positive. In tertiary syphilis and parasyphilis, Wassermann was positive in 40 per cent. of the cases, but all the patients had been given specific treatment.

Bauer's reaction was positive in 8 per cent. of nonsyphilitic patients, this being the case especially in nephritis and pulmonary tuberculosis. In primary syphilis this reaction was positive in 100 per cent. of the cases, and nearly 100 per cent. in secondary lues. It was found to be a little more sensitive than Wassermann in tertiary syphilis and parasyphilis. Its concordance with the Wassermann existed in 90 per cent. of the total number of cases examined and in 95 per cent. of the positive cases.

Bruck's No. I reaction (nitric acid) was positive in 14 per cent. of nonsyphilitic patients, especially in pulmonary tuberculosis, and slight plus in 29 per cent. of non-syphilitics. In the various phases of syphilis Jaeger only found it distinctly positive in 8 per cent. of the cases and preferably so in the tertiary phase. Its concord-

ance with Wassermann existed in 61 per cent. of the total number of cases examined, but in only 12 per cent. of the positive cases. Its concordance with Bruck's No. II existed in 56.5 per cent. of all cases examined, but only in 8 per cent. of the cases in which Bruck II was positive. Its concordance with Bruck No. III existed in 56.5 per cent. of all cases examined and in 15 per cent. of the cases where Bruck No. III was positive. Bruck's No. II (alcohol) was positive in 25 per cent. nonsyphilitic patients, this being frequent in the nephritides; in the various phases of syphilis it was positive in 54 per cent., preferably in advanced lues. Its concordance with Wassermann existed in 58 per cent. of the totality of cases examined and in 55 per cent. of the positive cases. Its concordance with Bruck No. III existed in 87 per cent. of all cases and in 80 per cent. in which Bruck No. III was positive. Bruck's No. III (lactic acid) was positive in 29 per cent. nonsyphilitic patients in very varied diseases. In the various phases of syphilis it was positive in 59 per cent. of the cases, preferably in the advanced stages of lues. Its concordance with Wassermann existed in 55 per cent. of all the cases examined and in 51 per cent. of the positive cases.

Chemistry of the Gastric Symptoms.—Some results obtained by Dr. Nimhin, working at the medical clinic, on the chemism of the stomach are interesting. In four cases of gastric cancer, offering the usual symptoms, three went to autopsy and were confirmed as to the clinical diagnosis. There were two other cases of suspected carcinoma; suspected only, because in one the disease dated back several years and in the second some of the more important signs of the disease were wanting. Nevertheless, in all six cases the analysis of the gastric juice showed absence of free HCl and a diminished total acidity. The specific gravity varied in these cases from 1010 to 1026. Consequently, these results approach those obtained by Meunier. As an explanation of this relatively low specific gravity, Nimhin supposes that it resulted from the gastric retention, which was very considerable in two cases, having, respectively, a sp. gr. of 1012 and 1010. According to Léon Meunier, the amount of glucose is always above 10 grams in the gastric juice of hypohydrochloria, and Nimhin found from 16 to 26 grams in four of the cases, while in the remaining two, in which gastric retention was considerable, they gave, respectively, 7 grams 10 centigrams and 10 grams. Two cases examined were clinically instances of hyperhydrochloria, but analysis of the gastric juice failed to show more than a slight increase of the total acidity in one and a diminution of the acids in the other. The sp. gr. 1025-1026 approached that of hypohydrochloria gastric juice and was, therefore, more in accord with the chemism than with the clinical aspects of the cases, and this applies to one case in relation to the glucose (25 grams), but in the second patient there was only 10 grams with a very moderate gastric retention.

There were four cases of gastritis, atonia, and gastroparesis examined. In all four free HCl was absent, total acidity was below normal, and in

three there was some retention, while in the fourth patient it was very manifest. The high sp. gr. of 1025 and 1026 in three was only 1019 in the fourth case. Dosage of the sugar content of the gastric juice in the four cases gave, respectively, 17 grams 1 centigram, 16 grams, 33 grams, and in the last case 25 grams, regardless of the low sp. gr.; namely, 1019, and a gastric contents of 389 c.c.

The last group of cases comprised nervous patients complaining of dyspeptic disturbances, in all seven patients. In them the gastric chemism was quite variable, which is not astonishing. However, speaking in a general way, the free HCl was rather decreased than otherwise, excepting in one case where it could be regarded as normal. The total acidity oscillated between 0.80 and 3.20 and in only one patient was there any notable retention. As to the sp. gr. it varied between 1,019 and 1,027. In one case it was only 1,009, in spite of a manifest hypohydrochloria, while in another case it was 1,010 with increased acidity. Finally, the amount of glucose in all seven cases was over 10 grams per 1,000 c.c. The parallelism between the sp. gr. and the quantity of sugar is the same in this group as in the first (gastric cancer), with the exception of one case only. Nimhin, therefore, believes from his findings, that the specific gravity of the gastric juice obtained one hour after Ewald's test meal oscillates between 1,019 and 1,034 in hypohydrochloria and in hyperhydrochloria it is 1,010 with little variation. Glucose is less than 10 grams per liter in hyperhydrochloria and varies from 12 to 33 grams in hypoacid gastric juice. However, when there is a certain degree of retention (above 350 c.c.), in spite of a very marked decrease of the acids, there may be a low specific gravity (1,010-1,012) with small amounts of sugar just as is found in the chemism of hyperhydrochloria.

Progress of Medical Science.

Boston Medical and Surgical Journal.

May 12, 1921, clxxxiv, 19.

1. Instruction in Climatology in Medical Schools. Robert DeC. Ward.
2. Hereditary Edema. Charles F. Painter and Harold C. Bean.
3. Results of Nerve Injuries Apparently Due to Birth Trauma. Eli Friedman.
4. Goitre—With an Analysis of One Hundred Operated Cases. A. M. Rowley.
5. On the Severely But Not Totally Disabled in Industry. Leo Blosser.
6. The Administration of Ether by an Intravenous Method. H. Quimby Gallupe.

2. **Hereditary Edema.**—Charles F. Painter and Harold C. Bean report three cases of this condition, sometimes designated as Milroy's disease. No theories concerning it have been advanced except hereditary. One should not be satisfied with that viewpoint until every other cause has been exhausted. Indeed, heredity cannot be the entire cause, for there must be some weakness or tendency upon which heredity plays its rôle. The nearest approach one can make in this line is upon the endocrine gland theory. In these days of rock-bottom research, glands are beginning to play a part and, with no other better reason to be discovered, the glandular theory can be applied to these cases.

Journal of the American Medical Association.

May 11, 1921, lxxvi, 20.

1. Multiple Malignant Neoplasms. Leonard J. Owen.
2. Granuloma from Indelible Pencil. Max Ballin and Harry C. Saltzstein.

3. Local Anesthesia for Simple Mastoid Operations. E. E. Koebelem.
4. The Spirochetal Value of Disodium Ethyl Arsenate (Mon-Arsone). Henry J. Nichols.
5. Some Difficulties in the Diagnosis of Empyema Complicating Pneumonia. Roger S. Morris.
6. The Occurrence of Pellagra in Patients Apparently Receiving an Ample Diet. W. F. Tanner and G. L. Echols.
7. The Effect of Small Doses of Atropin on the Heart Rate. Hugh McGuigan.
8. Gastric Analysis. III. The Examination of the Abnormal Gastric Residuum. William W. Lermann, Martin E. Rehfs, and Philip B. Hawk.
9. The Route and Rate of Absorption of Subcutaneously Injected Serum, in Relation to the Occurrence of Sudden Death After Injection of Antitoxic Horse Serum. Julian H. Lewis.
10. Hemoglobinuria After a Second Transfusion with the Same Donor. William Thalheimer.
11. Seven Years of National Health Insurance in England. A Retrospect. Alfred Cox.

4. **The Spirochetal Value of Disodium Ethyl Arsenate (Monarsone).**—Henry J. Nichols conducted a series of experiments to determine the actual effect of this drug on *Spirocheta pallida* and experimental lesions. From these observations he concluded that disodium ethyl arsenate, or monarsone, tested on rabbits infected with syphilis shows no spirochetal power. The tissues are fatally poisoned as soon as or before the spirochetes are affected. For its practical use in syphilis there is no such germicidal basis as exists in case of the arsenamine group.

7. **The Effect of Small Doses of Atropine on the Heart Rate.**—Hugh McGuigan holds that small doses of atropine, if they influence the heart rate, only slow it. This slowing is produced by an action on the vagus center in the medulla. There may also be some stimulation of the vagus endings. Larger doses of atropine, 0.001 gm. (1/60 grain), still cause slowing, with a tendency to irregularity. This is the point at which the vagus endings begin to be paralyzed. If the dose is still further increased, 0.002 gm. (1/30 grain), the primary slowing of the heart rate may be so transient that it escapes notice. If the object in giving atropine is to paralyze the vagus endings and release the heart (presumably also to relax the smaller bronchioles), at least 1/60 grain, hypodermically, is necessary. In urgent cases 1/30 grain should be given.

9. **The Route and Rate of Absorption of Subcutaneously Injected Serum in Relation to the Occurrence of Sudden Death After Injection of Antitoxic Horse Serum.**—Julian H. Lewis was prompted to make the investigation upon which this contribution is based because of the apparent discrepancy between fact and theory in the matter involved. Most of the recorded cases, it is pointed out, of sudden death with symptoms of anaphylaxis which have resulted from injection of foreign proteins in man have followed subcutaneous injections. Furthermore, in most cases, the onset of the symptoms, and often the fatal termination, occurred a very few minutes after the injection. However, it should be impossible to produce death by subcutaneous injection of serum in ordinary amounts, because the normal rate of absorption from the subcutaneous tissues is very slow, and it is known from experimental anaphylaxis that in order to produce acute anaphylactic death the antigen must get into the circulation rapidly. From his investigation the following conclusions are drawn: The complement fixation test can be used to detect extremely small amounts of one serum in the presence of larger amounts of another. The absorption of serum from the subcutaneous tissues is very slow. The main route of absorption from the subcutaneous tissues is through the lymphatics. The rate of absorption of horse serum injected subcutaneously is apparently too slow to explain the cases of sudden anaphylactic death which have occasionally followed the administration of antitoxic serums in man. Certain procedures, such as massage of the site of injection, and the injecting of large volumes under high pressure, can hasten the appearance in the circulation of horse serum injected subcutaneously. Because of the suddenness with which it appears, and because of the analogy to the occurrence of fat emboli after the subcutaneous injection of oily substances, acute anaphylactic death in man following subcutaneous injections of horse serum is probably due to an accidental intravenous injection of the serum. The need of care to exclude as far as possible the injury of a subcutaneous blood vessel

during subcutaneous injection of horse serum is indicated.

The Lancet.

April 23, 1921, cc. 17.

1. Loose Bodies in Joints. A Study of Loose Bodies Composed of Cartilage, or of Cartilage and Bone, Occurring in Joints, with Special Reference to Their Pathology and Etiology. A. G. Timbrell Fisher.
2. Oliver-Sharpes Lectures on the Nature of Flutter and Fibrillation of the Auricle. Lecture II. Auricular Fibrillation. Thomas Lewis.
3. Permanent Drainage of the Only Kidney. William Henry Battle.
4. Researches on the Biochemistry of Germs and Other Proteins, with Special Reference to the Problems of Immunity. David Thomson.
5. Basal Metabolism and Its Clinical Measurement. H. G. B. Strickland.
6. Medicine in Soviet Russia. Boris Sokolov.
7. Congenital Word-Blindness. J. E. Wallace Wallin.

1. **Loose Bodies in Joints.**—A. G. Timbrell Fisher, in this Hunterian Lecture, gives a study of loose bodies composed of cartilage, or of cartilage and bone, occurring in joints, with special reference to their pathology and etiology. Foreign bodies in joints do not come within the scope of this paper. The loose bodies under consideration may be classified into three groups: Group I.—Loose bodies occurring in connection with some more or less general pathological process affecting the joint, such as: (a) osteoarthritis; (b) tabes; (c) tuberculous disease accompanied by necrotic caries; (d) acute arthritis, due to infection. Group II.—Loose bodies occurring in joints that are otherwise apparently normal: (a) bodies having the microscopic, and frequently the macroscopic, appearances of detached portions of the articular surfaces; (b) bodies derived from interarticular fibrocartilages; (c) bodies formed from detached epiphyses not forming portions of an articulating area. Group III.—Synovial chondromata, laminated and nonlaminated: (a) single; (b) multiple; (c) diffuse. In the present stage of knowledge it is impossible to dogmatize upon the etiology of the more important loose bodies of Group I—that is, the osteophytes, since it is bound up with the larger question of the etiology of osteoarthritis. Similarly, the etiology of Group III, the synovial chondromata, is bound up with the larger question of the etiology of tumors. Although it is probable that the cartilage cells in the synovial villi from which they originate are derived from the primitive cartilaginous bar which, in the developing embryo, becomes cleft to form the knee-joint, the periphery remains to become the capsule and synovial membrane. Trauma, however, may undoubtedly be a contributory factor. The writer deals chiefly with the etiology of the type of loose body derived from the articular surface (Group II), all of which are considered of traumatic origin. The classical symptoms of a loose body, sudden attacks of severe pain, often followed by swelling or momentary locking, are due either to the body becoming suddenly and momentarily nipped between the articular surfaces or between the capsule and the joint ends. The symptoms vary with the type of loose body. The treatment of the cases of traumatic loose bodies and of the synovial chondromata is, in most instances, removal. In the case of the pathological loose bodies in osteoarthritis, an operation is usually indicated in young or middle-aged people when troublesome locking occurs and when the joint is not seriously disorganized. Any operation for the removal of loose bodies should be preceded by an x-ray examination taken in two planes, from which one may learn how and where to open the joint. An x-ray is helpful only when the loose body contains bone.

British Medical Journal.

April 23, 1921, i, 3147.

1. Remarks on Postural or So-called Static Deformities. A. S. Blundell Bankart.
2. Oliver-Sharpes Lectures on the Nature of Flutter and Fibrillation of the Auricle. Lecture II. Thomas Lewis.
3. The Etiology of Rickets: An Experimental Investigation. D. Noël Paton and A. Watson.
4. A Tuberculosis Immunizing Vaccine. Nathan Raw.
5. Herpes and Varicella. E. H. R. Harries and Evelyn Dunderdale.
6. Chronic Suppurative Otitis Media, Followed by Left Temporo-Sphenoidal Abscess and Meningitis. F. Holt Diggle.

3. **The Etiology of Rickets.**—D. Noël Paton and A. Watson, from this experimental investigation, formulate the following conclusions: (1) In young dogs, under ordinary laboratory conditions, a liberal allowance of milk fat up to even 14 grams per kilo of body weight neither prevents the onset of rickets nor cures it when it has developed. (2) Pups kept largely in the open air may escape the development of rickets on an intake of less than 1 gram of milk fat per kilo of body weight. (3) With scrupulous care as to cleanliness it is possible to rear pups free of rickets in the laboratory on an intake of only about 0.5 gram of milk fat per kilo of body weight, along with bread, provided that the diet affords an adequate supply of energy. (4) The energy value of the diet, however supplied, quite apart from the presence of any hypothetical anti-rachitic factor in milk fat, would seem to play a part in controlling the development of rickets, but that it is only a contributory part is shown by the development of rickets in pups with a high energy intake when they are confined in the laboratory without scrupulous care as to cleanliness. (5) Milk fat may be reduced to about 0.3 gram per kilo of body weight, if its place is taken by an equal amount of lard, without the onset of rickets. (6) The results of these observations do not support the conclusion of the accessory food factors committee of the Medical Research Council that rickets is a deficiency disease due to lack of an anti-rachitic factor associated with milk fat.

British Medical Journal.

April 30, 1921, i, 3148.

1. Remarks on Posterior Rhizotomy for the Relief of Pain. Sir William Thorburn.
2. Symptomless Hematuria: A Plea for Early Investigation. James B. Macalpine.
3. A Serological Study of Hemolytic Streptococci; Differentiation of *S. Pyogenes* from *S. scarlatinae*. M. H. Gordon.
4. Remarks on Postural or So-called Static Deformities. A. S. Blundell Bankart.

2. **Symptomless Hematuria: A Plea for Early Investigation.**—James B. Macalpine emphasizes the points that hematuria is frequently the only symptoms of a growth of the urinary tract; that following this expression of its presence it may retire into absolute quiescence for a long period, during which it is probably increasing in size and advancing toward malignancy; that when it reasserts itself, whether by a second hemorrhage, or by pain, or dysuria, or the presence of a lump, it may have passed beyond the operable stage, and that, if the growth should prove to be of the upper urinary tract, the only time at which a diagnosis of the anatomical site can be made is during the period of actual bleeding. The moral is obvious, but often missed: Hematuria is not a symptom to be treated *per se*. It is a red danger sign, urgently demanding an accurate diagnosis—first as regards its anatomical point of origin, and secondly as regards its pathological cause. It is an easy matter to put a man suffering from hematuria to bed, apply cold, and administer certain reputed hemostatics. Such a course may be rewarded by a cessation of the hematuria, and the medical attendant will have the gratitude of his patient, but surely, on contemplation, must have the mortification of realizing that he has done him a great disservice. Much better had it even been if he had kept him in active life, and rather sought to perpetuate the hemorrhage than to allay it, till such time as a cystoscopic examination could be arranged, and the source of the hemorrhage accurately located. Once the hemorrhage is stopped the opportunity has passed, possibly for a long period and unless some gross swelling of one kidney can be palpated, or the patient is persuaded to submit to a cystoscopy, which may reveal some causative bladder condition, the golden opportunity has gone by and may not recur till much valuable time has been lost. However, the doctor is frequently not responsible for the delay, for patients often cannot be brought to realize the importance of the condition, so long as it is unaccompanied by pain or discomfort. Nevertheless, emphasis is laid on the responsibility of the medical attendant, since the importance of an early cystoscopic examination has not been adequately brought home in the past. Had symptomless hema-

turia been as common as the acute appendix, it would have gone through the same phases that the acute abdomen experienced fifteen years ago, and would now be invariably submitted to immediate cystoscopy, just as the acute abdomen is invariably submitted to immediate laparotomy.

The Practitioner.

April, 1921, civ. 4.

1. Nasal Sinus Infection as a Causal Factor in Appendicitis. P. Watson-Williams.
2. Nasal Obstruction and Its Consequences. Francis Muecke.
3. Some Observations upon the Operation for Deflection of the Nasal Septum. John Donald.
4. Diagnosis of Acute Appendicitis. E. T. C. Milligan.
5. Three Cases of Diverticulitis of the Colon. F. D. Saner.
6. Review of Tropical Diseases. R. Tanner Hewlett.
7. Incontinence of Urine in Childhood. Charles E. Sundell.

1. Nasal Sinus Infection as a Causal Factor in Appendicitis.—P. Watson-Williams, reviewing and analyzing the cases of definite infective nasal sinusitis occurring in his private practice during two years, found that there were 90 cases, and that no less than 14 had undergone appendicectomy; that is over 15.5 per cent. Cases in which symptoms of appendicitis were reported were excluded unless appendectomy was performed. In several of the 14 cases, which the writer tabulates, the length of time between the appendix operation and the recognition of the sinus affection was too long to justify the assumption of a causal interdependence. It is certain, however, that a chronic nasal sinusitis often has a very prolonged latent period of infectivity without any symptoms sufficiently definite to arouse suspicion until, with some intercurrent cause for exacerbation, the mild latent infection develops signs and clinical manifestations so pronounced that the sinusitis is supposed to have arisen *de novo*. Furthermore, it is unlikely that acute suppurative sinusitis will cause appendicitis, inasmuch as it is then an acute focal infection, while the gastrointestinal tract will be more prone to succumb to a chronic or recurring mass infection from a constant swallowing of organisms. If the element of chronicity is a point to remember as regards nasal sinusitis, it is equally so as regards appendicitis, and it seems probable that an acute appendicitis is usually only an acute exacerbation of a previous latent infection with a relatively long prodromal period. Hence, in collecting statistics, it is impossible to draw a line and assume that, because the appendix infection culminated long before the chronic sinus infection declared itself by severe clinical manifestations, their interdependence must be ignored. It is considered noteworthy that in the list of 14 cases of appendicectomy two were also operated on for duodenal ulcers, while of those not included in the appendix group, there were also among the series of 90 patients two cases of gastric ulcer (one short-circuited), and several others with a history of colitis and gastric catarrh. The incidence of nasal sinus infection in patients suffering from appendicitis could be more accurately determined by exploring the maxillary antra and the sphenoidal sinuses of every patient subjected to appendectomy. At any rate it seems right and proper to make careful inquiry for symptoms and signs of nasal sinus infection in patients suffering from appendicitis and gastric ulcer.

Endocrinology.

March, 1921, v. 2.

1. Diabetes Insipidus as a Hypotuitary Syndrome. G. Marañon.
2. Hypophysis Tumours in Domestic Animals. II. A. Vermeulen.
3. Physiological Hyperthyroidism. Harlow Brooks.
4. Degenerative Changes in the Seminal Epithelium and Associated Hyperplasia of the Interstitial Tissue in the Mammalian Testis. Alber Kuntz.
5. The Special Services Rendered to the Human Organism by the Sympathetic and Parasympathetic Systems, Including Both Nerves and Glands of Internal Secretion. F. M. Pottenger.
6. Changes in the Endocrine Glands of a Tumour-Bearing Female Rat. Frederick S. Hammett.
7. Further Observations of the Pigment Changes Following Removal of the Epithelial Hypophysis and the Pineal Gland in the Frog Tadpole. Wayne E. Atwell.
3. Physiological Hyperthyroidism.—Harlow Brooks points out a condition under which symptoms of thyroid

disturbance appear, symptoms mistakenly regarded as indicating serious and permanent disease. The interesting fact to be deduced from these cases is that treatment should not be directed to prevent or circumvent these efforts on the part of the gland, but that, while in many instances it may be necessary to direct or guide nature's efforts, it is unwise to attempt measures, and particularly radical measures, which inflict changes or limitations of a permanent character on the gland in question. Under the category in question are cited numerous hypothetical as well as actual cases among boys and young men and girls and young women. Doubtless there is no more familiar example of physiological hyperthyroidism than is frequently seen in the developing youth. In fact, many of the characteristics which are regarded as a part of youth itself are but probable evidences of thyroid activity. The condition is brought about by an abnormally great demand on the thyroid as the result of developmental growth associated with too much emotional output. When these factors are either diminished within normal limits or directed into other channels, automatically the overaction of the gland, together with other secondary factors that may be associated with it, drops toward the normal; but if the urge is too long continued, or if fixed habits of demand and response be established, the condition will develop either into Graves' disease or will take on a neurasthenic phase likely to ruin the life of the individual. It appears, then, to be but a normal response to an exaggerated or abnormal demand, with the final establishment of a tissue habit. These instances of thyroid activity do not call for surgical or other radical treatment. On the contrary, when these are enforced serious permanent harm is likely to result—either a subsequent hyperthyroidism or an alteration or holding in abeyance of natural and normal tendencies which, when compared to mediocrity, in their full efflorescence lie very close to genius. A failure to comprehend and correctly manage these cases leads to Graves' disease, to neurasthenia or eventual nervous and physical inadequacy.

5. The Special Service Rendered to the Human Organism by the Sympathetic and Parasympathetic Systems, Including Both Nerves and Glands of Internal Secretion.—F. M. Pottenger summarizes this discussion as follows: 1. Physiological action in smooth musculature and secreting glands is controlled by the vegetative nerves and the glands of internal secretion, and is influenced by stimuli either of physical or psychological origin. 2. The vegetative nerves are divided into two systems, the sympathetic and parasympathetic. The glands of internal secretion may in a measure likewise be divided into those which act with the sympathetics and those which act with the parasympathetics. 3. The sympathetic nerves and the sympathetotropic glands of internal secretion aid in the defense of the organism against such conditions as enemies from without, infection, pain, anger, injury, heat, cold, asphyxia, and shock. The parasympathetic nerves and parasympathetotropic glands of internal secretion provide the body with an appetite and the secretions—salivary, gastric, biliary, pancreatic, and intestinal—for the digestion of food, and motor power to the gastrointestinal tube, for mixing the food with the secretions and propelling it onward, and for expelling the refuse from the body.

Long Island Medical Journal.

March, 1921, xv. 3.

1. State of Intestinal Obstruction. H. L. Graham.
2. Gastric Carcinoma with Cerebral Symptoms. Henry Wolfer.
3. Cerebral Abscess with Masked Symptoms. R. E. Coughlin.
4. Address—Brooklyn Cardiological Society. Wm. J. Cruikshank.
3. Cerebral Abscess with Masked Symptoms.—R. E. Coughlin reports this case, in which the patient was in a condition of pregnancy, with all the symptoms of kidney disease, including convulsions, vomiting, headache, anemia, a leucocytosis of 16,000, high-tension pulse. Linked with all these symptoms were all the classical symptoms of meningitis, excepting the condition of a negative spinal fluid. The patient died after all apparent means had been employed to locate her

disease, and the necropsy showed the diseased condition in the left hemisphere of the brain, where there had never been the slightest sign to indicate the location of abscess. Operative evacuation of the abscess is the only treatment that can be considered, yet it is impossible to operate when the symptoms bear no relation to the location of the abscess, as in this case.

Wiener klinische Wochenschrift.

February 10, 1921, xxxiv, 6.

Softening of the Spine.—Eisler and Hass have described a new affection of the vertebrae which they term a form of osteomalacia localized in the spine. Clinically it is expressed chiefly by pain and kyphosis, and objectively by radiographic alterations. It is occurring in massed incidence, and hence is of more than merely scientific interest. Both sexes are attacked, and mostly during middle life. The pains are felt throughout the spine and worst in the sacral region. They are much aggravated on rising from the sitting posture. As the condition progresses there is complaint of prostration, trembling of the legs, inability to work, and insomnia. The sitting posture is avoided, but even when recumbent the pain may be severe. The patient in time becomes bedridden, the psychic is altered, and there is the impression of a very sick man or woman. Objectively there is moderate kyphosis involving the entire spine with a soft pillow-like swelling over the sacrum. The long bones are quite normal. The tender areas over the spine vary from time to time, although predominating about the sacrum. None of the other bones is sensitive. Passive motion of the spine does not cause pain, but active exertion, especially stooping, is attended with severe suffering. The first suggestion is of a spondylitis with the addition of neuralgia, and next in order metastases of malignant tumor. Differential diagnosis is made incidentally by the x-ray, for the affections mentioned are more or less localized. In advanced cases there is plainly a poverty of lime. The cure is comprised of phosphorus (no particulars are given), orthopedic support, and the quartz lamp for the pains. The most important question as to the dependence of this condition on underfeeding is not even alluded to, although we know that the famine conditions have caused a form of osteomalacia in Poland.

Wiener klinische Wochenschrift.

February 17, 1921, xxxiv, 7.

Action of Curare in Tetanus.—Schoenbauer of the First Surgical Clinic, University of Vienna, calls attention to the shortcomings of antitoxin in the treatment of tetanus as contrasted with its preventive efficiency. The reason for this dissimilarity is apparent, because the serum when given for prophylaxis can get to the blood mass before the toxin of the disease and thus exert its protective action on the nervous tissues. The author, upholding the efficacy of prophylactic injections, states that of 1300 open wounds treated in an accident station the immediate use of 20 units of antitoxin was followed by a solitary case of lockjaw. This case went from bad to worse, despite all treatment. In casting about for a new resource the author recalled that during the war curare was tested, although apparently with negative result. It occurred to him to give this old drug a trial. An opportunity was offered when an accident victim was brought in with the full picture of tetanus, 10 days after having received a severe lacerated contused wound of the head. The wound, which apparently had not been dressed, was first treated and antitoxin given locally and by subcutaneous and intravenous injection. There was no response and the symptoms progressed. Chloral was then exhibited, and incidentally a small dose of curare, repeated until 6 mgm. had been injected. This quantity produced overaction (asphyxia), and the dose was limited to 5 mgm. daily with 45 grains of chloral. Under this treatment the spasms ceased for some hours daily, to reappear sooner or later with varying severity. The patient recovered after having taken 63 mgm. of curare in 14 days. In using this drug everything depends on the quality, and the preparation used

should be tested on a warm-blooded animal before using, as was done in the author's case.

Schweizerische medizinische Wochenschrift.

March 3, 1921, li, 9.

New Formation of Cells in the Adult Organism.—Professor Corning of Basle discusses this important subject which lies at the base of regenerative processes, tumor growth, etc. He begins with the original cell multiplication which follows impregnation and initiates development. This, however, takes no account of parthenogenic phenomena, a subject naturally of great moment. The experiments of Bataillon and J. Loeb have shown that the spermatozoid is not essential to development. The nature of the irritation which brings about formative development is obscure. Apparently it is necessary only for some irritant to start cell division, after which organ growth and form look out for themselves. Thus living organisms can unaided cause the formation of plant galls. Nucleus and cell division go ahead with slight intermissions, but this process is seldom long interrupted. The mass of protoplasm concerned is not a measure of growth. The completely developed organ contains a constant cell count, and this is of course true of the individual as a whole. Thus at one stage of development a certain larva contains 450 cells, indicating a fixed limit to cell division. Formation of over large structures means that a normal inhibiting force has defaulted or has been prematurely exerted. According to circumstances, then, we see giant and dwarf formations in which conceivably the number of cells is larger or smaller than normal. Such developments are seen alike in impregnated and unimpregnated ova. Differences in growth rate may be seen in epithelial as compared with connective tissue, in which the evolution of one tissue may influence the development of the other, and the author discriminates between interstitial and appositional growth. In epithelial tissue which is constantly cast off and regenerated mitotic figures are common in the deeper layers. In the supporting tissues mitoses do not occur in bone cells, and in cartilage cells are of doubtful occurrence, and in loose or formed connective tissue occur but rarely; although the cells retain their ability to subdivide. Mitoses are also rare in some of the epithelial cells, as those of the liver and kidneys. In brief as far as we can generalize there is a definite relationship between frequency of mitoses and ability to regenerate. Mitoses in these parenchymatous organs when present at all are seen only in growing animals. In adults the blood is seen to have full powers of regeneration and this is true of the cells of the bone marrow from which the blood corpuscles are formed. The author discusses direct and indirect cell division. In a few organs direct subdivision goes on throughout life, in others the number of cells in the structures reaches its limit soon after birth, while in still others the number is completed at the end of the embryonal period. In the first class are the cells which form the spermatozooids and blood corpuscles, in the second the parenchymatous organs, the loose connective tissue and cartilages and in the third muscle and nerve substance. Nail and hair growth are typical regenerative processes with typical mitoses in the stratum germinativum.

Mumps and Meningitis.—The fear of orchitis as a complication of mumps doubtless is partly responsible for the indifference toward meningitis, the possibility of which seldom occurs to the practitioner. Yet not a few cases of this complication are on record. Feer of Zürich reported a case in 1919 in a boy of 8 years. In such cases one is first apt to think of tuberculous meningitis. No bacillary finds are mentioned. German literature is poor in this subject. French cases seem less infrequent. Bourdillon of Geneva saw a case in 1915 in a girl of 10. Like Feer's case, it ended in recovery (secondary meningitis in the course of acute infectious diseases is said to be relatively benign). There were no bacillary finds. This complication is evidently due to the unknown specific cause of mumps and not to the lighting up of a meningococcus or streptococcus infection.—*Revue médicale de la Suisse romande.*

Book Reviews.

THE PRINCIPLES OF THERAPEUTICS. By OLIVER T. OSBORNE, M.A., M.D., Professor of Therapeutics, Department of Medicine, Yale University. Philadelphia and London: W. B. Saunders Company, 1921.

THIS is an interesting book to read here and there, and there is a lot of sound information in it. It is not, however, adapted for use as a textbook, either of materia medica or of therapeutics. For the young graduate, however, it is a capital guide, for it will serve to refresh his memory as to the action of certain drugs, and may also give him some new ideas of real practical worth. As a finished production the book would have been improved had it ended on p. 775, for the following hundred pages have no place in a work on therapeutics. There is a section of 20 pages dealing with the "treatment of simple disturbances of the surface of the body," ending with leucorrhœa! This is good so far as it goes, but why stop with dermatology? The treatment of internal disorders is certainly as important. A chapter on "practical advice to young physicians," ending with a section on life extension, is good, but the material is not usually regarded as a division of therapeutics. And the book ends with the Code of Ethics! Why not the Gospel according to St. Luke? The writer of that treatise was a physician and it is cram full of ethics—even better than the ethics of the A. M. A.; and then it contains some therapeutics, too, as well as case histories, which the revered Code does not, so it would really be a more fitting appendix to a work on the healing side of medicine.

DISEASES OF THE EAR. By PHILIP D. KERRISON, M.D., Aural Surgeon in the Willard Parker Hospital for Infectious Diseases, Junior Aural Surgeon in the Manhattan Eye and Ear Hospital, Fellow of the American College of Surgeons, etc. Second edition. Revised and enlarged. Philadelphia and London: J. B. Lippincott Company.

THE first edition of this work, which appeared some eight years ago, met with well-deserved favor with both otologists and general practitioners. The present edition contains all the good features of the first, such as the excellent illustrations of the successive stages of the several operations; indeed, all the illustrations are good and, when taken with the clear descriptive style of the author, facilitate greatly an understanding of the operations. In this edition two chapters have been added—one on the pointing tests of vestibular and cerebellar disease and another on deafness occasioned in war by air concussion and other traumatic incident to war.

GYNECOLOGY. By BROOKE M. ANSPACH, M.D., Associate in Gynecology, University of Pennsylvania. With an Introduction by JOHN G. CLARK, M. D. 526 illustrations. Philadelphia and London: J. B. Lippincott Company. 1921.

ANOTHER gynecology in the medical and surgical literary field to smile or to fight its way into popularity among medical students and that almost extinct species—the general practitioner. This work has been aided on its way by an introduction from Dr. John G. Clark, who, in the conclusion of his introductory note, extends a "cordial commendation to a book that has had the well-balanced authorship of a specialist who has devoted a number of years to faithful work as an investigator and as a teacher, and to the practice of gynecology and abdominal surgery in their broadest and best sense." Truly, the author of this book may be proud of his achievement, for he has covered his field in a clean-cut, masterly fashion, and in addition has summoned to his assistance the best literature and opinions on his specialty. The arrangement of the subject matter is so logical, simple, and direct that this effort adds much to the pleasure of study from this work. The necessary anatomy, physiology, and pathology are given and of course operative procedures as well as prophylactic and hygienic care of patients. One of the most unique chapters in the book is that pertaining to backache, that bugbear among women. That in itself shows how such knowledge has broadened and deepened in the past fifteen

years. Exercise, with the exercises plainly illustrated, is well discussed and the subject of correct support from correct type of dress, such as corsets, etc., is most sensibly given to the reader so that there can be no doubt as to what the author means, and certainly no haziness as to his methods of treatment. The book is decidedly refreshing and tends to spur on interest in this specialty. Why do not more surgeons, who have practically the medical control of so many women's lives, study the big preventive field in physiology as well as the remedial side of pathological states? This author has on no narrow-visioned surgical spectacles, but straight-seeing, almost far-visioned medical eyeglasses. The illustrations are superb and an excellent bibliography follows each chapter. One might wish that at times there had not been shown such a surgical method of statement of facts, which tends to give them almost too much crispness, so that, here and there, they seem to be knocked at one as a hammer might be. However, when the priceless moments in a practitioner's life are considered in which there is time for reading and study, perhaps this habit of abruptness on the part of the author may be for a definite, studied result.

THE PRINCIPLES OF ANTE-NATAL AND POST-NATAL CHILD PHYSIOLOGY. By W. M. FELDMAN, M.B., B.S. (Lond.), Assistant Physician to and Lecturer on Child Physiology at the Infants' Hospital. With six plates and 129 illustrations. New York and London: Longmans, Green & Co. 1920.

THIS book is the first of its kind in any language. It is the outcome of a series of lectures delivered at the Infants' Hospital. The book is designed to appeal to the student of physiology, to the pediatricist, and to all conversant with the study of children. The pioneers on the subject of antenatal and postnatal life, Leonard Hill and J. W. Ballantyne, lent valuable aid to Dr. Feldman in the preparation of this volume so that it has an authoritative scientific standing. The subject is thoroughly discussed from the earliest stages of life, namely, the germinal cells until puberty, every step in the development being considered. The functions of each system in the body of the fetus are carefully described. Of great interest is the chapter on the fetal secretions and internal secretions. The physiology of pregnancy and of birth and the changes that take place in the mother and infant are accurately explained. The postnatal development of the child is really a volume in itself, every angle of anatomy, physiology, and metabolism, as well as the development of the systems of special sense organs, being especially commendable.

PRINCIPLES OF BIOCHEMISTRY. For Students of Medicine, Agriculture, and Related Sciences. By T. BRAILSFORD ROBERTSON, Ph.D., D.Sc., Professor of Physiology and Biochemistry in the University of Adelaide, South Australia. Philadelphia and New York: Lea & Febiger, 1920.

THE author presents the subject of biochemistry in close relationship to physiology and has constructed a textbook primarily for the use of medical students and students intending to specialize in biochemistry and physiology. But his purpose has been to make it useful also to the student of agriculture or general biology and to the industrial chemist. He has been highly successful in accomplishing his purpose. He has produced a book of some 600 pages which touches illuminatingly, if at times briefly, upon practically all of the phases of that very complex division of chemical knowledge which we have come to know as biochemistry. Its production has demanded more than superficial knowledge of the allied subjects of physics, physical chemistry, biology, bacteriology, immunology, and mathematics, and the reader is continually impressed with the author's broadness of vision and information. But perhaps the most striking feature of the work is the evidence in nearly every paragraph of the author's philosophical attitude and active scientific imagination. These contribute to make the book fascinating and stimulating reading, wholly apart from its value as a text in the subject. His final chapter, "The Outlook," is a masterpiece of scientific prevision. This is a book that everyone should read.

Society Reports.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

One Hundred and Fiftenth Annual Meeting, Held in Brooklyn, May 3, 4, and 5, 1921.

(Continued from page 891.)

SECTION ON MEDICINE.

Wednesday, May 4—Second Day.

DR. RICHARD G. RUSSELL OF BUFFALO IN THE CHAIR.

Intestinal Tuberculosis.—Dr. LAWRENCE BROWN and Dr. H. L. SAMPSON of Saranac Lake presented this communication which was illustrated by charts and lantern slides. They stated that the records of the New York State Department of Health showed that of 19,612 persons dying of tuberculosis in this State 17,235 had died of pulmonary tuberculosis. Three and one-half per cent. were certified as having some abdominal complication. The figures obtained at autopsy, however, seemed to show a much higher percentage of intestinal involvement. In a study of 89 consecutive cases at Trudeau to ascertain what percentage had intestinal tuberculosis, they found about 6 per cent. The present status of the diagnosis of intestinal tuberculosis was comparable to that of the diagnosis of pulmonary tuberculosis twenty-five years ago. The symptoms presented by intestinal tuberculosis were diarrhea, or constipation, or diarrhea and constipation alternating, pain, tender points in the abdomen, or rigidity. The finding of tubercle bacilli in the feces was of little value as a large percentage of cases of pulmonary tuberculosis showed tubercle bacilli in the feces as well as in the sputum. Constipation, digestive disturbance and failure of the pulmonary condition to improve were further evidences of the presence of intestinal tuberculosis. An irregular temperature with subnormal fluctuations with marked nervousness were also suggestive of tuberculous peritonitis. The bismuth meal and the x-ray were valuable aids in the diagnosis of intestinal tuberculosis. Failure of the cecum to fill, with segmentation of some of the coils of the small intestine and general hypermotility were indications of intestinal tuberculosis. Colitis occurring in a tuberculous patient was nearly always a tuberculous colitis. Operation was not indicated in advanced cases of tuberculous peritonitis though it might be resorted to in early localized cases. Heliotherapy applied by means of the mercury quartz lamp should be tried in all cases; in some instances the result of this form of therapy was striking. During the past three years they had studied almost 800 cases of tuberculosis roentgenographically, and had found that when, after giving the opaque meal, the barium was found in the ileum and transverse colon, with none in the cecum it was almost pathognomonic of intestinal tuberculosis. In some cases, apparently normal at first, this defect would be evident after twenty-four hours. In some advanced cases the barium reached the ileum in six hours, but there would be nothing in the ileum, the ascending or the transverse colon. In the earlier part of their work the patient ate nothing from the time the barium meal was taken until the radiographic observations were completed, but they now asked the patients to bring a bite to eat after the sixth or seventh hour as this sometimes hastened the passage of the barium out of the small bowel into the large bowel so that a defect could be visualized.

Dr. LEON T. LE WALT of New York emphasized the diagnostic possibilities of the x-ray, and cited the fact that in gastric ulcer and carcinoma of the stomach the x-ray enabled them to make correct diagnoses in over 90 per cent. of the cases, as proved by operation or autopsy. Dr. Le Walt cited a case of tuberculosis of the cecum and ascending colon in which there were no pulmonary lesions so far as the x-ray or symptomatology of the case was concerned. He believed it to be one of primary tuberculosis of the colon and cecum. By Dr. Brown's technique he had been able to make the diagnosis. Dr. Downes had operated upon the pa-

tient and now, two or three years after the operation, there was no recurrence of the symptoms. Dr. Le Walt asked Dr. Brown what his feeling was with reference to the diagnosis of tuberculosis of the small intestine. He stated that they had made the diagnosis of tuberculosis of the small intestine on the x-ray evidence of dilatation and segmentation of the small intestine as proved at operation. He also asked Dr. Brown whether he had had any experience with tuberculosis of the stomach. He stated that they had one case at Bellevue recorded as tuberculosis of the stomach though there was some question as to whether it might not be a syphilitic lesion instead of a tuberculous ulcer.

Dr. J. W. DRAPER said he had had the privilege of operating on one of the cases that Dr. Brown had described, in whom there was an extensive involvement of the ileum, ascending colon, and appendix. In this case the patient's condition was such that he was only able to remove the appendix at the operation. It was the opinion of the staff that the patient would not recover unless a secondary operation was performed. The patient refused further operative interference, and, much to their astonishment, had made a most astonishing recovery. Dr. Draper said he had always been interested in the pathology and etiology of infections of the right side of the colon and had studied the pathological findings in 150 cases in which specimens were removed at operation. This series did not embrace more than about 3 per cent. of tuberculosis. An interesting question in connection with this work was why tuberculosis, streptococcus and colon bacillus infections occurred in this region almost to the exclusion of every other part of the intestinal canal. This had been explained by certain embryological features leading to conditions which tended to lower resistance in this location. He thought we should all be grateful to Dr. Brown for having shown that too great rapidity in the emptying of the intestinal tract after the giving of an opaque meal might be just as significant as too great delay.

Dr. MARY DUNNING-ROSE of New York said she thought we all recognized when dealing with a chest case of tuberculosis that we were not dealing merely with a local condition, but with a general disease. Probably many of the bad results in surgery were due to the fact that they removed only the local manifestation of a general disease and the operation only served to still further lower the resistance of the patient while the disease still existed. She said she had been waiting to hear someone mention tuberculin in the treatment of abdominal tuberculosis. She cited the case of an Italian woman who had tuberculous peritonitis and was subjected to an exploratory laparotomy; extensive involvement was found and the patient was sent home to die. The woman sent for another physician, who treated her with tuberculin. She had seen the woman three years after the operation when she was apparently in good health. That had decided her to study the action of tuberculin and to learn to use it, which was something one could not learn from books. If one could not administer tuberculin without causing a febrile reaction it was time that person stopped using it, because if one obtained high febrile reactions after the administration of tuberculin he was going to lose the case. One should start with the fifth or sixth dilution and be extremely careful of the technique. It was important to be sure that the syringe was thoroughly washed out or one might be giving a much higher dosage than he thought he was giving. The proper use of tuberculin would save some of these cases of tuberculous peritonitis that otherwise would be lost.

Dr. GEORGE REESE SATTERLEE of New York said he had had the pleasure of witnessing some of the work done at Saranac. The work should not be misunderstood. It was not always possible to make the diagnosis of intestinal tuberculosis with the x-ray, but this work would lead to further study along these lines. He had made a study of colitis cases, and in tuberculosis of the cecum it was much more difficult to fill the cecum than in ulcerative colitis or in the presence of a specific lesion. Dr. Satterlee emphasized the importance of not giving a meal at night before making an x-ray examination of the colon. He asked Dr. Brown whether he

had come to any conclusion as to the route by which infection took place, whether it was by way of the lymphatics or whether by direct infection from the interior of the intestine. He thought tuberculosis of the intestines was comparatively rare. In over 1000 cases they had seldom made a diagnosis of a tuberculous intestinal lesion. It was important to exercise great care in making a diagnosis from the morphology alone.

Dr. BROWN, in closing the discussion, said that at Saranac they saw very few cases of tuberculous except the pulmonary lesions and so they rarely saw tuberculous peritonitis in cases other than those of pulmonary tuberculosis. He had never seen a case of primary tuberculosis of the stomach. The source of the infection in tuberculous peritonitis he thought was from the sputum through the intestinal wall. It seemed that parts subjected to the greatest strain were infected first. They had found about 85 per cent. of intestinal tuberculosis at or around the ileocecal valve. In their series they had had no primary intestinal lesion at all.

The Importance of the Medical History in the Diagnosis of Chronic Gastrointestinal Disease.—Dr. WILLIAM GOLDIE of Toronto, Canada, presented this communication. He stated that the rapid accumulation of new facts, theories, and tests made it difficult to retain a sense of proportion and to guard against the present tendency to lay hold upon some pathognomonic sign or seek some short cut to a diagnosis. Textbooks showed an exasperating vagueness in their symptomatology of chronic intestinal conditions, and such an indefiniteness that often an interchange of titles would not add greatly to the confusion. New facts had given rise to the conception that the majority of symptoms of chronic gastrointestinal disease were dependent upon defects in the activity of the muscular elements of the intestinal tract. This conception has so far been in keeping with clinical findings, and its adoption had led to the sorting out of certain symptom complexes having a definite meaning. It had reasonably accounted for the activities and interaction of the various portions of the intestinal tract, and provided a satisfactory explanation for the absence of certain symptoms where expected in such pathological conditions as gastric and duodenal ulcer, and for the presence of symptoms supposed to indicate ulcer when no ulcer existed. The application of such a conception necessitated at least a working knowledge of how the nucleus worked, when they worked, when they relaxed, what were the common causes that altered the normal action, and the time of relaxation, action and rest. There was a periodicity of relaxation, action, and rest dependent upon the delivery of the stomach, since there was an intimate relation between the stomach and the parts beyond the stomach. This was borne out by the findings of the physiologist, the radiologist, the surgeon and the clinician, and led one to believe that over 90 per cent. of patients complaining of gastric symptoms had no organic disease of the stomach. It was further borne out by the revelations of the embryologist as to the development and innervation of the tract and its relationship to the higher nervous centers and the various segments or somites of the body. How should we apply our new knowledge? Each portion of the day must be searched with a clear idea of the normal state of the muscular elements of all parts in each of these periods—the period after waking, the period of desire for and reception of food, the period of active delivery, the period of lessening delivery, and the period of rest and hunger. Then there should be an inquiry as to what provoked or exaggerated symptoms, what was the influence of worry or nervous tension, what the frequency of bowel evacuation, what the discomfort before, during, and after meals, whether there was a sense of ease or satisfaction after meals, what was the character of the stools, etc. After eliciting all the complaints and their relation to the daily cycle one was able to determine whether the complaint had its origin in the defective action of the musculature or whether they were due to some other affection such as irritation of the peritoneum or some mechanical defect. Other questions to be asked were whether all the attacks had been the same as the present one; how long was the longest; how short the shortest; how long were the intervals between attacks? Were there symptoms

in the so-called interval? Did any slight or severe illness precede the first attack? The past history was then taken up seeking for evidence that pointed to recurring infection, local irritation, inflammation, etc. Cases were cited showing the need of giving attention to the daily cycle as a whole. Questions should cover the health in infancy, not merely whether the subject had the diseases of infancy, but what kind of a recovery he made from those infections, information in regard to run-down periods, growing pains, frequency of sore throat, bronchitis, recurring vomiting with or without headaches, pleurisy, anemia, ability to keep up with other children. Of 127 cases of chronic disease of the gall-bladder proved by operation or by undoubted x-ray evidence showing the presence of a stone, 74, or 58 per cent. gave a history of recurring attacks in childhood or adolescence; 31, or 24.4 per cent. gave a history of a definite attack of cholecystitis in young and adult life; 22, or 17.3 per cent. were unable to recall bilious attacks or any recognizable attack of cholecystitis later in life. In contrast to these, 500 histories of all conditions other than chronic disease of the gall-bladder, 37, or 7.4 per cent. gave a history of bilious attacks occurring in childhood and adolescence.

Interpretation of Gastrointestinal Signs and Symptoms.—Dr. FRED WHITNEY ROLPH of Toronto, Canada, read this paper, in which he attempted to bring together some of the more striking phenomena of digestive derangements and to link them up with the causes by which they were produced. (1) There was the desire for food. In an atonic stomach we fail to obtain the tone which initiates the desire to eat and after entrance of food into the stomach the gastric wall contracts so little that there is but slight satisfaction obtained from a meal. On the other hand, there may be an overcontracted stomach, especially in the pyloric region, where the desire for food was intense but a small portion satisfied. It was in these latter cases that food excited sufficient contraction to produce pain, nausea and vomiting. The writer did not believe that the degree of acidity had any direct effect on the desire for food; an excellent and even an excessive appetite was not inconsistent with gastric achylia. (2) Belching and regurgitation were not of clinical importance and were due to the cardia being well relaxed during eating and for a short time afterwards. The most important factor in etiology was an increase in the intragastric pressure (or hypersensitivity to normal pressure) which imparted to the patient a feeling of fullness in the epigastrium and came from muscular contraction of the stomach wall due in part to swallowed air or gas from fermentation. The relief afforded by opening of the cardia led these patients to make swallowing efforts which might develop into the habit of air swallowing. The tonic contracture of the gastric musculature was not seldom a reflex effect, most commonly from the gallbladder. (3) Nausea and vomiting might be due to many reflex causes. (4) Hemorrhage was by no means always the result of ulceration; an even commoner cause than ulcer was rupture of veins in the esophagus or in the pyloric region. (5) Pain and tenderness. In discussing pain and tenderness the writer reviewed morphology of the intestinal tube and its accessory organs and of the nerve supply requisite to an understanding of pain and tenderness. Irritation of the mucous membranes had been pretty well discarded as a cause of abdominal pain. It was now recognized that the important etiological factor lay in the distention of the unstriated muscle in the walls of the viscus. This might be due to organic obstruction, but a more frequent cause was an excessive contraction or spasm of the visceral wall, the result in turn of a reflex from some other part of the body. While pain was primarily a viscerosensory reflex referred to the skin and underlying tissue which had nervous relationship to the organ involved, he thought we must admit that at times there was direct pain on pressure over the diseased organ. After making a survey of painful sensations associated with individual abdominal lesions, he stated that the so-called symptoms of duodenal ulcer were in reality the symptoms of duodenal spasm. Ulcer of the duodenum itself did not give rise to symptoms except by increase of local spasm, obstruction or peritoneal irritation. Ulcer of the stomach had a wider origin than that of the

duodenum, it also was bound up in reflex spasm, and distension. Many ulcers appeared to be associated with and were probably secondary to duodenal spasm reflexes from a diseased gallbladder. Gastroenterostomy relieved hunger pain by providing a safety valve and preventing distension, but unless the origin of the vagus irritability was removed did not cure the ulcer in the duodenum. It was in cholecystitis with or without stones that one found the most extensive and varied reflex effects and findings. There was one sign never found absent in gallbladder disease, that was spasm over the left half of the transverse colon with tenderness over it just to the left of the middle line. Also there was a tender area just below and to the right of the umbilicus. Colonic spasm was the probable cause of a mucous colitis which was seldom found unless gallbladder disease was also present. Another reflex one saw occasionally was esophageal spasm, evidently of vagal origin. In this connection an important consideration arose in that the gallbladder was supplied by the left vagus which had little effect upon the heart rate, so that bradycardia did not occur as a reflex from that organ, though it might do so from the presence of bile in the blood stream.

Dr. A. SORESI said we had gone through the period when the pathologist made the diagnosis and were now in the period when the radiologist made the diagnosis, he contended that it was the privilege of the clinician to make the diagnosis. He thought the history was not the first issue. One should first have all the facts with reference to the physical signs and symptoms; then the x-ray examination and all other kinds of tests, then the history, and finally the conclusion. Dr. Soresi took exception to the statement that gastroenterostomy relieved the symptoms of gastric ulcer. He did not think gastroenterostomy cured gastric ulcer and it cured very few duodenal ulcers.

Dr. L. P. VAN WINKLE of Amityville emphasized the importance of the history; though it might be unreliable in a few instances, in the majority of cases it was all important. We had the pathological laboratory, gastric analyses and x-ray findings, but when all was said and done, he believed they should do as they had done in the past, go over the case in the light of the history, taking into consideration the other findings simply as aid to the physical examination and history.

Dr. ELIZA M. MOSHER of Brooklyn pointed out that by auscultation and percussion it was perfectly easy to outline the abdominal contents just as one did in the heart or lungs. She had found that by laying a paper over the abdominal wall it acted as a sounding board by which the borders of the stomach, transverse colon, cecum could be located. One could find what the pull of the transverse colon was upon the stomach and the gallbladder and where the thin places were in the walls of the intestines. By giving a glass of water one could follow the contents of the stomach through the entire intestinal tract. After taking a glass of water, if the patient flexed the knees and took a long breath and then emptied the lungs, as the diaphragm was raised there would be a contraction of the recti muscles over the stomach, and the contents of the stomach would be moved on into the pylorus. She had had patients employ this procedure after meals and had found the outline of the stomach very materially improved after a short period.

Dr. GOLDIE, in closing the discussion, further emphasized the importance of history. While all the laboratory, x-ray, and other special examinations were of value it was only by working out the symptom complex in a systematic way that one was able to come to a diagnosis easily and rapidly. Students should be trained to depend more upon the history and clinical findings and less upon the laboratory and x-ray findings.

Further Developments in Pneumoperitoneal X-Ray Diagnosis.—Lantern Slides.—Drs. WILLIAM H. STEWART and ARTHUR STEIN of New York made this presentation, in which they stated that artificial inflation of the peritoneal cavity with gas or mixtures of gas had proved itself to be perfectly safe in skilled hands. In 175 examinations made in this way there had been no untoward result. The method had shown itself superior to any other in the diagnosis of intraabdominal lesions. It was the only method by which one could

obtain information in reference to adhesions and to conditions localized beneath the diaphragm. It was a great aid in the diagnosis of conditions of the liver and gallbladder. They could by this means demonstrate a single stone in the gallbladder or innumerable small stones. Retroperitoneal growths could also be outlined. It was an aid in certain gynecological conditions, though they had not thus far been able to outline the fetus in the uterus. The method was contraindicated in the presence of acute appendicitis and peritonitis and in patients with valvular disease of the heart, as well as in certain types of elderly alcoholic patients. The accessories required in preparing the patient for examination were a tank containing the gas to be used, to which was attached by means of a rubber tube a rubber bag. This helped to control the pressure of the gas. The other outlet of the tank was attached by a rubber tube to the lumbar puncture needle used in making the injection. A quarter of a grain of morphine was given fifteen minutes before the examination to dull the pain in the abdomen caused by the distension. The needle properly sterilized was inserted from one to three inches below the umbilicus in the median line, avoiding any old operative scars. The quantity of gas injected depended upon the degree of relaxation of the abdominal wall. If it was much relaxed as much as four liters might be required; in young subjects with firm abdominal walls two liters might be sufficient. After the inflation the needle was withdrawn and adhesive plaster applied over the puncture. The procedure must be carried out under modern aseptic technique. Carbon dioxide would be absorbed in twenty minutes after its injection. If the abdominal distension was desired for a longer period two parts of carbon dioxide and one of oxygen might be used and if an examination of the entire abdomen was to be made oxygen should be used, as it was not so readily absorbed. After the examination the needle could be reinserted and the abdomen deflated. Slides illustrated the detail of the technique and the various conditions that could be diagnosed in this way. Even enlarged peritoneal glands could be seen, it was possible to differentiate between tumors of the kidney and those of the liver and of the spleen; the arterial system of the abdomen could be demonstrated.

(To be continued.)

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, Held March 23, 1921.

THE PRESIDENT, DR. GEORGE MORRIS PIERSOL, IN THE CHAIR.

Modern Methods in the Diagnosis of Renal Disorders.—

Dr. ROSS V. PATTERSON read this paper, in which he said that the study of a patient suspected to be the subject of renal disease involved, for the most part, the use of methods of comparatively recent development. The general conception of renal disease has veered from an anatomical to a functional basis. Until comparatively recently, for want of a better plan of classification, the clinical endeavor was to group forms of renal disease into several anatomical types, according to post mortem findings. The clinical investigation consisted in ordinary urinary examinations, often yielding findings interpreted as indicating renal disease when none existed, or, perhaps, quite as often failed to reveal such disease when present and well advanced. Toxic symptoms, edema, arterial sclerosis and hypertension, anemia and cardiac hypertrophy were associated findings upon which considerable diagnostic dependence was placed. In the chronic forms only well advanced cases were recognized, and most of them were beyond amelioration. The more recent tendency to develop a functional estimate had made for earlier recognition and given more confidence and exactitude to both diagnosis and treatment. The importance of a functional conception of renal disease became apparent when it was realized that anatomical lesions were incorrigible; a rational plan of treatment by a regulation of the diet was one in which the demand made upon the kidney was lessened to within its decreased functional capacity. Unless the

nature and degree of functional impairment were ascertained, there was no definite basis upon which to base either prognosis or treatment. Diagnosis included the recognition of both the nature and the degree of a disorder. Anatomical lesions had an importance in proportion to the functional impairment which they occasioned. Normal kidneys were capable of exercising a functional capacity several times greater than was necessitated by the demands made upon them under ordinary circumstances. Their accommodation limits enabled them to meet, without overstrain, unusual, exceptional and variable conditions, in which waste products, in varying amounts, gained access to the blood; despite the constantly changing burden of waste products, the composition content percentages remained fixed, or varied only within narrow limits. One of the early evidences of kidney disease might be found in a retention of the chlorides in the blood and tissues with a diminished elimination in the urine. The normal urinary chloride content was 1.8 per cent.; the amount might be reduced to 0.5 per cent. or less in disease. With impairment of renal function and consequent blood retention, the total nonprotein nitrogen might reach 100 or 200 mg., or more, per 100 c.c. of blood. Blood urea was chiefly responsible for the increase of the urea nitrogen, often constituting 70 to 90 per cent. of the total. Uric acid occasioned the greatest difficulty in elimination; creatinine, the least; urea occupied an intermediate place. Uric acid concentration was an early evidence of renal failure; creatinine concentration occurred only as a late manifestation, and was an evidence of advanced disease. A value exceeding 5 mg. per 100 c.c. of blood had usually terminated fatally; it might reach 15 to 20 mg. A marked increase in the total nonprotein nitrogen might be a herald of uremia, although uremia might occur with a low retention, indicating that some other element was the essential factor in its production. The vicarious function of other organs might be a factor in preventing nitrogen concentration with failing kidneys. The skin, liver, stomach, intestines, and even the bronchial tubes, might excrete urea, and perhaps other nitrogenous substances as well. A patient with severe nephritis and oliguria expectorated a daily average of 1500 c.c. of sputum, containing over 2 per cent. of urea. With an increase in urine, the amount of sputum and the percentage of urea rapidly diminished. It was only comparatively recently, however, that functional tests had been so simplified and extended that they could be used with ease and accuracy by any practitioner. Many important aspects of kidney function were revealed by the simplest tests requiring only careful observation and intelligent interpretation. The normal kidney excreted urine that varies in concentration at different times in the twenty-four hour period. There was a reaction to both food and fluid stimuli, so that the molecular concentration of the blood remained within fixed normal limits. The kidneys showed considerable flexibility in their ability to meet these varied demands, and this flexibility might be measured with some degree of accuracy in various ways. A careful determination of the specific gravity and quantity of both day and night urine yielded important data. A knowledge of these two factors made possible an estimate of the total amount of solids excreted. The amount of urea excreted could easily be determined by the use of the ureometer. Another simple test of renal excretion was afforded by the administration of a measured amount of water and the determination of the amount eliminated in a given length of time. If less than the normal amount was excreted, renal disease and diminished function were indicated. Two other simple tests might be used to reveal functional impairment occasioned by contracted kidneys. The first stage was shown by a loss of power to concentrate the urine. A healthy individual placed on a very dry diet for twenty-four hours would show a rise of urinary specific gravity to 1.030 or 1.040. In contracted kidney, a patient placed on a dry diet might excrete a urine having a specific gravity not exceeding 1.011 to 1.013. The second stage consisted of a loss of power to dilute the urine. Normally the ingestion of a large amount of water would result in a reduction in the specific gravity of the urine to 1.003 to 1.005. If this power to dilute the urine was lost, it consti-

tuted evidence of a more advanced stage of disease. Impairment of the kidney function was indicated by the following findings: Nocturnal polyuria (over 750 c.c.). A tendency to polyuria throughout the entire period, the volume of urine equaling or surpassing the amount of liquids ingested. Fixation of the specific gravity within narrow limits; in advanced stages the maximum variation might not exceed 1 or 2 degrees. Fixation in the two-hourly quantity of urine eliminated. Absence of the diuretic influence of food ingestion. If the night urine diminished to within normal amounts, it would show a low nitrogen content and low specific gravity. There might be a marked retention of both salt and nitrogen. The phenolsulphonphthalein test was one of the simplest and probably the best and withal the most reliable test for kidney excretion. It could be made by any practitioner. Convenient ampules containing slightly more than the required amount of the solution of 6 mg. of the dye to each 1 c.c. of fluid might be kept at hand. The bladder should be emptied, at least 500 c.c. of water taken, and exactly 1 c.c. of the solution administered hypodermatically. At the end of one hour and ten minutes and again at the end of two hours and ten minutes the urine was voided and separately saved. The amount of dye in each portion of urine was easily estimated by means of a colorimeter or by comparison with standard solutions of known strength.

Clinical Reports on Twenty-five Selected Cases of Renal Disorders Illustrating Various Functional Tests.—Dr. H. W. JONES presented a series of illustrative and typical cases of various forms of nephritis, grouped according to their prominent clinical features, in which careful studies of the blood chemistry, specific gravity fixation determination, urea test, and phenolsulphonphthalein tests had been made, with a view to determine their value, relative and absolute, and the correlation which they might show with clinical findings and ordinary urine examinations. An attempt was made to determine their relative value under different circumstances and to correlate them with the clinical findings. Certain conclusions were drawn in these and other similar cases and certain facts regarded as of practical importance bearing upon the etiology, diagnosis and future course of renal disease were indicated in the course of the case reports. The cases were presented in groups, according to the following plan of classification: Group I. Bichloride of mercury poisoning, with acute nephritis. Group II. Primary acute nephritis. Group III. Acute intercurrent nephritis, an important clinical group, many individual cases of which are often thought to be primary. Group IV. Chronic nephritis with cardiovascular disease, the largest and most important clinical group which we encounter in medical practice, showing many variations and combinations of different degrees and manifestations. Group V. Chronic nephritis with uremia, illustrating both the acute and chronic forms of the latter. The following conclusions were submitted: The ordinary examination of the urine does not give dependable evidence of renal disease. In many cases the urine examination yields almost negative results, in the presence of marked functional impairment. In other cases, the urinary findings indicate marked disease, which conclusion is not supported by functional tests. Renal lesion of a focal or patchy character, or an extraneous influence due to cardiac failure may be the explanation. A few cases were discharged much improved, both clinically and functionally, in whom there were marked and persistent urinary findings. The symptoms of renal disease, while of very definite diagnostic value, are not an absolute indication of the degree of functional impairment. This statement is especially applicable to the cases of moderate severity. Twenty-two of the cases were symptomatically much improved, while only eight were improved both functionally and symptomatically. The functional tests are a more exact means of estimating the prognosis than either the clinical symptoms, or the examination of the urine. The functional tests are the best guide as to the subsequent management of the case. The estimation of the blood nitrogen is of value only in cases of advanced nephritis. In all of the cases, except two, the blood nitrogen was increased only with a reduction of the phthalein output to 40 per cent or less. Some investi-

gations place the normal creatinine as high as 2.5 mg. per 100 cc. In the three fatal cases, only one gave a value above 2.5 mg. Several of the particularly severe cases showed creatinine at about 2 mg. and on discharge, the amount was unaltered, or even slightly increased, and this finding occurred in cases improved clinically, and in the presence of a reduction in the other nitrogen elements of the blood. Most of the cases had a creatinine content of 1 mg. to 1.2 mg. The amount present has some prognostic value. Those cases in which high values occur should receive a more guarded prognosis. Uremia, and uremic symptoms, are not dependent upon nitrogen retention. In a case of acute nephritis with severe uremic symptoms, the blood nitrogen elements were only slightly increased. In case 19, with well developed uremia, the blood nitrogen was normal. In two fatal cases of uremia, there was only a moderate increase in the blood nitrogen. In the fatal case of mercury poisoning, the blood nitrogen was greatly increased, but uremic symptoms were absent. Nocturnal polyuria was an important early symptom of nephritis. A disturbance of the normal ratio between the amounts of the night and day urine occurred relatively early; with improvement there was a tendency to resume the normal ratio. The urea concentration test was probably of value in hospital work, but the test was comparatively recent, and additional data must be accumulated before its general acceptance would be justified. It was evident from a study of the results of functional tests in various cases that in some instances they did not satisfactorily determine the renal status. Occasionally unmistakable clinical evidence was not in accord with the functional tests. On the other hand, the functional tests evidenced much greater impairment than was shown clinically. In many cases it was found that the different functional tests did not yield uniform indications of impairment, or that the results were disproportionate. It would appear, therefore, that the best results were to be accomplished by the use of more than one test instituted at various periods and the results of each considered in a final analysis. From the point of view of both availability and reliability the best test was the phenolsulphonophthalein. It had proved accurate and reliable; it was easily carried out in both hospital and private practice. The two-hour fixation test had seemed to him the test of second choice; in some cases, indeed, the first choice. It also had the merit of availability, as well as dependability. It was most useful in detecting chronic contracted kidney, the most frequent form of renal disease. In the ordinary examination of urine, slight findings with a low specific gravity were of more significance than more marked changes with a high specific gravity. Many cases of acute nephritis which were apparently primary were in fact intercurrent, the chronic disease being unsuspected, and resulting in lowered resistance and susceptibility to infection. The importance of a knowledge of these facts bore upon the future management. Cardiac failure or weakness developing in the presence of only moderately advanced renal disease might result in marked renal disturbance without obtrusive evidences of cardiac failure. Clinical observations would seem to indicate that blood pressure varied with the renal function, tending to rise with retention and fall with improvement, provided the cardiac factor remained constant.

DR. A. I. RUBENSTONE said that the essayists seemed to take the stand that the phenolsulphonophthalein test was nearly as good as an estimation of blood nitrogen with reference to kidney function. As a matter of fact his own experience had proved that this was not so. He felt that protein estimation was far more important so far as kidney function was concerned than the phthalein. Phthalein gave an estimation of kidney function for the time being and did not tell what was retained in the blood. Furthermore, it was a foreign substance which the kidney was not used to excreting. He believed that before surgical operations were performed the estimation of nitrogen was a very important factor.

DR. A. E. ROUSSEL said that the diagnosis of kidney lesions in many instances could not be made by urinary examinations alone. Not only the function tests were of importance, but the blood chemistry was of great importance as regarded both diagnosis and prognosis. Indeed one could well understand that even cases of high blood pressure might be essential hypertonia not

associated with sclerotic kidney. The condition could only be told by blood chemistry and ophthalmological examination. Dr. Roussel said that he disagreed decidedly with the reader of the second paper. He expressed his astonishment that he had found relatively low counts in his creatinine counts, especially in the fatal cases. The urine might be markedly improved in the percentage of albumin and diminution of casts and yet 2 to 4 mg. of creatinine still remained persistently present and it was a fact that in a fairly large number of cases he had never known a patient to live more than one year after continued presence of 4 mg. of creatinine. Both the phthalein and the fixation test were of use. The fixation test with the total quantity of night and day urine was more useful than the phthalein, which was more influenced by extraneous circumstances. Nobody had a right to diagnose a case of kidney disease without blood chemistry and functional tests and in some instances with the assistance of an oculist. He considered the creatinine test of greater prognostic value than any of the others yet mentioned.

DR. LEON HERMAN said that he regretted that neither of the readers of papers went into the subject of kidney functional test from the surgical point of view. The urologists and surgeons had contributed considerably from the standpoint of clinical observation of the behavior of kidneys when traumatized by anesthesia and operations on the urinary tract. There was a great deal to be learned about kidney function from the surgical standpoint. We did not know much about the inherent capacity of the kidney to withstand trauma. From the surgical standpoint, while all of these tests were of value, he agreed with Dr. Roussel that the tests of excretion are of less importance than the tests of retention.

Stated Meeting, Held April 13, 1921.

THE PRESIDENT, DR. GEORGE MORRIS PIERSON, IN THE CHAIR.

Studies Concerning the Influence of Arsenical Applications upon Cutaneous Tests.—DR. ALBERT STRICKLER read this paper, in which he said that for a long time the medical profession had felt the urgent need of a simple and certain diagnostic test for syphilis. The wide distribution of lues, the fact that syphilis could and did simulate many other diseases, and the fact that even the expert was at times baffled in the diagnosis had emphasized the necessity for a simple and certain diagnostic test for lues. For the study of this problem the author had selected fourteen patients from the Skin Dispensary of the Jefferson Hospital. At least two Wassermann tests were made upon each patient, both of which had to be negative before they were selected for the experiment. The study warranted his statement that arsenic probably induced susceptibility of the skin in nonsyphilitic individuals so that the administration of arsphenamine might cause the production of a positive luetin test in nonsyphilitics. The repetition of the luetin test in nonsyphilitic patients was capable of producing positive luetin reactions in about 21 per cent. of the subjects. The intravenous administration of arsphenamine seemed to stimulate the production of a luetin reaction in nonsyphilitic patients, this occurring in 52 per cent. of cases. The intravenous administration of sodium cacodylate acted in the same fashion but more feebly.

DR. THOMAS MCCRAE of Philadelphia said that this work made it necessary that we should revise a great many of our ideas regarding specific reactions. The positive Wassermann reaction following arsphenamine injections as noted by Dr. Strickler were rather disturbing. It was thought that some reactions had been fairly definitely established. He had seen the vast majority of these cases and there could be no question but that there was a marked reaction. These cases had come to the Dermatological Clinic and had a skin condition to begin with. Did that render them more likely to react to arsphenamine? That could not be answered until similar conditions were considered in individuals without any skin disease whatever. The bearing of this with reference to the treatment by arsphenamine was very evident. We have controlled our treatment of syphilis largely by Wassermann re-

actions, but that had evidently gone by the board because patients to whom arsphenamine had been administered were apt to give positive Wassermann and positive luetin reactions whether they had syphilis or not. This he hoped would stimulate a great many men in different parts of the country to take up similar work because it was only when we had a large body of statistics, such as no one man could produce, that we might perhaps get a little light on the subject.

Dr. RANDLE C. ROSENBERGER of Philadelphia said that he had been privileged to see most of these reactions with Dr. Strickler. It was very hard to explain the positive reaction in these cases. He would not attempt to explain it. A great deal more work was required on this problem of the specificity of the treatment by arsphenamine.

Influenza and Epilepsy—Their Reciprocal Influence.—Dr. ALFRED GORDON read this paper, in which he said that in studying epilepsy in all its phases for a number of years one was struck by the fact that an infectious process occurring in an epileptic had a decidedly favorable influence upon the frequency and severity of epileptic seizures which were sometimes totally suppressed during the febrile period of the infectious disease. It seemed that the reactions of defence against toxins which had an elective action upon the nervous system exerted a favorable influence upon epilepsy. The relation of infectious processes to the course of epilepsy had been studied by the writer in a series of twenty-five cases of influenza. A complete suppression of convulsive attacks was observed in each case. As soon as the febrile state began to subside there was a tendency to a return of the convulsions. For some time after the temperature became normal the attacks were lessened in severity. These observations indicated that a toxic principle elaborated during an infectious state was capable of neutralizing the toxic principles existing in the humors of epileptic individuals. Sero-therapy was therefore indicated and the problem was to produce such a neutralizing biological product.

Dr. JOSEPH SAILER said that we had all observed the effect of emotional shocks of various kinds and operative procedures in stopping epileptic attacks. At the time he had been a resident at the Philadelphia Hospital there was great enthusiasm about the cure of epilepsy by removal of part of the cerebral cortex. One of his fellow-residents conceived the ingenious idea that other measures would be as successful as trephining the skull and he bled some of the epileptics who had not been operated on and some who had had an operation, and the result was that after venesection, which had never been considered seriously, most of these patients recovered for a time from their epileptic attacks, but shortly thereafter they all recurred in the usual manner. It occurred to him that possibly a severe infection might have the same mental effect upon epileptics and therefore it would perhaps be wise to look into the subject a little more thoroughly from this point of view before we indulged too liberally in the various forms of serotherapy for the purpose of arresting temporarily the attacks of epilepsy. It was a very interesting observation that severe infections with high temperature might have this inhibitory effect.

Dr. THEODORE H. WEISENBURG said that while he disliked very much to question Dr. Gordon's work he thought his conclusions were far-fetched. He took for granted that the patients would have had fits if they had not had fever. How could one say that that was an indication for any particular form of therapeutics? That was vicious propaganda. Fits might come on or might be absent for some time. He had never been more impressed with that than at the Elwyn Colony for Epileptics, where thirty patients had been selected for taking moving pictures. Those having fits daily or even two or three times a day had been selected. He went out with the moving picture apparatus, and it was taken for granted that they would have fits, and not a single patient had a fit that day. He went back the next day, when the patients had become accustomed to the camera, and they had the usual number of fits.

Neurological Symptoms Occurring in Pernicious Anemia Especially Antedating the Appearance of the Blood Picture.—Dr. THEODORE H. WEISENBURG read this paper, in which he said that during the past two

years he had seen in con- ten patients, in most of whom the dia- had been supposedly either tabes or some other spinal cord disease, and in whom he had made the diagnosis of a postero-lateral sclerosis occurring with pernicious anemia before the blood changes had made their appearance. He had the impression that the medical profession at large was not familiar with the fact that in pernicious anemia nervous symptoms might appear first, although in the majority of cases the nervous symptoms came on either at the same time or following the blood change. It was probable that the nervous system was attacked in two ways, either directly by the toxins or by metabolic changes produced by the anemia itself. Practically without exception the patients complained of sensory phenomena, such as numbness, coldness, or burning sensation, which first occurred in the feet and gradually extended upward to the thighs and abdomen and the upper limbs. These symptoms should at once arouse the suspicion of the presence of pernicious anemia. Later the patients complained of weakness in the legs, cramps in the calves, disturbance of the sense of smell, taste, and hearing, with the presence of dizziness and roaring in the ears. One patient objected very much to the smell of newspapers and dogs. At this stage there was nearly always a spastic or ataxic gait, diminished reflexes, and at times the Babinski sign. Mental symptoms were present in about 40 per cent. of the cases, ranging from mild depression to violent maniacal outbursts, irritability, delusions, hallucinations, apathy, and severe melancholia. Recent examinations showed disease to be present in the brain, spinal cord, and other parts of the nervous system. These changes were not specific and were similar to those found in chronic intoxications. The blood vessels showed swelling of the intima and some proliferative changes. The brain, as well as the posterior and lateral columns of the cord, showed areas of degeneration. Prognosis was very poor. In one case the disease ran a course of three years, but in all others the patients died within one and a half years after the onset of the symptoms.

Dr. JOSEPH SAILER said that pernicious anemia was a mysterious disease; it was just as mysterious at the present day as it was at the time of Addison's discovery. Inasmuch as closely related forms of anemia were due to intestinal parasites it caused one to question whether there might not be undiscovered parasites operating as the cause of the idiopathic forms of pernicious anemia. The interesting thing about pernicious anemia which we were gradually learning was that the blood picture was not by any means the sole feature of the disease. There were both mental and nervous symptoms, due practically to the same cause, that was, unexplained degenerative lesions in the central nervous system, which had the pathology of a chronic sclerosis of the central nervous system.

Wet Grinding a Dangerous Occupation.—That grinding and polishing by the wet process, instead of being, as has been generally supposed, a dustless and innocuous process, is, under certain conditions, a dusty and exceedingly dangerous employment, seems to be demonstrated by a report prepared by Dr. W. Herbert Drury of the U. S. Public Health Service, after an exhaustive investigation conducted in a large axe factory in a Connecticut town. Dr. Drury shows that the death rate (1900—1920) from tuberculosis among the workers in the grinding and polishing shops, who for six hours a day breathe an atmosphere of relatively high humidity heavily laden with acutely angular hard siliceous dust, is 19 per thousand, and that of other workers in the same mills (but not in the grinding or polishing shops) is only 1.6. Furthermore, the rate in the general population (not including the mill workers) in the three villages from which the workers are drawn is 1.2 and in the whole State of Connecticut is 1.5 per thousand. Grinding has long been recognized as gravely hazardous both in Europe and in the United States. Counts show that there are an average of ten times as many dust particles in wet as in dry grinding shops; and the report recommends the substitution of a dry grinding process, properly protected by the installation of exhausts, for the present wet process.

Miscellany.

AN APPRECIATIVE OUTLINE OF MEDICAL PROGRESS.

BY JOHN COGHLAN, M.D.,

NEW YORK.

IN considering the humanitarian aspect of our civilization, which is so commonly characterized as negative rather than positive from the angle of enlightened progression and which avowedly leaves much still to be desired from a general standpoint, it is perhaps in order to point out that the ordinary practice in the formation of a judgment on this score is either to ignore entirely or to accord scant credit to the solid advances which have been made in the field of medicine and surgery. It must be conceded by any one who has accorded the matter a fair hearing that these achievements of themselves eloquently testify to the vast amount of arduous labor and intelligent research that have been expended throughout the centuries by the medical profession on behalf of the conservation of life, and at the same time undoubtedly furnish a contrast with other phases of our common life, which tend toward the destructive rather than the constructive side of humanitarian endeavor, that is not only striking but highly commendable to the ethical impulses and standards of the medical profession.

The situation in this respect is more clearly defined perhaps when, by way of illustration, we reflect that in all the ages which have passed since Socrates was required to drink the hemlock, it is extremely doubtful if a more humane method of executing the death penalty prescribed by the law has ever been devised or practised, with the possible exception of lethal gas as just recently proposed in Nevada; and then when one considers even casually what is involved from the humane standpoint in such methods as the guillotine, hanging, shooting, electrocution, etc., it is unquestionably difficult to discern the existence of any grounds upon which to base a claim of progress in this direction, to say the least. Then, again, when we turn our attention to the institution of war, which, prior to the summer of 1914 was supposed to be on the wane, and it was even claimed by many eminent authorities that it was impossible of recurrence on any extensive scale; nevertheless it has again prostrated the world after a five-year period of destruction and desolation such as was never before enacted in the history of mankind, and it indeed offers indisputable ground for the common plaint that our civilization is deteriorating instead of advancing. But, while the conditions cited must be patent to every careful observer and are accordingly deplorable, from the viewpoint of what may be termed the orderly course of human evolution, it is nevertheless true that a larger and more matured vision inevitably enforces a recognition of the fact the the world, as a whole, has been and is steadily though slowly advancing, more prominently perhaps in some given department at the moment than in others, and therefore it is quite essential to the formulation of any proper judgment that due notice be taken of all factors and particularly those that have notably contrib-

uted to the accomplishment of real human progress.

The chief purpose of this article is to point out briefly a few of the more noteworthy advances which have been made in medicine and surgery, and which alone conclusively dispose of the charge so frequently and lightly made that the trend of our civilization is retrogressive rather than progressive in its character and results. For the statement of our case, and without harking back to the more ancient days of Esculapius and Hippocrates, it will suffice to begin with the comparatively modern period when William Harvey discovered the circulation of the blood, in the seventeenth century. We are aware that prior to this event it was the accepted belief that the blood vessels contained air, and the records of Harvey's labors inform us of how he, at the expense of much privation and sacrifice, journeyed into South Africa and dissected corpses hanging from the trees in his quest for the knowledge which came to the medical profession as well as to the world at large through his great discovery. Then, a couple of centuries later, came another epoch-making discovery in the form of anesthesia, the significance and benefits of which from the viewpoint of conserving human life and suffering are truly inestimable, to say nothing of the invaluable research work which its use has made possible and the achievements of which have contributed so solidly to medical and surgical practice and advancement. Just picture for a moment the old-time surgeon doing an operation for stone in the bladder, with the powerful six-foot nurse sitting in a big armchair, taking the patient in his lap and holding him by the thighs, while another nurse held his hands from behind over the back of the chair, as the surgeon meanwhile cut directly into the bladder, and it is not difficult to imagine the suffering as well as the high mortality that must have accompanied this and other forms of surgery practised in earlier times, which the use of a few drops of ether or chloroform would not only have greatly alleviated but obviated entirely for the most part.

Again, consider the great and permanent benefits that have resulted from the practice of vaccination, what antitoxin has been the means of accomplishing in the way of saving the lives of children and adults as well, and also the beneficent results that have been attained in the treatment of syphilis by and through the intravenous injections of salvarsan. And last, but by no means least, think of the great boon to both the pregnant mother and the attending physician that has come as the result of patient research into the nature and function of the pituitary gland. Let us imagine, if we can, what must have been the sensations of the expectant mother in delayed labor in former times, confronted by the general practitioner, who, with the conventional bald head and shaggy beard, was generally more expressive than elegant, and, to make the occasion more impressive as well as formidable, armed with a pair of axis traction forceps nearly as long as the patient herself. To-day a hypodermic syringe with a few drops of a solution of pituitary extract achieves the desired result in at least 90 per cent. of the cases which

are not characterized by extreme dystocia, and entirely free from the adverse conditions of shock and agony formerly engendered. These are but a few of what may be called the high lights along the pathway of achievement in the realm of medicine and surgery, and yet in the face of such a brilliant record the assertion is still current that there has been no real advancement from the viewpoint of human welfare!

It would be hardly fitting, to say the least, to conclude an article of this character without making respectful and grateful mention of the medical conferences that are held from time to time, where members of the profession give freely of their knowledge and experience, covering both general and special research work, involving the labors of years, and where all members are welcome and privileged not only to listen but to take part in the discussions, as well as in the freer social intercourse which the collations usually served after the meetings always provide. The educational value of these conferences is indeed incalculable, and the greater vogue and scope of these gatherings alone mark a very distinct stage of progress in the medical field. It may also be permissible to point with pride to the high place in the life and esteem of the community that is enjoyed by the medical fraternity, both by virtue of the humanitarian character of the profession and also as a deserved recognition of its valued service to the cause of human progress. There is hardly a day that passes in which some tribute is not paid to the memory of some member of the profession who has passed away, for all good deeds do live and find nourishment in the hearts of those who have been blessed by them, and what to the writer is true of such illustrious members as the late Professor Joseph H. Raymond, as well as his able associates, McCorkle and Jewett, is likewise applicable to the individual experience of the profession at large, for even time that wipes away grief and pain does not so readily efface from the memory the kindly and helpful deeds of the humblest physician.

137 EAST FIFTY-SECOND STREET.

Surgical Corporations in Old France.—Raffray has been contributing a serial article on the history of medicine in Northern France and in the concluding number of the *Gazette des Praticiens* for April 1, 1921, xxviii., 507, he writes of the ancient guild of surgeons. The latter were simply artisans like other mechanics, and in each city they were grouped into these corporations, the patron saints being Cosmas and Damian. There were collected into one single body the master surgeons, surgeons, and midwives, and apparently those who dwelt in the smaller towns and villages, chiefly midwives, affiliated with the surgeons of the nearest large town. The oldest corporation of which there is any record in Northern France was at Cambrai in 1366, but this does not mean that there were not others contemporary, nor older ones, for the guilds in question were known to have been completely organized by the middle of the fourteenth century. Of statutes dealing with these guilds none is known before 1632, and the early ones after that date had to do only with feasts of the patron saints. Every year,

on Sept. 27, the feast day of SS. Cosmas and Damian, all of the members of the surgeons' guild dressed in their best and assisted at a solemn high mass, vespers, and, on the following day, a requiem mass for dead members. The offices of the surgeons remained closed and only the most urgent calls were heeded. These guilds lasted the duration of the old regime, and as late as 1770 there are documents on guild administration. The Dean was president of the guild and also termed surgeon-in-chief. His was the right to convoke assemblies and he was responsible for keeping the minutes of the transactions. Under him was a surgeon who was known as the provost, charged with policing the corporation, and a recorder, who acted as secretary. The Dean headed the Board of Examiners and inducted the newly elected members into the guild. The "surgeon," as distinguished from the "master surgeon," and the "midwife" had no votes. All members had to discharge scrupulously their religious duties on Sundays and holy days. Ethics were recognized and a member could not take over a patient from a fellow member unless authorized by the latter, or in his presence, this last amounting to a consultation.

Pozzi's Family and Early Life.—From an eulogy by Faure on his colleague Pozzi, which appears in *La Presse Médicale* for March 9, 1921, xxix, 20, we learn that the father of the subject, a Protestant clergyman, spelled the name Pozzy. The family was originally Italian-Swiss, and its home-
stead was in the Valteline valley in Italy. Religious persecution drove the Pozzis from Italy to Switzerland where Protestants then took refuge. They reached France before the Revolution and two brothers took part in the latter. The younger, Dominique, was the surgeon's grandfather. A pastry cook after the war he became the father of the minister, Benjamin, one of a dozen children. The latter married a woman of means and had five children, of whom the future surgeon was one. The comparatively early death of the mother caused Samuel to be brought up by the maternal grandmother, who lived to the age of 93. Pastor Pozzy remarried and one of the children by this second marriage was the physician, Adrien Pozzi. In 1853 the pastor had a call to Pau, and leaving his old charge at Bergerac took his son Samuel with him to place him in the local lyceum, he being then 12 years old. He finished his general education at Bordeaux, after his father had been called there. A Mr. Laboulbène having married a sister of the pastor, the son, afterward the well known physician of the name, was instrumental in forming the choice of career of medicine by his cousin Pozzi. Laboulbène's career in Paris as student and interne had been so brilliant that it was decided Pozzi should emulate him. In November, 1864, he joined his cousin in Paris and began his studies, but becoming involved in some trouble about the anatomical course he was disciplined by the Faculty. We hear nothing further until 1868, when he began his internate under Laboulbène. Not long afterward the German war broke out and his studies were interrupted until 1871, when at the age of 25 he began his career in earnest.

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THE TEETH AND SYSTEMIC DISEASE.*

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NEW YORK.

CONSULTING PHYSICIAN TO BELLEVUE, THE WOMAN'S AND ST. BARTHOLOMEW'S HOSPITALS.

IN 1875 John W. Riggs advanced the theory that the disease which commonly bears his name, "pyorrhea alveolaris," was of local origin, due mainly to calcific deposits around the teeth. This directly controverted the earlier view upheld by E. Magitot and others that it is due to "systemic factors" owing to its frequent appearance in gouty and rheumatic subjects. For many years controversy over these opposing theories continued, and notwithstanding the description given by Wm. Hunter in 1900 of what he termed "oral sepsis," in causative relation to lumbago and other ailments, important works upon dentistry have appeared up to quite recent date in which no mention is made of systemic diseases as originating in bacterial infections derived from the mouth. Finally, the anomalous situation is observed to-day of lack of cooperation in many instances between dentist and physician, while, on the other hand, there is a group of extremists who advocate wholesale extermination of suspected teeth as a cureall for a great variety of constitutional maladies. Any observations, therefore, which tend to emphasize the importance of a subject, so often overlooked, should be of interest.

One difficulty in dealing with the problem is the undoubted fact that very bad infection in and around the teeth often may exist for years as a purely local condition. In Bellevue Hospital, for instance, where are treated so many poor and ignorant persons who are as careless of their mouths as of everything else, I often have been impressed by the number of patients met with who present no evidence of having had symptoms at any time which might be ascribed, even remotely, to diseased teeth and gums although the teeth were in very bad state. In contradistinction are the cases one encounters where a single chronic alveolar abscess found among otherwise normal teeth (at least in so far as root disease is concerned), forms the explanation of serious ill health. For example, a young man came to me early last winter who was studying in a business college. For several months he had felt continuously tired out with vague muscular pains and frequent severe headache for which his habits of life and general physical examination suggested no explanation. Being suspicious of the

mouth from which he already had lost several teeth, I referred him to Dr. Irvin H. Beach for radiography, who reported as follows: "It is interesting to note that when looking over this patient's teeth it did not look as if there was anything out of the ordinary, but the radiograph shows a piece of a root left in a place that appears perfectly healthy from a visual inspection." Upon removal, however, this root fragment proved to be a focus of chronic infection, and without any other treatment within a very short time he became entirely well and has so remained for several months. This is merely a type of what one often sees where similar nonextensive conditions are present, and illustrates the fact that the quantity of pus formed is not definitely related to the seriousness of systemic symptoms. Hence the patient does not seek the dentist, or if he does go to him, he says nothing of his general health, and if he consults his physician he says nothing of his teeth, having no conception of any possible malign relationship.

That a very bad condition of the oral cavity long may exist without giving rise to any systemic symptoms is explainable through one or the other of two hypotheses. First, the patient may originally possess or may have acquired a complete immunity against systemic infection. Secondly, there is known to be great variation in the virulence of different strains of the pyogenic germs involved.

It also may happen where a seriously diseased condition of the teeth may have existed for years without inducing systemic infection, that some intercurrent disease, of wholly different origin, so lowers the patient's resistance as to give the mouth germs opportunity, flourishing in the vascular gum tissue, to overcome the victim's previously acquired resistance. The great importance of this fact is too often ignored where serious operations are to be performed, whereas whenever time permits the infected mouth should first be put in order. At the Mayo Clinic it is customary in all such cases to first make the mouth aseptic, and the need of this is emphasized through the fact that the enfeebled patient, during a prolonged convalescence, necessarily neglects the care of the mouth, so that even a slight degree of local infection may rapidly extend and become generalized. As Dr. Beach has well said: "In cases where the bacteria in the oral cavity have absolutely no relation to the diseased area to be surgically removed, even then primary dental treatment is an essential procedure, for very often all that is necessary for the septic bacteria to become disastrously active is to have the natural resistance to the inroads of these virulent germs lowered and resultant complications arise."

*A paper read before the Practitioners' Society, May 5, 1921.

Much light may be thrown upon the matter by a brief reference to the pathology of pyorrhea and chronic alveolar or periapical abscess. The commonest varieties of germs found in these disease are the streptococci, pyogenes and viridans, and the staphylococci, pyogenes albus, aureus, and citreus, with staphylococcus epidermidus albus. Of these the streptococci, particularly the viridans, are present in the chronic alveolar abscesses, as compared with pyorrhea, in about the proportion of four to one, although in acute abscesses staphylococci are the common germs, according to Hartzell and Henrici, who also reported the viridans as present in 250 cases of chronic abscess.

The staphylococci associated with pyorrhea are often either very slightly virulent or may be completely avirulent. There are, however, many exceptions to this statement and a nearly fatal case of pyorrhea and abscess combined, presently to be reported, was due to a staphylococcus aureus.

Pyorrhea simplex begins as a gingivitis excited by continued irritation from calcareous deposits, a broken or uneven tooth surface, malocclusion, or an ill-fitting plate or similar source of injury to the gingival border, and the inflammatory process extends along the pericemental membrane to the alveolar sockets. The highly vascular gum bleeds readily and the periodic swelling of the gum due to pus accumulation causes curiously little pain, even when pus may be squeezed out in considerable quantity. Pyorrhea, therefore, having surface drainage as compared with the much less obvious root abscess may exist in extreme degree without occasioning systemic symptoms, other, perhaps, than digestive disturbances. As stated by H. B. Anderson "the condition is more readily recognized, and since the pus does not accumulate under pressure, efficient drainage, especially in the upper jaw, is more readily obtained." In the pyorrhea "complex" (so designated by Brophy), the highly vascular gum tissue is weakened by systemic disease, and the process is accelerated.

Wholly different are the lesions which lead to chronic root abscess. In a typical case, this is what transpires: the lactic acid-forming bacilli of the mouth produce the acid which gradually dissolves first the enamel and then the softer structures of the teeth. The exposed pulp then readily becomes infected by streptococci and the process extends through the foramen at the apex of the root canal to give rise to caries or even necrosis of the bone forming the root socket. Thus a chronic abscess develops, the contents of which is more or less completely closed off by a fibrous sac and is under pressure. A. D. Black has calculated that the teeth are subjected daily to a pressure which may amount to 1700 lbs. and Hartzell describes the sort of piston action produced in mastication by driving the tooth in or out upon the abscess, which tends to force the pus into the surrounding blood and lymph channels. A chronic abscess, if well walled off, may remain latent for a considerable time without causing systemic infection, when either repeated blows or a thinning of its wall may convert a localized process into a more or less serious general infection. Such infection, furthermore, is sometimes originated through the injury done in attempting to extract an intractable root. The elaborate gold caps

which formerly so often were placed to camouflage the remains of badly decayed root stumps are particularly vicious through masking trouble, and I have seen a number of patients recently who said that they had just been passed by the dentist as having everything in good order. From the outside there was only evidence of successful mechanical work. The dental instrument, tapping over the capped surface, revealed no pain or any evidence of continuing decay which all the time was slowly advancing. On being told to go back to the dentist and insist upon complete radiography, extensive bone involvement was evident, and the explanation of a variety of constitutional symptoms was revealed, which completely subsided after removing the cap and cleaning out the diseased area.

In illustration of how high to death it is possible to come through carelessness regarding the teeth, the following case record presents several unusual features.

The patient, a man of fifty-odd years, was in ordinary health until August, 1920, when he had a molar drawn which troubled him. He was told by the dentist that the cavity was in bad condition, but being relieved of the tooth, completely neglected further treatment. Shortly, thereafter, he began to fail in general health, but without showing definite symptoms until November, when his physician found he was having a septic run of temperature of low grade. He developed pain and vasomotor disturbances in the left leg, with several areas of anesthesia. When I saw him in consultation early in December, he was desperately ill, presenting a typical picture of advanced sepsis. The irregular temperature rose at times to 104° F. the erythrocytes had fallen to 3,200,000 and the hemoglobin to 70 per cent. but there was no leucocytosis. A dozen more or less painful large subcutaneous nodules were present upon the left leg. The teeth, which had just been radiographed, exhibited extensive infection around half a dozen roots, which in several instances had involved the bone. He was so ill that there was some hesitation in removing any of the teeth for fear that the infection might be made worse through trauma, or that he might not withstand the shock. But believing it to offer his only chance of recovery, I advised that the two worst teeth be drawn. His dentist was called in and this was done. Temporary abatement in the fever followed, but in a few days the temperature rose again to 104° F. and further nodules appeared upon both arms. The temperature elevation continued with daily fluctuations of from two to four degrees, sometimes being subnormal. The metastatic nodules in the right arm suppurated and although they were incised, an extensive slough followed which involved the subcutaneous fat, and reached from immediately below the axilla nearly to the elbow and about half way around the circumference of the arm, necessitating subsequent skin grafting. By degrees the remaining infected teeth were extracted and the cavities disinfected by daily treatments. After ten weeks the temperature gradually subsided, but it was more than three months before it remained entirely normal. *Staphylococcus aureus* was obtained from the infected jaw, from which I advised making an autochthonous vaccine of which ten doses were given, ranging from fifty to two hundred millions. The patient has now recovered after six months with the exception of some weakness in the left leg, stiffness of the right arm and a small area still requiring skin grafting.

This staphylococcus case is of interest through the absence of localized joint lesions of the type so common in the *Streptococcus viridans* infections.

Lately I have met with a quite similar case although it was less nearly fatal. The septic temperature lasted six weeks and there was an erythema nodosum upon the legs, but without suppuration. After withdrawing six infected teeth the

man recovered completely. Previous to the onset of fever he had endured a long period of increasing malaise.

It is perhaps debatable how far the vaccine aided in saving the first patient's life. I can only say that he was failing very fast when he first received it, and promptly began to improve thereafter. I am inclined to believe that it benefited him. Howland and Hoobler have reported three cases of general septicemia cured by use of vaccine made from this same organism, the *Staphylococcus aureus*. In these cases, however, the infection originated not from the teeth but the tonsils. It is well known that vaccine treatment often is successful in the chronic arthritis cases of viridans origin. A patient of this latter type I observed for several years. She had, when first seen, a generalized crippling arthritis of the major joints which finally, after three years, had made her almost completely bedridden. The case was complicated by the fact that the viridans was obtainable not alone from badly infected teeth, but from the secretions of the nose and nasopharynx. Extensive pyorrhea was present in addition to pericemental apical abscesses involving half a dozen teeth. On two occasions the viridans was obtained from cultures of the stools, the germs having been swallowed. I referred the patient to Dr. John H. Richards for vaccine treatment. After extracting the offending teeth two vaccine series were administered, one of 40 injections, the other of 20. The patient is now able to walk and is markedly improved in every way. This is cited as the type of case which a few years ago would have been treated by salicylates or iodides or similar medicines and by local applications of all sorts, such as baking, and the use of blisters, fomentations, and liniments. It is my belief that as time goes on we shall see no more of the typical cases of advanced deforming polyarthritis of this kind, which formerly were so prevalent in our hospital services and which proved so rebellious to treatment.

It is by no means claimed that all these cases arise from alveolar infection, for in some instances, like that cited above, the viridans or similar germs may be found in the nasal sinuses or tonsils, and just now there is an interesting wave of tonsillectomy, but in any given case of the type of polyarthritis referred to, thorough radiography of the teeth usually will demonstrate one or more pericemental abscesses. How often it happens in the aged that the progress of this disease is arrested spontaneously when they lose their teeth and it is rarely, if ever, observed in the very aged who for many years have worn plates.

Recently a man came to me, as he said, "merely to show how well he was." Six months before he had come with a pain in the right hip joint and which extended down the sciatic nerve. It had lasted for several weeks and while not incapacitating him, was very distressing. Finding no other plausible explanation of the pain I looked in his mouth where I found four gold capped molar and pre-molar stumps. I told him that although it was not absolutely certain, I suspected his teeth were the source of trouble and showed him some typical radiographs of root abscesses beneath crowned teeth which I keep in my desk to illustrate to pa-

tients what may go on beneath a surface which appears, as in the patient referred to Dr. Beach, free from probable infection. He, however, frankly said he did not believe me and went to an orthopedist who treated him for several weeks with external applications and medicines, under which régime he grew steadily worse. He finally took my advice and the x-ray showed the suspected pericemental abscesses. The teeth were extracted, in a few days the pain wholly disappeared and he came in to give me the satisfaction of an "I told you so!"

I have not met with many cases of septic endocarditis which could be referred unquestionably to dental infection, but I might cite a number of cases, particularly in the aged, of marked cardiac weakness and irregularity which completely disappeared under proper dental treatment. One such example must suffice. This patient was a woman of 82 years whose heart action appeared to indicate a typical myocarditis. Like many aged persons she had seriously neglected the care of the body and particularly of the teeth, until she acquired a most foul pyorrhea. As all ordinary remedies failed to improve either her disordered digestion or arrhythmic heart action, I arranged to have a dentist visit her daily and treat the pyorrhea. This he did so successfully for several weeks that all symptoms disappeared and she was restored to a fair measure of health with normal digestion and heart action. It is my impression that such cases of disturbance of digestive and cardiac functions are more often due to pyorrhea than root abscess, although these conditions of course often coexist. On the contrary, it is the root abscess which is more often responsible for disease or functional disturbances involving the joints, muscles, and peripheral nerves.

Another typical cardiac case, not to be classed as "aged," for the patient is not above sixty, is that of a woman who, for several years had suffered from attacks of tachycardia and arrhythmia with slightly increased blood pressure, dyspnea on exertion, and great lassitude. These attacks became so frequent and alarming to her, being brought on by the slightest muscular effort, that she was constrained to abandon most of her activities and spend much of her time lying down. I found her teeth suggested the possibility of root abscess, several molars having been extensively filled, and despite her statement that her dentist had told her there was "no trouble", I insisted upon having the teeth radiographed. Two large chronic root abscesses were revealed, the teeth were extracted, and the patient is now entirely well, having remained for several months free from attacks which formerly were of more than weekly occurrence.

I would not be misunderstood as advocating promiscuous extraction of teeth for the cure of all manner of systemic diseases, but in cases of chronic arthritis or polyarthritis, neuralgic pains, lumbago, persistent extreme muscular fatigue, and similar conditions in which no obvious cause is demonstrable, it is well to insist upon radiography of the teeth, despite the fact that no pain in the mouth exists and that there is not necessarily any visible active trouble above the gingival border. This insistence applies also to certain types of cardiac irregularity and undue frequency not referable to organic disease, and to much gastrointestinal func-

tional disorder. Sins of omission in regard to root extraction are likely in the main to be worse than those of commission, and the periapical abscess, particularly if it has begun to cause caries or even necrosis is not likely to cure itself. Although the local lesion may remain inert for a considerable period, as regards exciting systemic symptoms it is nevertheless a perpetual menace, and may at any time give rise to most serious, if not actually fatal consequences.

I am well aware that there is nothing new in this presentation of the subject, but the many deplorable consequences of neglect of the matter which I am constantly seeing, justify the need of emphasizing closer cooperative work between the physician and dentist. To this end occasional joint meetings between medical and dental societies are desirable, and physicians should furnish dentists with abstracts of the histories of cases referred for dental treatment in order to stimulate greater thoroughness in examinations and better mutual understanding. Patients also should be instructed as to the possible causative relationship between the types of systemic disease above referred to and dental infection and be made to insist upon radiography of their teeth in connection with all extensive dental treatment which may be indicated. By this simple precaution much serious illness may be averted.

142 EAST SIXTY SECOND STREET.

SERUM TREATMENT AND MANAGEMENT OF LOBAR PNEUMONIA.*

By W. W. HERRICK, M.D.,

NEW YORK.

I RECALL, several years ago, observing the late Dr. Edward Janeway in consultation in a case of lobar pneumonia. The patient in question was being given food at two-hour intervals, water at one-half-hour intervals, and medicine every hour. There were sponges and poultices, frequent examinations by physicians, and unremitting ministrations of solicitous family and friends.

This harassed patient gazed up at Dr. Janeway and said, "Well, what are you going to do for me?" Dr. Janeway replied, "We are not going to do anything but let you rest for four solid hours." "Doctor," said the patient, with a sigh of relief, "you are a wonder. That is what I need, rest." Those who remember Dr. Janeway's habit of summing up a situation in one brief phrase will appreciate his remark in this instance: "They try to do too much."

In the treatment of pneumonia, I believe we try to do too much. Meddlesome interference robs the patient of the rest of which he stands in need. Stimulants often irritate and banish sleep. Ill-judged and ill-timed examinations are an undue burden upon cardiovascular and respiratory systems staggering to the point of collapse. We must remember that nothing we can do to combat the infection compares with what the patient can do for himself. A few particles of the patient's own antibody are worth all the drugs in the world.

*Read before the Medical Society of the County of New York, March 28, 1921. (See page 982.)

I believe the correct attitude to take in considering the management of an acute infection is this. Of those ill a certain number will get well no matter what we do, another number will die no matter what we do, but intermediate between these two classes is a class—perhaps a large class—in which the scale is delicately balanced, inclining now toward recovery, again toward a fatal issue. In this class every wise effort is worth while, and the feebleness of our attempts may turn the scale in the desired direction.

The patient is running a race in which much is demanded of heart, respiratory system, and of the internal or cellular respiration, and in which these vital factors are severely handicapped. Our first object is to place upon these mechanisms no needless burden and to provide against every purposeless expenditure of energy. Two attendants should be at hand to spare the patient all effort in the care of necessary functions. Examinations should be made quickly, not too frequently, and without needless disturbance or effort on the part of the patient. Visitors should be excluded and long periods of rest and quiet secured. Apprehension and wakefulness are well combated by generous doses of chloral hydrate and the bromides given by rectum. Opiates, I choose to avoid because of their certain effect in retarding peristalsis, and their tendency to increase distention. However, if other sedatives, and local applications of heat or cold, poultices, plasters, and the like, do not relieve the pain of pleurisy, a single hypodermic of codeine or of morphine may be used to break up the pain and apprehension of the early stages. Plethoric, full-blooded individuals with labored breathing and distended veins may profitably be deprived of twelve to twenty ounces of blood.

There is no satisfactory evidence that any of the oft-exploited routine medicines, such as camphor, quinine, or creosote derivatives, are of use. At present digitalis is in high favor. Its use has the weight of a certain amount of authority for support. If the therapist is satisfied with the traditional and somewhat archaic theory that the right heart bears the brunt of pneumonia, and that death is commonly the result of failure of the right heart, his road is clear before him. It would seem, however, in the light of modern developments, that the matter is not so simple. Granting an added burden upon the right ventricle from the impeded blood flow through the consolidated lung, the diminution in capacity of the respiratory pump in promoting the return of venous blood to the heart and the probable degeneration of the myocardium from toxins or impaired oxygenation, one must also take into account the important respiratory factors. Among these are: The diminution in vital capacity, the increase in the dead space, the decreased pulmonary ventilation through rapid and shallow breathing, the presence of exudate in the bronchi and alveoli. Probably, also, the formation of methemoglobin by the pneumococcus is not unimportant. The result of these factors, with or without a diminution in minute volume flow of blood, is comparative anoxemia or oxygen unsaturation with resulting interference with tissue respiration. Conse-

quent alterations in cellular metabolism are, as yet, too subtle and complex to be measured. It would, however, seem that in oxygen unsaturation of the blood in pneumonia, as demonstrated by Stadie,¹ lies a factor more vital than failure of the right heart. The work of Meltzer² upon oxygen administration in pneumonia deserves more attention on the part of clinicians. The fact that by the insufflation method the anoxemia may be reduced is one that should be acted upon. I believe that every case showing any cyanosis or other evidence of anoxemia should have oxygen at frequent intervals from the start and not as a last resort. As Meltzer has shown that the ordinary methods of giving oxygen do not increase the oxygen tension in the alveolar air, the insufflation method or one of its effective modifications should be employed. In this connection it is appropriate to quote the following paragraph from Macleod's³ "Physiology and Biochemistry in Modern Medicine": "There is no therapeutic measure that is less efficiently put into practice than the administration of oxygen, and, as a consequence, most physicians have little faith in its value. There are several reasons for this state of affairs: In the first place, the physiological mechanism by which added oxygen could assist in the respiratory functions is not understood; in the second, an insufficient amount of the gas is usually given, and, in the third, it is usually given too late. On the other hand, when oxygen is properly administered in suitable cases before the patient has become moribund, much evidence has accumulated to show that very great benefit, indeed, results from the treatment, and as far as can be told a fatal termination is often averted."

Digitalis in moderate doses can certainly do no harm. I believe there is no convincing evidence that in the ordinary case it does much good. The fact that digitalis influences the electrocardiographic record in pneumonia is not evidence of benefit. When chronic myocardial weakness or auricular fibrillation exists, there is no question of its advantage. I confess to the use of small doses of the tincture as a routine, but without being convinced of its profit. I believe heavy doses in cases with normal hearts are unwise. In ten years I wonder if we shall be hearing so much of the use of digitalis in pneumonia.

Stimulants are a slender reed. The use of caffeine is often injudicious. A cup of strong coffee contains about three grains of caffeine. Let the therapist himself take this allowance of the drug at intervals of three hours and know the sleepless, restless, irritable state resulting. Far too often one sees the simultaneous administration of large amounts of caffeine as a stimulant and of morphine to overcome the wakefulness and irritation resulting from the caffeine. Such therapy is injudicious, if not vicious. Caffeine may be used best in the form of strong coffee, not too frequently, and only in cases inclined to be somnolent, never in the restless, agitated, sleepless types.

Strychnine seems of little avail. The diffusible stimulants—camphor and ether, whiskey, camphor in oil, etc.—are of little use. In some work done by C. C. Lieb and the writer⁴ it was shown that

these and kindred substances owed their action to strong irritation of the endings of sensory nerves and not to any direct effect on the circulation. When injected into a limb, the afferent sensory tracts of which had been severed, no change in pulse rate or blood pressure followed.

Pituitrin may be life-saving in cases with abdominal distention from toxic paresis of the gastrointestinal tube. It is best given in conjunction with a turpentine enema, and injected deeply into the muscles.

Little profit would seem to be expected from atropine. Possibly the reduction in secretion of the glands in the mucosa of the respiratory tract has a slight value in cases with too much bronchial exudate. It certainly cannot influence the transudate, which is the outstanding fact in pulmonary edema, for which it is so often used. The use of sufficient atropine to paralyze the vagus endings is surely dangerous. Simultaneous employment of digitalis—a drug that increases the activity of the vagus, and of atropine—a drug paralyzing vagus terminations, is a therapeutic contradiction which, like the concomitant use of caffeine and morphine, needs only to be mentioned.

In cases of very low blood pressure and impending collapse of the vasomotor system, adrenalin, given in small doses of three to five minims at frequent intervals, may benefit. The administration of adrenalin in oil, according to the method of Dr. H. R. Miller of New York, by which slow absorption is assured, is promising. Whenever there is a tendency toward edema of the lungs, adrenalin seems to be contraindicated.

In considering serum treatment I shall first give my impressions from various sources and then my own opinion. My first impressions are collected from rather wide sources. During 1918 and early 1919 opportunity was had of coming into contact at frequent intervals with fourteen different chiefs of medical services in as many hospitals in the Department of the Southeast. These chiefs of service were representative of the best medical opinion of varied sections of the country. The serum treatment of Type I infections was made obligatory by the Surgeon-General's Office and was carried out under the most favorable conditions with respect to promptness of typing, skilled serum administration, and recorded results. Of fourteen chiefs of service I recall but one who was enthusiastic about the serum treatment of pneumonia. None was opposed to it. The prevailing attitude toward the matter was one of inquiry. They were awaiting proof of results.

This position was borne out by statistical studies reported from the camps in the U. S. A. In a considerable series of Type I cases not treated by serum, the mortality was less than 10 per cent.; in a series treated by serum, the mortality was practically the same. Certainly the Type I pneumococcus produced mild infections among the troops in the Southeastern Department in 1918 and 1919. It is my impression that the same is true of the civilian cases observed in New York and vicinity since the war. The importance of recording further series of Type I cases to determine the average mortality rate would seem to be great.

Observations in and about New York appear to show that the use of serum is not as general as when the method was first introduced. I have heard one prominent medical consultant deplore the present lack of general interest in it. On the other hand, in one important hospital service, serum is not given in pneumonia because it is regarded as of little benefit, and even dangerous, because it appears to cause an increased number of cases of empyema, meningitis, and similar complications. I would, therefore, conclude that among the profession at large the method is still on trial.

My own opinion is that serum should be used in every case of infection with pneumococcus Type I. One cannot logically close his eyes to the experimental evidence in the matter—to both the protective and curative effect of serum in experimental pneumococcus infections in animals. Neither can one brush aside the therapeutic effect in many cases in man. When given before the third day of the disease the attack may surely be cut short in a most convincing fashion, and a stormy onset, promising a five- to nine-day struggle, eventuate in an affair of two to four days. Given after the third or fourth day, the effect, in my experience, is less striking, but not infrequently satisfactory and in serious cases worth the attempt. That some of this effect of serum in infections with pneumococcus Type I is general or non-specific is probable and is similar to the effect of injections of typhoid bacilli in acute arthritis, or of alien protein in typhoid fever. The fact that the pneumococcus Type I will grow in its own antiserum is interesting, and in the mind of the skeptic may raise doubts of the specificity of its action. The evidence derived from experiment, however, is in favor of a specific effect, and it would seem that this is to be granted.

Brilliant as is the work in establishing the serum treatment of the Type I pneumonia, I am of the opinion that the method is not destined to endure. The method is too complicated, time-consuming, and too subject to technical errors and delay to find favor with practitioners at large who are not immediately in touch with institutions equipped with adequate laboratories.

If I were allowed to prophesy, I would predict that the present method will be supplanted by one in which a concentrated solution free from the objectionable serum proteins, containing antibodies for all the recognized pathogenic types of pneumococci, and so doing away with the necessity for typing shall be developed. Happily, I am informed that very promising work is under way toward the elaboration and clinical use of such a solution.

Meanwhile, it is our duty to employ the recognized method in all Type I infections. To sum up, therefore, I would plead for

1. Less meddlesome interference with the patient, that his own resources be conserved.

2. The attention of clinicians to the factor of oxygen unsaturation of the arterial blood in pneumonia, and of the consequent importance of the administration of oxygen by an effective method.

3. The continued use of serum in Type I infections until this method is supplanted by one less

cumbersome and more universal in application.

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49 EAST FIFTY-THIRD STREET.

THE COMPLICATIONS OF PNEUMONIA.*

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THE complications in pneumonia may in general be assigned to three factors: First, the effects on organs of the toxin produced by the infecting agent; second, the extension of the infection to other structures than the lung; and third, secondary infections superimposed on the virus responsible for the initial pneumonia. As an example of the first class, the effects of the toxin, may be cited many of the symptoms which characterize the disease, but in addition to those which are usual it seems that at times some one organ is affected in a degree disproportionate to the intensity of the infection, due, perhaps, to vulnerability produced by latent disorder in the organ attacked. In pneumonia this condition of affairs is apt to implicate the heart muscle, and only in a certain rather narrow sense can we speak of resultant cardiac disorders as complications. Whether the disordered function resultant upon degenerations in the myocardium can be in some degree prevented by appropriate digitalis therapy still remains in dispute. But since fibrillation of the auricles is one of the disorders of function met with in pneumonia, and digitalis is definitely of use in this disorder, it may be argued that there is a general theoretical basis for the use of digitalis in pneumonia. If digitalis is used at all it must be remembered that an adequate dosage is essential in order to secure any effect whatsoever. This fact at least has been determined with something of scientific precision through the electrocardiograph.

Involvements of the pericardium are commonly examples of the second mode of origin of complications; infection by extension, through either lymphatic stream or blood. But the pericarditis of pneumonia may be due to a secondary invader, often the streptococcus. The existence of pericarditis complicating pneumonia is too frequently not recognized. Considering that the necessary examination for its detection can be made without disturbing the patient, without even changing his posture, there is scant excuse for the omission, since the presence of pericarditis is an important factor in prognosis, and a guide in interpreting

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the significance of other complications which may arise. Fibrinous pericarditis may progress to empyema of the pericardial sac. This complication of pneumonia is usually fatal because often associated with pleural empyema. But pericardial empyema is not invariably fatal, if skilful surgical aid be available. One of my series survived and Pool has operated on a case successfully. If signs of pericarditis appear, an examination should be made daily to detect signs of fluid in the pericardium. If signs of fluid develop the question arises: Is this fluid a simple exudation or is it infected and pus? With accompanying signs of persistent infection, fever, rapid pulse, sweats, perhaps, and a general toxic appearance of the patient, it becomes necessary to know whether there is an empyema of the pericardium. This fact can be learned only by exploration with the needle. The operation in skilled hands is almost devoid of danger and nearly painless. At times this exploration, as when empyema of the pleura is suspected, is quite imperative; future treatment of the patient depends on knowledge not only of the character of the exudate but also of the infecting organisms and their relative number. The mode of treatment of empyema of the pericardium is in principle identical with that of empyema of the pleural cavity. But in order that any treatment meet with success for the patient, it is requisite that it be instituted before the patient is exhausted by the infection and his general resistance depleted.

The most common complication of pneumonia is empyema. In my civil hospital experience empyema complicated 6 per cent. of the cases of pneumonia. Empyema in my army series ran above this, due to some extent to the empyema of pneumonitis. Empyema may be due to any of the pneumococcus types, to the streptococci, either primarily or as secondary invaders, and occasionally to other organisms. The type of infection appears to influence in some degree the anatomic types of empyema. For example, empyema, due to the pneumococci, is usually circumscribed, walled off by pleural adhesions, while these adhesions form later with streptococcus empyema and may result in several separated pleural abscesses. The primary pocket may be interlobar with subsequent rupture into the pleural cavity, a clinical entity splendidly described by a former military aide, Henry M. Thomas, Jr. In civil life we see but seldom the so-called "primary empyema" complicating acute interstitial pneumonia; a rapidly developing disease wherein the signs of pneumonia are quite obscured by those of empyema. The initial symptoms of pneumonia may precede the empyema by only a few hours.

The mode of treatment of these various types of empyemata varies greatly, a fact that is now clearly understood. If empyema, due to an infection with *Streptococcus hemolyticus*, is treated in the way recognized as appropriate for a pneumococcus infection, death usually results and quickly. Not only, then, must there be early recognition of the empyema, but also it is requisite to know the nature of the infecting organism. Now two factors mainly are responsible for tardy recognition of empyema: First, an idea that empyema is accompanied by a definite type of fever curve, and

second, the notion that fluid in the pleura always gives rise to a characteristic combination of physical signs. Both of these ideas are narrow and misleading. While in many cases of pneumococcus empyema the fever does drop to normal, and subsequently rise again with the development of the pleural infection, this is not always the case, even in pneumococcus infections, and is very seldom true in infections caused by streptococci. For example, our series includes cases of Type I pneumonia with a steady high temperature caused by an extension of the pneumonia process to the other lung, while empyema developed in the side first involved. Some of these cases have recovered, due to early recognition of the empyema and its special treatment, as well as to treatment of the concurrent pneumonia.

Likewise, the physical signs are not by any means always those regarded as classical signs of fluid. Every one knows the variability of signs accompanying resolution, and when these are associated with encapsulated collections of liquid in the pleura the effect in signs is often bizarre. Implicit confidence in one's ability to interpret physical signs, unsupported by other aids in diagnosis, is doomed to receive a rude shock in the morgue. A detailed account of some of the more unusual signs accompanying empyema has been given in the *Amer. Jour. of the Medical Sciences*, 1921. The indications of empyema are not in signs alone at best, but in the evidence of a persistent infection, accompanied by signs in the chest, which might be due to a pleural abscess. The correctness of this suspicion must always be determined by exploration. Exploratory puncture is obligatory under circumstances such as I have outlined, because the character of the infection as well as the confirmation of the presence of empyema must be determined for treatment.* Empyema due to streptococcus infection is often detected by the character of the pus at once, and early aspiration and late operation constitute the procedure insuring the lowest mortality. Following the first aspiration in streptococcus empyema the fever becomes lower, sometimes a normal temperature prevails for several days, and the patient shows improvement in general appearance, increased appetite, and restful sleep. When the temperature rises again and pus reaccumulates a second aspiration is indicated. The pus at the second aspiration is usually thicker in consistency than at first, and the quantity less. This method of repeated aspirations in the treatment of streptococcus empyema has been our custom for a number of years. Two questions arise here: How long should the aspirations be continued; and what is the indication for thoracotomy? So long as the patient's condition continues to improve there is no need to resort to a change of method. Usually these patients continue to gain for ten days or two weeks when the pus becomes so thick that aspirations are not possible. Thoracotomy is then done. A minority, some 6 per

*The danger of exploration with the needle is exaggerated. Air embolism is of very rare occurrence. But even though the danger exceeded that of an operation like tonsillectomy it is well to recall that in military hospitals where exploration was much used, pneumonia mortality was lowest and unrecognized empyema at autopsy least frequent.

cent., are cured by aspiration and escape radical measures.

Now in contrast to streptococcus empyema, those due to pneumococcus infections sometimes progress most favorably if thoracotomy be done at once. Some cases may be benefited to the extent of becoming better able to endure the shock of operation if aspiration be performed at once. But seldom is a cure effected by aspiration alone, and only when the amount of pus is small.

The basic studies of Churchman in chemotherapy and particularly the application of gentian violet to wound infection may find an important field in the treatment of empyema. Waters (*Amer. Rev. Tuberculosis*, Feb. 4, 1921) has utilized with success in empyema the technic devised by Churchman for the treatment of suppurative arthritis. The principle is sound and should receive practical trial.

Pulmonary abscess is not a frequent complication of pneumonia, but it is important because of its seriousness. My reason for mentioning it is chiefly to call attention to a mode of treatment which has not been given proper consideration. Diagnosis is invariably difficult, and for correctness requires the resources of a clinic. Physical signs may be misleading when the cavity is deeply seated or thickly encapsulated, but the data gathered from observation of the sputum and the temperature excite a suspicion. The x-ray is of more help in diagnosing abscess of the lung than in empyema. The radiograph should be stereoscopic for exact localization, and when the cavity contains pus and air, information may be secured by changing the posture of the patient and noting the change in the surface line of the fluid.

The treatment of pulmonary abscess depends upon the location of the abscess. When it is near the costal surface of the lung, or near the diaphragm, there are usually pleural adhesions. When, however, the abscess is nearer the center of a lobe, such adhesions are not often found. In the latter case the lung may be collapsed by artificial pneumothorax in the same way that tuberculous cavities may be treated. The only contraindication is pleural adhesions, which of course prevent the end sought for. Some of our cases have attained a complete cure by this relatively simple procedure. Recently a patient died in the New York Hospital of chronic nephritis, who had been treated on a previous admission, some six years ago, for pulmonary abscess. The method used was artificial pneumothorax, which effected a symptomatic cure. We were not sure of the result on account of the peculiar persistent physical signs and the fact that radiographs were useless, the involved area being covered by the heart shadow. At autopsy the area of the abscess was found entirely replaced by dense fibrous tissue. The healing, in brief, had been perfect.

When adhesions frustrate attempted collapse of the lung, the only method of treatment left is excision of the involved area, or lobectomy. In the hands of a skilful surgeon, who is familiar with the peculiar problems presented, these operations should not have a mortality above 10 per cent. Pulmonary abscess does not heal spontaneously, and, when left untreated, the fate of these patients

is so distressing that a majority will risk any hazard that promises relief.

Of the many other complications which may arise in pneumonia, some are of slight relative importance, while others are almost invariably fatal, meningitis for example; therefore it seems most useful to confine this brief discussion to those lesions which are common, and for which there is a hopeful method of treatment.

121 EAST SIXTY-SECOND STREET.

DIABETIC ACIDOSIS.

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THOSE of us who have interested ourselves in the study of metabolism, especially in relation to diabetes mellitus, are confronted many times by a call from the busy general practitioner regarding his patient, who is on the border line of impending acidosis and coma. I have time and again been called into consultation on these cases at the eleventh hour, in order that I might offer some suggestions or means to snatch the patient from the terrors of intoxication.

To the general practitioner who is treating an occasional case of diabetes, it is of paramount importance that he realize the following two axioms: First, that sooner or later his patient is prone to develop an excess of the lower fatty acids, with a resultant acidosis, and secondly, if the condition is not immediately checked, only very heroic means will save the patient.

In my association with the general practitioner I have found that too much stress has and is being placed on the sugar content of the urine and that a great percentage of the therapeutic measures adapted are solely for its rapid reduction, other symptoms and conditions all being neglected. It seems to be the popular hypothesis, or I may say conception, that as the urine sugar is minimized, so the other manifestations of deranged metabolism are lessened or overcome. At times, and in selected cases this is true, but in the great majority of patients it is not. By the great majority I mean the ordinary moderately severe case running a 2 per cent. urine. Oftentimes these cases do not feel as energetic when the sugar is reduced, as they did when passing urine with a higher content of sugar.

The management of diabetes is much like that of interstitial nephritis. Both conditions are progressively chronic. During the life time of the individual we should strive to keep them economically fit. Many times the diabetic patient is prone to change his or her physician. Each new medical advisor immediately begins a period of starvation. He treats these patients en masse and not individually. Some respond, while the great majority do not. The hyperglycemia and glycosuria are minimized, yes, but the subsequent symptoms dependent on carbohydrate starvation soon make their appearance and the patients are pitiful to behold. They are sugar free, but prognostically and economically they are worse off after each starvation period.

Unfortunately we are living in the starvation era in the treatment of diabetes, in that it is applied

too harshly in the great majority of cases. The physician does not appreciate existing conditions of metabolism in his patient. I have seen diabetic patients suddenly collapse under this form of treatment when applied by an over zealous medical man in his endeavor to lower the sugar. In a former paper entitled "The Limitation of Starvation in the Treatment of Diabetes" I endeavored to point out the necessary selection of cases when starvation is to be applied and stated that its institution is a dangerous procedure unless existing conditions in the patient are thoroughly appreciated and treatment applied by one skilled in metabolic work, having at his beck and call modern equipment for the estimation of the various excretions and secretions.

Because an individual has diabetes mellitus, it does not signify that starvation is going to produce the best result. Other therapeutic measures may offer far better results. It does mean, however, that he should be placed in the best possible condition and kept there. By best possible condition I refer to both physical and economic conditions, the latter being of paramount importance both to the individual and to those dependent on him. His prognostic rating should be immediately taken into consideration and his assimilatory mechanism afforded the necessary heat and energy to carry him along in a manner that does not rob the body of vitality and resistance to overcome the obstacles that a diabetic finds scattered in his path. The disease itself is a malady of sugar starvation, and in the majority the withdrawal of carbohydrate is contraindicated in spite of many beliefs to the contrary.

The more one sees the frequently starved diabetic the more one appreciates these facts. Undernutrition (and undernutrition must accompany starvation if it be effective) is the stone of calamity in the lives of many diabetics, and from this point many individuals, although sugar free, progressively go down hill.

It is plausible to believe that in order to insure carbohydrate metabolism a larger amount of sugar in the blood is required, and any radical artificial reduction of the glycemia below this point must be attended with manifestations of disturbed carbohydrate metabolism.

Glycemia and hyperglycemia must not be reckoned with while other manifestations are utterly neglected. Many patients are worse off with a sugar free urine than others whose sugar content is high. I have frequently seen the sugar free diabetic display a greater tendency to intercurrent infections and gangrenous processes than patients who were both markedly hyperglycemic and glycosuric.

If diabetes is a symptom which is the result of a functional inability of the pancreas to secrete a full amount of its internal secretion, then I doubt very much whether the withdrawal of its normal activator (carbohydrate) is indicated. In other words, glandular activity ceases when the specific stimuli are removed in part or whole. This is best portrayed by the fact that the simple act of starvation in the normal person will produce a glycosuria. If an organ or group of organs are not called upon to exert their full influence on

some form of resistance, they will atrophy and in the course of time become rudimentary and inert, and I fully believe this is what takes place in the diabetic who is subjected to prolonged withdrawal of carbohydrate.

The logical termination of diabetes should be considered acidosis and coma. When a case is first seen, no matter how mild the diabetes may be, this issue should be given consideration. One author of my acquaintance states that if a patient succumbs to acidosis, it clearly shows that he has received poor treatment. In view of the fact that my confrère is a member of the starvation school, I feel that he should have qualified his remark, as these patients rarely survive to reach a terminal acidosis. Then, again, he is seeing practically all his patients at an institution, where they remain for only a short term of treatment. This issue may better be argued by the general practitioner who has the diabetic under his constant supervision for months and even years.

As the body slowly loses its power to assimilate and warehouse its carbohydrates, heat and energy so necessary to the maintenance of life must be manufactured from body tissue. The surplus fat is now called upon, as a result of decreased resistance, oxidation is incomplete, the lower fatty acids, especially beta-oxybutyric acid, accumulate in the blood, concentration slowly takes place and coma supervenes. By instituting starvation in many cases an active ketonuria is set up, first because the fat-sparing food stuff is denied the body, secondly, because the body tissue is incompletely oxidized with the production of the lower fatty acids.

Thus as the logical termination of diabetes is acidosis, how are we to manage these patients whose tolerance is nil and who are slowly but surely ascending the ladder of ketonuria. When called upon to see such a patient I immediately institute a routine form of treatment that has been most successful in not only neutralizing the acid formed, but in minimizing its further production.

If the patient is not in coma and is able to take food by mouth I immediately introduce into the stomach one gram of carbohydrate per kilogram of body weight in the form of orange juice or oatmeal gruel. This is best divided into four doses, and administered during the twenty-four hours. In these cases the introduction of fluid is essential. My method is to see that the patient takes by mouth at least three thousand cubic centimeters of either warm water, tea, or coffee in the twenty-four hours. A high colonic irrigation is given, consisting of one dram of sodium bicarbonate to the quart of water. This is repeated daily till symptoms of acid poisoning have been conquered. No other food should be allowed during this treatment. If the patient presents evidence of great fatigue, poor, thready pulse alcohol should be administered well diluted, an adult taking as much as four ounces during the course of the day.

In those patients who are in a semicomatose condition, nauseated and dyspnoic, I immediately introduce high up into the colon six ounces of the following: Glucose 5 per cent., sodium bicar-

bonate, 2 per cent., dissolved in six ounces of saline solution. If the patient is a large individual I increase this to eight ounces. This to be retained. If conditions are such that active stimulation is necessary one ounce of whiskey may be added.

To maintain arterial tension 500 to 1,000 c.c. of sterile physiological saline solution is introduced into the median basilic vein. The quantity necessary depending, of course, on the age and size of the patient. In the severe type where very heroic measures must be adopted, I infuse with a 2 per cent. glucose solution to which nine-tenths per cent. sodium bicarbonate is added. This procedure is repeated the next day if necessary.

In patients suffering from an accumulation of betaoxybutyric acid, fluid depletion of body is evident, accompanied with great loss of weight. Incidentally it may be stated that the body alkali reserve is exhausted or nearly so: which is the natural course of events in that the body has been called upon to neutralize the acid formed. Thus the indication is apparent to renew or introduce sufficient quantity of a base to bring back or renew pre-acidic alkalinity.

Many followers of the starvation theory do not believe that sodium bicarbonate is capable of influencing the acid condition. I feel that their opinions have been too hurriedly arrived at, as a result of the administration of either too large a quantity or not enough. To substantiate my observations I offer the following as a theoretical explanation of its action.

There is no question that the neutrality of the blood is maintained by an equilibrium established by the salts of the blood. The blood possesses the property of being able to take up considerable quantities of acid without appreciable change in the hydrogen-ion concentration. The plasma contains sodium bicarbonate. The normal ratio of carbonic acid to sodium bicarbonate is one to twenty. When acid is added it reacts with the bicarbonate to form a salt and carbonic acid. The hydrogen-ion concentration resulting will not increase in proportion to the amount added in the acid for the reason that carbonic acid is but slightly dissociated, but the slight increase is promptly removed by the lungs as carbon dioxide, the removal of carbon dioxide permitting the hydrogen to react with the remaining atom of oxygen to form water and again restore the one to twenty ratio of carbonic acid and sodium bicarbonate. When sodium bicarbonate is no longer sufficient in amount to maintain the neutrality, in case of continued addition of acid, the phosphates enter the reaction. If this mechanism is insufficient there may be an altered nitrogen metabolism and ammonia is diverted from the neutralization of acid and excreted in the urine. So long as the one to twenty ratio is maintained the acidosis is compensated. Here the absolute value of the alkali may be diminished. Only when the ratio is altered is it uncompensated.

From the above it is plausible to assume that sodium bicarbonate does act as a neutralizing agent. An effort should be made to bring the alkali reserve to its normal value, but never to exceed it.

Digressing slightly I may mention the fact that it has always been my belief that body weight should be preserved, and not sacrificed, as is the belief of the starvation school, unless, of course, the patient is obese. I have through experience found that the patient who has a fair reserve of body tissue is more slow in developing an excess of acid than one who is thin and cachectic. This reserve supply of tissue may be considered in terms of acid resistance, which stands in good stead during an emergency. In the past a normal excess of body fat has been considered as so much excess luggage, and the advocates of starvation have endeavored to remove it, with the idea that fat limits oxidation. As starvation must be accompanied by undernutrition to produce results, body weight is sacrificed by advocates of this system. As a result their patients are always under weight, undernourished, and underfed. I have never in my experience seen the diabetic patient who has been able to retrieve his previous body weight and resistance after undergoing a series of fasts. Body weight is the one reliable gauge we possess as to the progress of the patient, except, of course, aside from any dropsical condition that may be present.

A diabetic who is constantly losing weight, regardless of his sugar content, is going down hill and nearing the point where some slight change in diet or mode of living will invoke an increase in the acid. I have never seen a patient who was gaining or maintaining his weight go into coma. Impending ketonuria is always preceded and accompanied by great loss of weight. During actual coma this loss is greatly augmented by the splitting of the fat molecule. Thus 210 grams of fat will yield 72 grams of betaoxybutyric acid, while from 120 grams of protein, 36 grams of oxybutyric acid may be formed. As acidosis is the direct result of products formed from the incomplete oxidation of fats, plus a depletion of the alkali reserve, it becomes necessary to limit the elements and substitute that which will spare fat, as well as introduce a substance that will increase the alkali reserve.

Just how much beta-oxybutyric acid is necessary to produce coma is dependent on several factors, foremost of these being the age of the patient. Children are able to withstand acid intoxication much better than adults. Dehydration or depletion of body fluid invites ketonuria. The alkali which I have mentioned, stored in the body as potassium, sodium, calcium, and magnesium, acts during impending acidosis, by changing the path of excretion from bowels to kidney, in order that oxybutyric acid may be removed or eliminated. Much, however, depends on the cardio-renal system for the rapid and effective excretion of these bodies in order that concentration and accumulation do not take place.

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No General Predisposition to Cancer.—Fibiger, the wellknown cancer student, states that the white mouse seems almost immune to cancer as generated by the *Spiroptera*, the nematode worm with which he has worked for many years, but it is unduly susceptible to tar cancer. Facts like these militate against the hypothesis of general susceptibility and general immunity to cancer.—*La Presse Médicale*.

BLOOD IRRITANTS OF DIETARY ORIGIN.

By J. M. W. KITCHEN, M.D., M.S.

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PRESUMABLY all who have given much study to the subject will agree that diet has a very large influence in determining the nature of all animals; and in man, the production of disease and the return to normal states; but it is doubtful if we fully realize the power of that influence. Most physicians in cases of sudden attacks of sickness, involving bedside attendance, will advise a suitable diet; but in case of chronic or semichronic conditions, they are very likely to prescribe such diets as are indulged in by themselves without obviously injurious effects. Nevertheless, it is probable that substantially all individuals of the race who can control the wherewithal to indulge their gustatory desires, are more or less victims of gustatory vice.

I have had an excellent opportunity to observe the effects of various dietary indulgences on my left knee for about three years; and it may be of general interest if I record some of my latest conclusions in this connection. My trouble started with a knee strain augmented by neglecting to give it immediate rest; and finally, when I retired to bed with it, by not cutting down my diet to meet the bed-ridden condition. The result was a brisk generalized rheumatic attack and more or less localized trouble in the knee ever since, most of which has been due to lack of will power to restrict my diet sufficiently to meet the needs of the case. I love the pleasures of the table as well as other people. My knee is better, and I can eat things now with moderation that would have been entirely out of the question a year or more back; an allowed indulgence which I attribute to a development of a considerable amount of fibroid tissue at the affected point, with a consequent acquired greater resistance in character of the affected joint to blood irritants.

In this writing, I use the term "irritants" as applied to blood conditions that are obviously damaging to non-resistant bodily tissues, and which also cause damage without concurrent objective or subjective recognition that damage is being produced. I quite agree with those who think that most of us eat too great a quantity of food, and that such indulgence in quantity may be more at fault than errors as to quality in the food supply. It is clear that various individuals, and entire peoples, become more or less adjusted to the character of the food they have habitually consumed. But this does not say that every diet is equally good. The meat eater may, with his relatives of carnivorous habits of the lower orders of life, get on for a certain length of time comfortably, as may also the Esquimaux and the denizens of the tropics exist with their peculiar diets, as well as the nonsensical habitués of the nicotine, alcohol, and caffeine addictions.

We must take into consideration the fact that with the development of man's brain, many avenues have been opened to the reception of pleasurable indulgences. Unfortunately, there has as yet not been a sufficient development of a counteracting influence of control of our desires the repression of which is of importance to our best interests.

The pediatricists are still struggling with the problems of how to treat cow's milk for infantile

diet through modifications; and I am sorry to say they are as yet, along with other practitioners, apparently ignorant that the public supplies of milk, cream, and butter are all without exception more or less contaminated with the products of putrefactive fermentations; that moderate protective heating of clean milk does not produce scurvy in babies; and that, imagination to the contrary notwithstanding, the exhibition of a little orange juice would certainly make good any loss of the elusive vitamins in milk. Also, so far as the world at large is concerned, it apparently does not realize that the dietary habits of a lifetime will usually result in the distention of the stomach, and an acquired consequent hunger that can ordinarily be alleviated only by filling up that viscus. That is only one of the unacquired scientific facts, a recital of which, if printed, would form a library of considerable size.

My previous articles related to this subject have been followed by a kindly extension to me individually, by medical confreres, of special information which has resulted in my having become somewhat of a repository of special pertinent knowledge, and in my having arrived at conclusions that I had not before formed. Some of these seem to offer reasonable explanation and hypothetic views of many related points that are at least new to me. Of course, in theorizing as to the mechanisms going on in our wonderful bodies, imagination may lead to inaccurate conclusions; but it is at least a comfort to feel that we have arrived at somewhat acceptable theories more or less sound.

My basic conclusion is that the bodily tissues may be more or less entirely resistant to most of the irritants in the blood that cause a large number of abnormal conditions; and conversely, all or part of the tissues may be weakened in their resisting power to such irritants. Among the conditions determining this matter of resistance are: age, previous disease, special wear and tear, the nature of occupation, climate, etc., all of which, along with others, including traumatisms, conduce to the non-resistant status. I think we must all acknowledge that the absorption of decomposition and fermentative putrefactive products is highly noxious. I wish I could form some satisfactory theory as to the mechanism in the body of the action of the putrefactive poisons; but we are largely restricted in forming our opinions, by the symptoms produced by these poisons; as is the fact in the case of many other poisons to which great study has been given.

The conclusion is easy to accept that hyperacidity in the blood is a cause of irritation. I have been astonished to note how small an amount of ingested meat will be followed by a pain in my knee. There appears to be no question that meats develop acid end-products found in the blood. The conditions producing acidosis are frequently a cause of irritation.

There is no longer any question in my mind that accumulated sugar in the blood is an irritant. I have not found any explanation as to what becomes of the large amounts of sugar that we consume; but it is certain that sugar may be found in the blood that is not accounted for in the urine. I believe the race is being seriously damaged by an extraordinarily large consumption of sugar. Possibly some day the uncontrolled sale of sugar will be prohibited for hygienic reasons.

The accumulation of irritating non-eliminated products of metabolism is evidently continually at work in adding to the miseries of man; this situation being greatly aggravated by the artificial nature of modern life, including the use of the automobile and general neglect in taking effective exercise. The requirement of most individuals having to work vigorously with the muscular system, will prevent a complete race suicide resulting from sedentary life; but the fullest enjoyment of healthful states can only be expected when adequate exercise of all of the tissue of the body is habitually practised.

Plethora of nutritive constituents in the blood must be considered as irritating, even if the food supply is well balanced as to alkaline constituents. The mere fact of condensation of nutrient matters must exert an influence on non-resistant tissues, in the mere physical osmotic interchanges between the blood contents and the cellular contents. The direct action of germs on irritated tissues I am not considering in this connection. I think it is a rare condition of irritation as compared with those of dietary origin. I feel very certain that irritants of the character already cited may have a special influence in causing a host of abnormal conditions, whether rheumatic, dermal, biliary, renal, or nervous; and also, a considerable list of hyperplasias, such as goiter, glaucoma, and even cancer. If we add to such direct irritations, the influences of hypertrophic conditions of the nerve centers more or less continually sending blood and nerve stimuli to affected parts, do we not have a reasonable hypothesis as to the causative factors of many troubles that at present are not generally accepted?

In my own case I have found that everything that will throw an unusual amount of work on the gastric mucosa, will cause pain in my knee. This I think, is due to a larger production of gastric acids than can be neutralized by the alkaline juices further along in the alimentary tract. I doubt, even if much sugar is not eaten, that a considerable excess of starch that is not turned into glucose and absorbed as such, will furnish large amounts of food for the intestinal acid-forming bacteria; but excessive gastric acids and acids formed in the intestines, will explain the irritations of hyperacidity of the blood.

Of those articles of consumption that I have found especially objectionable in connection with gastric irritation, I cite in order of their decrease in noxious character: maple syrup; grape fruit; tomatoes concentrated in cooking, especially in iron utensils; concentrated sugar confections; curried concoctions, mayonnaise dressing; salted and smoked meats; poultry; oily fish; cooked oyster eyes; anything inadequately comminuted, or that is of such texture as will prevent easy and quick entrance of the gastric juice to all parts of the ingested mass. Large amounts of starchy matters seem to be objectionable; though recent experience in feeding babies would indicate that if the starches are thoroughly boiled in milk, the objection of large clots forming is overcome; and I cannot see why large amounts of dextrinized, hydrated starch should not be carried entirely through the alimentary tract without producing objectionable results. I have not experienced any trouble from ingested milk; probably because of its good alkaline content. My esteemed younger confrere, Dr. Miner C. Hill, informs me that in his

experience in feeding dried milk, which of course has been highly heated and its vitamins probably driven off, he has not seen resulting scurvy, even if orange juice is omitted. One must remember that in bringing milk in contact with a highly heated roll, practically all putrefactive volatile matters are driven off. Apparently the great trouble in connection with dried milk as a food is securing milk that has not been seriously infected, or its infections increased before the drying process. Of course, the fine dried particles do not digest so quickly, but they pass out of the stomach more readily in fluid menstrua, and if not completely digested in the stomach, would probably not undergo much putrefactive fermentation in the intestine, because such milk would have unquestionably all of its putrefactive infections destroyed by the high heat employed. The great trouble of quick rancidity in dried whole milk can be overcome by packing the product in small cans and dating the cans with the date of production. I have not found any trouble in eating very considerable amounts of good quality butter, so far as constitutional irritation is concerned; but I am suspicious of rancid fats, though I am not able to submit any theory for my prejudice. Raw fruits I view with suspicion, especially strawberries. Most of the vegetables are apparently unobjectionable, excepting egg plant and cucumbers. Cabbage I do not despise. Idiosyncrasy, of course, must always be considered with this matter of foods producing blood irritants.

The greatest enemy of civilized man is the accomplished chef with his innumerable allurements; but plain living conduces to the welfare of every man.

If I extol one article of food above others, it is the low cost oat, which is the best and lowest priced of all foods. It contains lime in large quantity, and has an admirable balance of food principles. But even the oat may be a poison if not properly prepared. Cooked into an adhesive gluey mass and ingested in that form, it disorders the stomach and induces a constitutional poisoning. But if prepared without settling free the contained starch from the encasing cellulose coating; if precooked and with the grain form retained, and merely eating with a considerable amount of warm water, but without milk and sugar, this food is a salvator of men of all ages and specially of men advanced in life. If it is consumed in adequate amounts as a first course at every meal, it acts as a relatively harmless gastric stuffing, to which a considerable amount of indulgence in other foods more pleasing to the gustatory sense, can be added, and along with the other foods it finds its way to the outer world without having given up too much of its starch contents, and having incidentally, through its bulk, prevented intestinal static conditions.

In further prevention of intestinal stasis, I urge eating a bran cake that I think I should receive credit for having originated. Graves desired as an epitaph, that he "fed fevers." But I am sure that if the sedentary world should all make use of my bran cake, there would be a very large monument erected to the memory of some one whom modesty prevents me from naming. Its preparation follows:

R 4 cups of clean wheat bran,
1 cup wheat flour,
Sodium chloride,
Sodium bicarbonate, q. s. My cook knows.

Mix vigorously. Beat up one egg with warm water and thoroughly moisten the dry constituents. Spread out to one-half inch thick in a metal pan, cover with a tin plate and bake. Eat with considerable butter that has been pasteurized. It tastes good and acts well. It seems almost absurd to point out that the world needs to acquire a knowledge of the simple facts that we eat too much, that we should cut down meats to a considerable degree, cut out sweets, and avoid foods or methods of eating that are not conducive to quick and painless digestion. Yet lack of that special knowledge is a matter of such importance that the life of most members of the race is largely shortened, and incomputable, aggregate unhappiness is inflicted through ignorance of the facts, and perhaps through inadequate will power to repress appetite for the pleasures of the table.

Perhaps I should add that tea, coffee, cocoa, alcohol, tobacco, and any of a number of stimulating matters in the way of sauces and flavoring compositions, should justly be considered as being, directly or indirectly, sources of blood irritants. I will even admit that excessive composition of sodium chloride may be damaging. Nevertheless, we must not forget that a reasonable indulgence of our gustatory desires conduces to our happiness, and, hence, bodily welfare. I am down on the "hip pocket" flask; but hesitate to come out radically advocating entire abolition of the pleasures of "eats."

"Let us eat, drink, and be merry, for to-morrow we die." Probably the originator of that quoted philosophy had in mind the merriment caused by the primary stage of alcoholic narcosis; but I have never been able to observe the "merry" stage to extend beyond the last stage of any ordinary feast. We always pay the next day for our indulgence, and sometimes pay heavily. Why should we die "to-morrow"? Why not live on to one hundred, plus? I have arrived at the time of life when the time of the "to-morrow" passing is only a little way ahead at the best; and yet I do not want to die before I have convinced the world that some peculiar conclusion I have arrived at in regard to "eats" and "drinks" are sound, even if they may not seem so to many.

Houdini, the "Self-Liberator," states in "Fragments" that he keeps himself fit to do his stage stunt work, because he doesn't drink, smoke, or dissipate; and that he swims and walks in the way he should, so that he is ever steel-like, supple and pliable. I know I am prolonging my life, because I am moderately temperate in many things, and hence I largely give up my inherent desires to indulge in many pleasures that my flesh craves; and only have ambition to prolong my life.

Who is morally responsible for the overwhelming influences that dominate human life? "Death comes to all," said brave Horatius. Accidents may precipitate the passing, and accident may come from outside environment, or by contributory neglect to look all ways before crossing traffic lines. The sins of our ancestor have much to do with our life's span. But it seems that the reason that we die as soon as we do is largely owing to ignorance as to the simple dictates of sensible habits of life. There is a suggested thought from some philanthropic reformative genius.

94 PROSPECT STREET.

A CONCEPT OF X-RAY PATHOLOGY.

XIV. NEPHROPATHY.

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UNDER the title of nephropathy it will be expedient to consider diseases of the kidneys and diseases of the extrarenal urinary passages, including the ureters and urinary bladder.

The nephropathies may be studied in groups under the following heads: (Barker)

- I. The Congenital Nephropathies;
- II. The Nephropathies of Circulatory Origin;
- III. The Toxic Degenerative Nephropathies, or the Nephroses;
- IV. The True Inflammatory Nephropathies, or the Nephritides;
- V. The Nephropathies associated with Diseases of the Renal Pelvis;
- VI. The Parasitic Nephropathies; and
- VII. The Neoplastic Nephropathies.

Technique Involved.—In the study of the urogenital tract it is important that the roentgenologist exercise particular effort to secure plates of maximum utility. It is here that the competence of the x-rayist is fully tested; for while many thrive to obtain plates of much photographic beauty, few appear to realize that the softness of the renal tissue and the similarity of its density to adjacent structure is so great, that to obtain photographic contrast means to lose pathological acuity. The preparation of the patient is important and every effort should be directed to eliminate gas accumulation in the overlying intestine. This is best accomplished by the administration of vegetable cathartics the night before the examination and frequent enemas on the morning of the examination until it is certain that the bowel is emptied.* No food should be permitted. The patient should be immobilized during the exposure by compressive pressure on the abdomen, which pressure serves also to displace the gut. In creating the pressure a loofa sponge or a distended basketball bladder should be interposed between the Hickey cone and the abdomen.

The kidney is displaced one-half inch during the respiratory excursion so that the patient should not be permitted to breathe during the exposure. The centering point for each kidney is two inches from the middle line midway between the xiphoid and

* (From the U. S. Army X-Ray Manual): "To obtain satisfactory results it is necessary to eliminate confusing shadows of substances found in the gastrointestinal tract and to get rid of accumulations of gas in the colon which tend to obscure the kidney shadows and may obliterate small calculi. For that reason it is a condition precedent to every examination of the urinary tract to prepare the patient by thorough catharsis. Castor oil, about 1½-2 ounces for an adult, is the best cathartic for this purpose, as it helps to eliminate gas. If, for a good and sufficient reason, it cannot be used, a large dose of one of the other vegetable cathartics may be given. The metallic substances, in particular calomel, should never be used, because they have a tendency to produce gas.

"The cathartic should be administered the evening before the examination, the patient abstaining from all food in the interval. For that reason it is best to make these examinations in the morning, omitting

the umbilicus. The following is from *Hirsch's "Principles and Practice of Roentgenological Technique"*:

Urinary Tract.—Essential Features: Tenth, eleventh and twelfth ribs; psoas muscles; transverse processes; kidney outlines. Difficulties: Intestinal contents obscure structural outlines, hence preparation necessary. Vegetable cathartic the night before and enemas the next morning until bowels empty. No food before examination. Urates of soda calculi, cast no appreciable shadow. Extraureteral or renal shadows simulate those of calculi, hence catheterization and injection of contrast media sometimes necessary—collargol 10 per cent., thorium. Immobilization of kidneys must be accomplished by pressure on abdomen, which also displaces gut. Kidneys move $\frac{1}{2}$ inch in respiration.

Exposures: Upper urinary tract—dorsoventral; lower urinary tract—dorsoventral; ventralsdorsal, supine or prone.

Kidneys and Upper Ureters.—Posture: Ventralsdorsal—supine—shoulders elevated, knees flexed. If the individual kidneys are to be examined, 8 x 10 plate is placed under the lumbar region so that one-half the plate is below last rib. The upper ureter is then examined by a second 8 x 10 plate so placed that its upper edge is two inches above highest point of iliac crest and its inner edge in mid-line. If 10 x 12 plate is used it is placed broadwise, the lower border of the plate being at a plane through the umbilicus.

Immobilization: Compression of upper abdomen (a) (1) inflated rubber ball (preferred), (2) Loofa sponge, (3) aluminum bowl, (4) canvas band; (b) voluntary—cessation of respiratory movements.

Tube Position: For single kidneys, five inch cone under anterior ribs inclined 30 degrees cephalward. For both kidneys and upper ureters eight inch cone with ball under lower ribs, inclined ten degrees.

Lower Ureters and Bladder.—Posture: Ventralsdorsal—knees elevated. Plate (10 x 12) with lower edge one inch below gluteal fold. If individual ureters are examined the lower edge of the plate (8 x 10) is just below gluteal fold.

Immobilization: As above.

Tube Position: Eight inch cone, lower edge over symphysis; incline ten degrees downward; for single ureter—five inch cone. For both ureters—upper edge 5 inch cone $1\frac{1}{2}$ inch above umbilicus.

Bladder.—Posture: Dorsosventral—body prone, incline block 23 degrees under lower abdomen so as to raise pelvis.

Immobilization: Cessation of respiration.

Tube Position: Five inch cone; lower edge, at tip of coccyx. The prone position for kidney examination is utilized in the fluoroscopic examination of the urinary tract.

Kidneys and Upper Ureters.—Posture: Prone—on canvas topped table, on inflated spherical rubber ball 6 inches in diameter placed between lower ribs and crests of iliac. Arms over edge of table. Plate on back—held in position by sandbag.

Immobilization: Pressure of body on ball. Cessation of respiration.

breakfast, but allowing the patient to take a little coffee or tea. If the examination is made later in the day the patient might have to starve too long.

"An enema if properly administered, would be of assistance. Experience, however, teaches that it is very difficult to have it done properly, and for that reason it should be avoided as a routine measure. In those cases, however, where the administration of catharsis is contraindicated or time does not permit it, a low soap suds enema may be given an hour before the examination, the tube being retained in the rectum for half an hour to facilitate the escape of gas.

"If it can be avoided, the patient should not be examined during or immediately following an attack of colic. During an attack he is usually too sick for such an examination. Besides, at that time and immediately after, he is invariably under the influence of an opiate or similar drug which interferes with efficient catharsis and almost always causes the accumulation of gas in the colon."

Tube Position: Underneath table. Focal point just above umbilicus.

Lower Ureters and Bladder—Posture: As above.

Immobilization: As above.

Tube Position: Central ray $2\frac{1}{2}$ inches above symphysis.

Says the U. S. Army X-Ray Manual:

Technique.—Several observers, notably Shenton and Manages, have advocated fluoroscopy in the examination of the urinary tract. While in the hands of careful and exceptionally skillful operators this method is of value, yet in the hands of the average operator radiography yields the best results. Therefore this article is based entirely upon the radiographic method.

The most common method employed in the examination of the urinary tract is the one in which the patient is in the recumbent position, the tube placed above, the plate below. Most roentgenologists use, in addition to the plain diaphragm, the compression cylinder or cone. Some operators, however, use merely the diaphragm, and others, notably Caldwell, place the patient in the prone position, the tube below the table and the plate above the patient at the back. Placing a rubber bag filled with air under the patient, his weight will produce the necessary compression in this position. Inasmuch as the base hospital tables used in the army are arranged for work with the tube above, the technique best adapted for these tables will be described here. There are many variations in the technique employed. When a small cylinder or cone is used it is necessary to make five exposures to cover the urinary tract, namely, one for each kidney, and the upper third of each ureter, one for the middle portion of each ureter, and the fifth for the lower third of both ureters and for the bladder. Others, by using a slightly larger cylinder, make only four exposures, including the middle third of both ureters, on one plate. The writer prefers to use a cylinder $8\frac{1}{2}$ inches in diameter, which enables him in the majority of cases to make one exposure (or set of stereoscopic exposures) for the upper half, and another for the lower half of the urinary tract. This technique is sometimes modified to suit individual cases. If the patient is very stout, it is necessary to make special exposures over individual kidney regions. Similarly, special exposures are made over regions which are particularly under suspicion or for which a confirmatory examination is desired.

In older men and in all cases where concretions in the prostate are suspected, an examination of the bladder region should be made in the dorsoventral position. In this exposure the tube should be tilted slightly upwards and centered as nearly as possible on the sacrococcygeal junction.

In all cases the entire urinary tract should be examined no matter whether the symptoms point to a definite region or not. Only by observing this rule will mistakes in a diagnosis be avoided. For, in a great number of instances, the calculus may be found on the side opposite to that indicated by the symptoms. An examination of a single area is permissible only when it is done for verification.

In making the examination with the cylinder, it is advisable to tilt it upwards for the upper half and downwards for the lower half. The operators who are examining individual areas with the smaller cylinders or cone as a rule try to get the upper rim of the cylinder under the free border of the ribs. (The term upper and lower are made with reference to the patient, the upper referring to cephalic, the lower to caudal end.) The advantage obtained by getting the cylinder or cone under the ribs is that calcifications in the costal cartilages are not projected upon the kidney shadows, and thus confusion is avoided.

The beginner will soon learn which are the best angles for the apparatus he is using. As a guide he should use the accompanying illustrations until he has acquired his technique.

Various devices are employed in order to prevent the abdominal wall from protruding into the opening of the cone. One of these is the attachment of an aluminum hemisphere to the lower opening of the cone. Another is to place between the cylinder or cone and the patient's abdomen a rubber bag filled with air or a pad made of loofah sponges, or absorbent cotton.

These must be wider than the rim of the cylinder or cone and of ample thickness. They should be tested by radiography or fluoroscopy to ascertain that they are free from shadow-casting substances.

Quality of Tube.—It is best to use a tube of fairly low gap, about 3 to 4 inches (using a slightly lower gap perhaps for the Coolidge than for the gas tube) at 40 ma. or more. The length of exposure depends upon the speed of the plate and the current used. It may vary from 2 to 6 and be as long as 10 and 15 seconds. Great rapidity is not needed, if the parts can be properly immobilized and the patient can be made to hold his breath during the exposures over the upper half of the urinary tract. Complete arrest of respiration holds the diaphragm still and the kidneys at rest, enabling the operator to obtain good kidney outlines.

Position.—It is very important to have the spine straightened out, so that it completely touches the plate. In those instances (and they are many) where the patient's back is so curved that the simple recumbent position will not straighten it sufficiently, his shoulders may have to be raised and the hips and knees flexed. When doing the latter, one must be careful not to bring the tube terminals too near the knees. If that cannot be prevented, a good heavy insulator ought to be interposed, and if that is not feasible, one had better allow the back to remain curved.

Clothing or bandages in the path of the rays between the target and the plate should be avoided. In case the removal of bandages is not permissible correct information as to what is hidden by them must be obtained before stating definitely that a certain shadow is a calculus. It is well to remember that dried blood or pus in a bandage or dressing will cast a shadow.

Quality of the Plate.—The greatest difficulty in this examination is encountered when no calculus is seen on the plate. The question then arises, is the plate good enough to make a negative diagnosis with absolute certainty? Credit is due to the late Charles Lester Leonard of Philadelphia for having laid down the rules which with but one addition hold good to-day. These rules are: A plate to be considered as having the necessary radiographic quality must show at least the eleventh and twelfth ribs, the transverse processes of the lumbar vertebrae, and the edge of the psoas muscle. The only addition to Leonard's rule is that at the present day one must also demonstrate the kidneys. In the days of Leonard the x-ray technique had not been developed sufficiently to enable us to obtain kidney shadows in all cases. Even to-day it is sometimes difficult to live up to this rule. The right kidney is frequently obscured by the presence of gas at the hepatic flexure. But when on a plate showing both sides of the upper half of the urinary tract, one kidney is clearly shown, we may accept the plate as of good quality, though it does not show both kidneys clearly. Another point to remember is that great contrast between the spine and pelvis on the one hand, and the soft tissues on the other, is not desirable. Such a plate presupposes an overexposure with a tube of low penetration in which a small calculus may be obliterated.

Congenital Nephropathies.—These include malformations of the kidney which Newman has conveniently classified as follows:

"A. *Displacements of the kidney without mobility.* (1) Congenital displacement without deformity. (2) Congenital displacement with deformity. (3) Acquired displacements.

"B. *Malformations of the kidney.* (1) Variations in number, including (a) supernumerary kidney; (b) single kidney, due either to congenital absence of one kidney or atrophy of one organ; and (c) absence of both kidneys. (2) Variations in form and size, including (a) general variations in form, lobulation, etc.; (b) hypertrophy of one kidney; and (c) fusion of two kidneys, as in the horseshoe kidney, the sigmoid kidney and the disk kidney. (3) Variations in the renal pelvis, the ureters and the renal blood vessels."

Of great importance to the clinician, under this head, are movable kidneys and cystic kidneys. For determination of the position of the kidneys it is found sufficient to expose a large plate which includes the right and the left side, and to compare the shadows, making every allowance for the anatomical difference in the level of the kidneys. For a study of variations in the form and size of the kidney a similar exposure may sometimes suffice. When malformations are to be studied resort must be had to pyelography, by means of which injection the position of the renal pelvis may be gauged.

Nephropathies of Circulatory Origin.—In these there is included chronic, passive, congestion of the kidney, diffuse sclerotic nephropathy, and senile Ziegler form of renal disease. In all, the radiolucency of the kidney is increased; but the x-ray evidence may not be great. Of the inflammatory nephropathies there is no x-ray evidence, excepting occasionally in special forms of specific inflammation. Tuberculosis of the kidney occurs in two forms: (1) a miliary tuberculosis of the kidneys, which is merely part of a general miliary tuberculosis; and (2) an extensive local renal tuberculosis, in which the tuberculous process is not general through the body, but may be mainly confined to the urogenital apparatus. Clinically, miliary tuberculosis of the kidney is of no especial practical interest, but in chronic localized tuberculosis of the kidney it is exceedingly important to make an early diagnosis, as some of the most brilliant successes of modern medicine have been achieved in this field. In the local form there must be caseous degeneration with marked accumulation of tuberculous products. These masses sometimes contain much calcium and appear on the plate as radiopaque smudges, when they are suggestive of kidney stones; but they are differentiated by the irregularity of their outline and by their general appearance, which is alone often sufficient to distinguish them from calculi.

Diseases of the Pelvis of the Kidney.—Diseases of the pelvis of the kidney include: (1) pyelitis; (2) pyelonephritis; (3) hydronephrosis; and (4) nephrolithiasis. Pyelography is a useful expedient in the diagnosis of these conditions.

Renal Outlines.—It is important first to be able definitely to state that both kidneys are present. This is essential for the surgeon who may deem it necessary to remove one organ because of disease, in which case the presence and condition of the opposite one is of exceeding importance. When there is a congenital absence of the kidney on one side the companion usually manifests an enlargement due to compensatory hypertrophy.

There is considerable variation in the size of the kidney in adults so that the exact measure of a normal organ cannot definitely be given. It is obvious, then, that much difficulty presents in endeavoring to decide whether an apparently large renal shadow is due to a congenital large type of kidney or to the beginning hypertrophy of disease. The inexperienced roentgenologist must remember the distortion in the size of x-ray shadows as the result of ray divergence, which varies with the distance between the tube and the plate. In estimating whether a given renal shadow is enlarged a generous margin must be allowed, and it is even

good practice to utilize accessory x-ray diagnostic means, particularly pyelography. Usually an increase in size manifests as an increase in the breadth rather than the length of the kidney, the kidney becoming more rounded. Care should be exercised not to use the distance between the lower rib and the inferior pole of the kidney as a measure of ptosis and enlargement; for normally, in women and in children particularly, the position of the kidney is generally low. In children the size of the kidney is quite deceptive, they being relatively larger than in adults.

The shape of the kidney is usually ovoid, but it may be pointed or even lobulated. Smoothness and symmetry of outline are especially sought in these organs. Occasionally a congenital lobulation without any disease may be observed; but it is differentiated from misshapes assumed as the result of disease by the fact that in congenital deformities other anomalies will usually be elicited in other parts of the urinogenital tract.

The position of the kidney is variable. In estimating it, the migration incident to respiration should be considered. Generally speaking, the x-ray topography of the kidneys is as follows: upper pole between the eleventh and twelfth dorsal vertebrae, lower pole at the lower part of the second and third lumbar vertebrae; so that one can say that a kidney is abnormal in position if its upper pole is on a level with the tenth dorsal or its lower border below the third vertebra. In the female the kidney is reckoned to be half a vertebra lower than in the male, and it is seldom that both kidneys are on the same level, the right as a rule being slightly lower than the left, but this may sometimes be reversed. Another variable quantity is the long axis.

Migration due to respiratory excursion may vary from $\frac{1}{2}$ to 2 inches. In singers the kidney excursion may greatly exceed two inches. The path of the kidney is not alone up and down, but is complicated by a torque resulting from a certain amount of rotation around the pelvis.

Variations in Size.—Abnormally large renal shadows may be due to hypertrophy. One kidney may show a compensatory hypertrophy accompanying either a congenital or acquired disease of the companion.

An enlarged kidney shadow may be due to any of the nephroses, such as hydronephrosis. When due to hydronephrosis the kidney enlargement may affect the organ as a whole or it may manifest localized to one part of the kidney, in which case a distinct bulge of that part of the kidney may be observed. The general appearance of a hydronephrotic kidney is not always to be distinguished on the x-ray plate from the appearance incident to a new growth. If the hydronephrosis is extreme the enlarged kidney may present lobulation. Hydronephrosis affecting the entire organ also involves the pelvis. It is usually impossible to pass a leaded catheter into the kidney in cases of hydronephrosis; by which the x-ray may sometimes differentiate between kidney abscesses, in which latter condition the catheter readily passes into the kidney cavity which has been gouged out by the inflammation.

A new growth shows simply as a diffuse or localized renal enlargement. Tumors of the kidney include: (1) hypernephroma; (2) carcinoma; (3)

sarcoma; (4) teratoma; (5) malignant papillary systadenoma; and (6) certain benign tumors of the kidney (adenoma, lipoma, fibroma, angioma, myxoma). A hydronephroma generally originates at the upper extremity of the kidney just beneath the capsule. It may vary in size from a small sphere the size of a marble to nearly any dimension up to an orange or even larger. It is distinguished on the x-ray plate from nephrolithiasis and other conditions with which it may be confused.

There is nothing to distinguish cystic enlargement of the kidney from enlargement due to other causes.

It is said that renal syphilis produces definite enlargement and marked radiopacity owing to fibrosis. In one case the radiopacity of the kidney was seen to disappear *pari passu* with intensive syphilitic treatment. Atrophy of the kidney is not always easy to discern. When present it may be congenital or acquired. Atrophic nephropathy accompanies tuberculosis so that a small kidney in which radiopaque smudges are present would strongly suggest tubercle infection of the organ.

Perinephritic Abscess.—Doctor Pancoast, in the *American Journal of the Medical Sciences* for January, 1920 (Fussell and Pancoast: "A Roentgen-Ray Sign of Perinephritic Abscess") interestingly discusses a roentgen-ray sign of perinephritic abscess. The report is brief and valuable and bears reproducing in full.

During the study of Case II in this report a curious fluoroscopic finding was observed which directly led to a diagnosis of perinephritic abscess, and which was confirmed by operation. The same fluoroscopic sign was noted in Case I, but in this particular case the diagnosis was certain before the fluoroscopic finding was seen, hence no particular attention was paid to it except to note its presence. So far as either of us can discover this roentgen-ray finding has not been previously reported, though, of course, in the mass of literature a notice of it may easily have been overlooked.

CASE I.—F. H. W., male, aged thirty, was admitted to the University Hospital, under the care of Dr. J. B. Carnett, October 2, 1916, with a diagnosis of renal calculus on the left side. The diagnosis was confirmed by roentgen rays and the stones removed by Dr. Carnett. The patient did well until October 10, when he developed fever of a mild type. On October 25 the fever became septic in type and continued until December 13, when a fluoroscopic examination showed fluid at the seat of the operation. This fluid was demonstrated while the patient was standing in the fluoroscope. The shoulders of the patient were grasped and the patient's body moved quickly two or three times from side to side. Watching the fluoroscopic picture showed a distinct wave in the supposed fluid. This observation was made by Dr. Pancoast. He offered the explanation that a collection of fluid was around the kidney, which showed the wave when agitated. The renal region was opened and a huge sac of pus demonstrated within the capsule of the kidney.

No other opportunity was given to discover whether this sign was an accidental one or whether it was common in subdiaphragmatic collections about the kidney on the left side until Case II was seen.

CASE II.—A. F., male, aged forty-six years, was seen with Dr. Shelly of Ambler, Pa., May 14, 1918. The patient had been sick three weeks, was tired and chilly, and had fever of a septic type. He had pain referred to the base of the left lung. A paracentesis had been performed by Dr. Shelly, who had removed 3 or 4 c.c. of clear fluid with a needle from the base of the left chest. When seen by the writer there was pain and tenderness over the region of the left kidney, but nothing else could be detected. A needle was inserted in the left chest, but the tap was dry.

In the history which was obtained there were symptoms indicative of what was thought to be a peptic ulcer; a tentative diagnosis was made of subdiaphragmatic abscess from a perforating ulcer. He was sent to the University Hospital for a roentgen examination, but this was negative, and he returned the same day.

In a week after this his symptoms still continued; he was again sent to the hospital for careful observation. The symptoms were an irregular fever of septic type, with persistent but slight pain over the region of the left kidney. A roentgen-ray examination, with the patient lying on his back, showed the diaphragm to have the normal arch, and nothing particular could be seen. A plate taken, however, showed a beautiful picture of gallstones, but did not reveal the presence of liquid. Remembering the experience with Case I, the patient was placed upright in the fluoroscope and the first observation was that the left leaf of the diaphragm was flat and was immobile, and had lost its normal arched position.

The patient's shoulders and body were then moved quickly from side to side, and there was distinctly seen the same wave above the renal region which was observed in Case I. This observation was confirmed by both authors and by several other observers.

In view of these facts an exploration was advised in the left lumbar region, with the belief that all of the symptoms were due to a collection of pus in or around the left kidney.

Dr. A. C. Wood, who performed the operation, hesitated to explore the region because the local physical signs of a collection in that region were so slight, but urged that the gallstones be removed and the lesser peritoneal cavity be explored. This, of course, was a rational opinion, but because of the curious fluoroscopic sign he was persuaded to open the kidney region. The incision showed the left kidney tightly bound down by its lower half. But surrounding the upper pole an abscess containing approximately 200 to 300 c.c. of pus was found.

The patient made an uninterrupted recovery and was discharged June 25.

On October 30 the patient developed marked symptoms of gallbladder disease. He was again roentgenographed and the first plates showing gallstones were confirmed. The gallbladder was removed and showed thirteen stones. There was no evidence of previous or present collection of pus in the lesser peritoneal cavity. To-day the patient is well.

This fluoroscopic sign is reported, because we believe it will be of value in certain obscure cases of fever, with suspicious signs about the left kidney, but which signs are not certain enough to warrant an exploration.

In Case I it will be noted the pus was within the capsule of the kidney; no note was made as to the shape of the diaphragm. In Case II the diaphragm had an entirely normal appearance when the patient was lying down and became flattened when the patient was upright. This phenomenon is not clear to us. We have thought of many explanations, but none seem satisfactory. It will be noted also that the amount of fluid was not large, which makes the sign of value in early cases. This second patient was soon relieved, having been in the hospital only about four weeks after operation.

Of necessity, pus about the right kidney will not be expected to give this sign, as the liver intervenes between the kidney and the diaphragm. So far as we know, no such observations of collections of pus between the liver and the diaphragm have been made.

It is confidently hoped that other observers will search for the presence of a wave under the diaphragm in cases of subdiaphragmatic or perinephric abscess when the body is quickly moved from side to side.

(To be continued.)

Staphylococcus - Erysipelas.—Kulenkampff described a characteristic disease picture under this name. The color was a peculiar bluish; formations resembling strings of beads could be felt rather than seen and there were pin head efflorescences and pus vesicles. The margin was not of the typical sharp type seen in ordinary erysipelas.—*Wiener klinische Wochenschrift*.

Medicolegal Notes.

Physician May Testify as to Communications by Patient Made When Third Persons Were Present.—The provisions of the Oklahoma statute that a physician or surgeon shall be incompetent to testify concerning any communication made to him by his patient with reference to any physical or supposed physical disease, or any knowledge obtained by a personal examination of such patient, does not apply when the circumstances surrounding the communication, or knowledge obtained by personal examination, were such as to show that what was said or discovered on the occasion was not intended to be confidential, and especially when third persons who were present and heard all that was said between the deceased and the physician, and the knowledge obtained by a personal examination was as patent to the third persons as it was to the physician.—In re Swartz's Will, Oklahoma Supreme Court, 192 Pac. 203.

Misrepresentations as to Health and Consultations in Application for Insurance.—In an action on a life policy the defense was that the insured in his application had represented himself to be in good health, whereas he was at the time suffering from the disease from which he died, and that he had made material misrepresentations as to consultations with physicians. It appeared that prior to his application he had suffered from some malady causing him pain in the back, which was supposed to be rheumatism, and that he had consulted doctors without obtaining relief. After his death an autopsy showed that he had died of tuberculosis of the spine. The physician who conducted the medical examination on the application testified that the usual physical examination was given the applicant, from which it was not apparent that the applicant was suffering with or had any symptoms of the disease tuberculosis of the spine. He also testified that if the applicant had answered the questions put to him in the medical examination truthfully, the information he would have obtained, if there was a presence of tuberculosis of the spine, would have elicited something to make him suspicious of such a condition. He made a confidential report to the company that he was satisfied everything had been fully stated as to the applicant's physical condition in the application, and that he recommended the applicant for insurance without reservation. He testified that he would not have made the recommendation he did make of the applicant had he given him the information that he had consulted a physician some time previously concerning pains in the back which became more intense and severe after performing hard labor, and that he would have used such information as a basis for finding out the ailment for which the applicant had been under treatment. Three other physicians, in answer to hypothetical questions propounded to them by the defendant insurance company, in which the ailment causing the insured's death and its symptoms were described, testified that the applicant would know, or have reason to believe, he was suffering from some disease, even if he did not know what it was, of a serious nature. On appeal from a judgment for the plaintiff, on a second trial of the case, the judgment was reversed and a new trial ordered for the trial court's refusal to direct a verdict for the insurance company on the ground that the policy was avoided by false statements, in view of Utah Comp. Laws 1917, section 1154, sub. 3.—*Chadwick v. Beneficial Life Ins. Co.*, Utah Supreme Court, 191 Pac. 240.

Fund Owned by Hospital Held Not Subject to Income Tax.—A testator bequeathed his residuary estate to the contributors to the Pennsylvania Hospital, subject to payments to certain annuitants all of whom, save one, have died. The trustee holding the fund invested it in a loan to the hospital. In a suit to recover income taxes, alleged to be illegally collected, it was held that, on payment of sufficient interest to cover administration charges and the annuity to the sole surviving annuitant, the income of the fund was not subject to tax under Act October 3, 1913, nor under Act September 8, 1916, both of which by appropriate provisions declare a purpose to exempt from tax the income of any "corporation or association organized and operated exclusively for . . . charitable . . . purposes."—*Ledere v. Stockton*, C. C. A., 236 Fed. 676.

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THE SAFEST SUTURE MATERIAL FOR USE AFTER CESAREAN SECTION.

OUT of a total of 1089 cesarean sections recently studied by Holland, in relation to the suture material employed, in 731 catgut was used, in 288 silk, and in 70 silkworm gut. In a few cases combined deep sutures of catgut and silk or silkworm gut were used, but these are not included in the statistics. The frequency with which these suture materials were used in general works out at 67 per cent. catgut, 26 per cent. silk, and 6 per cent. silkworm gut. The incidence of catgut to silk equals 1 in 2.5. In the cases of ruptured scar, catgut was used in fifteen cases, silk in two and in one case there is no record of the suture material employed, but in no case had silkworm gut been used. The frequency with which the suture materials were used in cases of ruptured cicatrices works out at 88 per cent. catgut, 12 per cent. silk and none in silkworm gut, the incidence of catgut to silk being 1 in 7. The number of silkworm gut cases is, of course, too small to draw conclusions from. It is thus apparent that the incidence of catgut to silk in cases of ruptured scar is nearly three times its incidence in cesarean section in general. From this it might be inferred that scars are nearly three times as liable to rupture after the use of catgut as after the use of silk.

But to this conclusion a reasonable objection may be raised; it may be urged that perhaps very few cases of pregnancy followed the use of silk compared to the number that followed catgut. For example, if only ten or twenty cases of advanced pregnancy or labor occurred among the silk cases, silk would come badly out of the ordeal, with two ruptures to its credit. This objection can quite easily be met and overcome. It is necessary to ascertain the proportion of ruptures to advanced pregnancies among the silk cases, and compare it to the proportion of ruptures to advanced pregnancies among the catgut cases. Holland has supplied this necessary information in the form of tables. These show that fifteen ruptures occurred in 301 cases of advanced pregnancy after the use of catgut, a proportion of 1 in 20; and that two ruptures occurred in twenty-one cases after the use of

silk, a proportion of 1 in 46.5, or about 2 per cent. of the silk cases and 5 per cent. of the catgut cases were followed by rupture in subsequent pregnancy. The liability to rupture after catgut is, therefore, nearly two and a half times that of silk. Put in another way, if silk had been used instead of catgut in the 301 catgut cases, and rupture had occurred in the same proportion as for silk, there would have been only six ruptures instead of fifteen, and the total number of ruptures for all cases would have been reduced from seventeen to eight.

The cause of ruptured scar is imperfect healing, resulting in a thin cicatrix in which muscular union has failed, and which consists of little more than peritoneum and decidua with a varying amount of intervening fibrous tissue. Rupture of the thin cicatrix may be favored by various accidental factors, of which the principle is insertion of the placenta over the scar, with partial separation of the placenta and retroplacental hemorrhage. Other accidental factors are over-distention of the uterus, prolonged or obstructed labor, operative interference, such as internal version, the introduction of hydrostatic bags, and the administration of drugs such as pituitrin. In the reported cases rupture occurred almost as often during pregnancy as during labor—in the proportion of three to four—and many cases have occurred as early as the seventh month of gestation. It would also appear that the scar of the transverse fundal incision is especially liable to rupture and Holland found only one case of rupture of the cicatrix of the cervical incision out of a total of 1605 cases of cesarean section.

PROGRESS OF OUR KNOWLEDGE OF BOTULISM.

THE wide publicity given to a number of cases of food poisoning in various sections of the country in recent years has awakened a lively interest in botulism. That this condition is a toxic entity was shown in 1895 when it was definitely distinguished from the activities of the *B. paratyphosus* and *B. enteritidis*. The latter are infections, while botulism is a pure intoxication. Thus far botulism has been associated with preserved foods only, and not only are the number and variety of these conserves increasing steadily, but new areas of the globe are constantly showing infestation, until the menace of a world endemic looms up. It is the domestic rather than the market product which is the main source of danger. The chief industry of a locality is the one which is apt to be contaminated. Thus in Germany, where sausage foods are extensively consumed, we see sausage poisoning; in Russia, smoked fish poisoning; in California, ripe olives, apricots, and in general preserved fruits and vegetables are involved. Not much is found in medical journals of botulism in animals, but the horse is mentioned as an occasional victim and the so-called "limber neck" of birds is attributed by some investigators to the same bacillus. The hog also is known to suffer

from the disease. In some cases of animal infection spoiled canned food which has been thrown out is evidently at fault.

Marie gives in *La Presse Médicale* for April 23, 1921, xxix, 33, a summary of our present knowledge of the subject, including the latest contributions. He shows that, despite all that has been published to warn the public against the consumption of obviously tainted preserved foods there is nothing to prevent an unscrupulous person from freshening up these substances by washing, spicing, and all the usual means for disguising suspicious tastes, smells, and naked eye appearances. The public has been sufficiently warned against tasting suspected food to see if it is palatable. In the case of a ham or other large article part may be uncontaminated and the rest poisonous. The author, who is a neurologist, regards botulism as easy of recognition when the picture is fully developed. The period of incubation may be from less than one day to a week, but as a rule the symptoms appear in from 18 to 24 hours. Digestion of the poisoned food is normal. The period of gastrointestinal disturbance may in exceptional cases be absent. In addition to some local gastric symptoms like nausea and vomiting there is obstinate constipation—due to the paralytic action of the toxin—with or without meteorism. There is an intense feeling of malaise and depression. The author describes at length the ocular paralyses and mentions that recently lesions of the fundus have been noted. The association of dry mouth and throat with paralysis of the velum causes an intense dysphagia. Ingesta escape through the nose and the voice is nasal. The larynx is eventually paralyzed and the patient speechless. The locomotor system in general is badly compromised and feebleness is associated with ataxia. The cutaneous secretion is much diminished and in general the secretions tend to become abolished although the urine is much less affected in this respect than the perspiration, tears, milk, saliva, etc. Whatever the clinical picture one will find the pulse slow, fever absent, the mind clear and the skin free from exanthems. Spasmodic symptoms are never seen. Death occurs in from four to eight days and the mortality varies from 30 to 60 per cent. according to the epidemic. When recovery occurs it is slow and painful. At autopsy little is apparent to the naked eye but congestions and minute hemorrhages.

In the early stages botulism must be distinguished from other food poisonings. Infection with *B. paratyphosus* or *B. enteritidis* is chiefly apt to follow eating a different class of foods which have not been preserved as eggs, creamcakes, etc., or chopped butcher's meat. Mushroom poisoning is quite distinct and so are ptomaine poisoning and poisoning from fish roe and shellfish. The fact that there are usually several victims makes it an easy matter to locate the source and *a fortiori* the kind of poison.

Of nontoxic conditions intestinal obstruction might require to be excluded while confusion with maladies of the central nervous system and peri-

pheral nerves, including acute poliomyelitis and especially epidemic encephalitis, asthenic bulbar paralysis, polyneuritis, and even hysteria, has occurred. The throat symptoms have suggested post-diphtheritic paralysis and poisoning by the *Solanaceæ* alkaloids. The ocular disturbances have led to confusion with wood alcohol poisoning.

The author goes extensively into the bacteriology of the disease. The bacillus fortunately has not a wide distribution in nature. Attempts to find it in stable manure, soil, etc., have been largely without positive results. Independently of actual disease it has been found a few times in spoiled fruit, mouldy hay, in legumes pierced by insects, in the bodies of insects and spiders, in the excrement of hogs. It is generally known that the *Bacillus botulinus* is avirulent and may be inoculated into animals without injury to them. It simply refuses to multiply in animal tissues. It breeds in dead animal and vegetable tissues like any anaerobe. A point which the author neglects to mention is the presence or absence of an anaerobic symbiosis. It is not apparent whether the bacillus itself decomposes the food-substances or only takes advantage of the action of the ordinary bacteria of putrefaction or at times of fermentation. It is said that the presence of the odor of butyric acid in food suggests the activity of the *B. botulinus*. The same odor is present in pure cultures of the organism. As a rule in descriptions of the food which harbors the bacillus there is no mention of ordinary putrefaction.

PRURITUS ANI AND ITS TREATMENT.

PRURITUS ANI is an exceedingly troublesome affection, the cause of which is not definitely known, and its treatment is not only not curative in the majority of cases but in many instances scarcely alleviative. Its distinctive feature is itching frequently of a most intense character. It is a complaint which seems to be on the increase and is of so great importance that a meeting of the subsection of Proctology of the Section of Surgery of the Royal Society of Medicine in London on April 13 was devoted to a discussion of the subject.

Mr. J. P. Lockhart-Mummery, who opened the discussion, said it was by no means the trivial complaint that its name would imply. The thickening of the skin, the rugæ and eczema, fissures, and other abnormal conditions of the skin around the anal orifice frequently associated with pruritus ani were secondary results of scratching, and beyond the fact that they tended to accentuate the itching and interfere with treatment had no causal relationship to it. He pointed out that certain definite types of pruritus ani were to be distinguished: (1) Those due to some general condition such as glycosuria, etc.; (2) those due to some parasite such as worms, pediculi, etc.; (3) pruritus obviously secondary to some lesion of the anal region, such as fissure, prolapsed pile, etc.; (4) pruritus of old standing where no local lesion can be discovered; (5) paroxysmal pruritus. A local cause for the

itching was present in a great majority of cases, and the first essential was to make a thorough search for this cause. Where a definite cause for the pruritus was discovered it was generally one which produced moisture of the parts, more particularly of a septic character, such as fissure or fistula, a polypus of the rectum, or a prolapsed pile. In the case of itching of recent origin removal of the cause was followed by prompt and permanent relief. The difficult cases were those in which no local cause could be discovered, and more particularly the paroxysmal cases, in which it was unusual to find any local lesion. The speaker confessed himself an adherent of the theory advanced in 1912 by Dr. Dwight Murray that severe pruritus ani of old standing was due to a chronic streptococcal infection of the skin of the anal region, and pointed out that careful investigation by bacteriological methods had proved the presence of *Str. fecalis* infection in the vast majority of cases.

He did not place much reliance on general treatment, but thought local cleanliness and dryness were very important. Lotions and powders were better than ointments. Any local cause, such as fissure, ulcer, piles, hypertrophied papilla, etc., should be removed, and it was often advisable to investigate the anal region under an anesthetic. Dr. Dwight Murray had suggested the use of a vaccine, but it did not seem reasonable to him to treat a septic infection of the skin by vaccine. X-rays applied to the skin through suitable screens had cured about 20 per cent. of his bad cases. Operative treatment remained for the cases in which other measures had failed. The diseased nerve end-plates must be destroyed in order to effect a cure in old-standing cases. In 1905 Sir Charles Ball of Dublin described an operation of division of cutaneous nerves passing to the skin of the anal region and this had proved most satisfactory. During a period of fifteen years he had performed this operation a number of times with excellent results. The patient experienced a return to normal sensation within a month to six weeks, and the relief of the itching was permanent.

In the discussion following the reading of this paper, all were agreed on the absolute necessity of keeping the parts scrupulously clean and dry and not using ointment. It seems that constipation must play a prominent role in the production of pruritus ani because it encourages streptococcal infection. However, it appears more than likely that, generally speaking, the affection is only a symptom brought about or aggravated by unsuitable food, and abstinence from such food will alleviate the condition. Still there is yet much to learn concerning pruritus ani.

KALA-AZAR IN MADRID.

OF recent years not a few exotic maladies have been recognized in Spain for the first time. Some of these have been mentioned at the time in the MEDICAL RECORD. Naturally they are recognized

as a rule on the litoral, or in such other localities as favor intercourse with alien visitors. Kala-azar has been seen repeatedly on the litoral of Spain, but in 1914 a case was found in the city of Madrid in a child which had never left the city, and since then two similar cases have appeared. In the first victim, who was 14 months of age, no exposure could be traced which could in the least suggest contagion or insect propagation. This was also true of the next reported case. The third chronologically was reported originally in the *Archivos Españoles de Pediatría* for December, 1920, an abstract of the article being found in the *Revista Española de Medicina y Cirugía* for March, 1921, iv, 33. The patient was a little girl, 13 months of age, who had been under treatment for supposed angina which did not yield to time or treatment. Eventually the picture suggesting leishmaniasis evolved, although examination of the splenic pulp gave a negative result. Fever and enlarged spleen persisted, although the temperature fell under the use of urotropin given for symptoms of pyelitis. After eight months' delay the parasite was finally found in abundance in the spleen. Antimony injections were pushed until the splenic pulp became negative. The reporters, del Diestro and Barrio, believe that other Madrid cases may have been overlooked. The good results of the antimony treatment were not seen in other Spanish cases. The preparation employed, by intramuscular injection, was an organic combination, the acetyl-para-amino-phenyl-stibiato of sodium. Before resort to this the ordinary tartar emetic had been injected intravenously, but had been renounced because of technical difficulties and parental objections.

IS THERE A PLURALITY OF RABIES VIRUS?

THE possibility of more than one virus has been discussed in connection with many contagious diseases and to-day we speak not of the microorganism of pneumonia, paratyphoid fever, etc., but of groups of such organisms. Puntoni of the Antirabic Institute of Rome discusses the question of a plurality of rabies germs in the *Annali d'Igiene* for January, 1921, xxxi, 1. The author does not refer to differences caused by passage through or adaptation to different animals. He notes that we have two clinical forms of rabies, the paralytic and the violent, but dualism based on this difference does not work out in practice. All the evidence to date has been in favor of unicism. The possibility of a double or multiple virus was suggested by an accident. Since different viruses are numbered there was on hand a virus numbered 223, which had been obtained from a certain dog dead of rabies and which presented the Negri corpuscles. A rabbit inoculated according to custom with this virus died of typical paralytic rabies, after having been, as it was thought, duly immunized. This unique result naturally led to the repetition of the experiment with the brain of the dead rabbit. Two more of the animals were inoculated and were then immunized, one in the usual manner and the other with a vaccine prepared from virus 223. The second animal was successfully immunized while the first succumbed to paralytic rabies. It seemed evident, therefore, that virus 223 was biologically different

from any virus previously known to the laboratory. Further research along the same lines also made for dualism, but the author does not look on the problem as yet settled.

CURE OF GONORRHEA IN A WOMAN BY INTERCURRENT FEVER.

DOHLER reports this case in the *Wiener klinische Wochenschrift* for March 17, 1921, xxxiv, 11. The patient was 36 years old, married for two years, virgin up to the time of marriage, never pregnant, although she had had normal relations, menstruation normal; leucorrhea began soon after the nuptial night and had been treated for months without relief. Examination showed normal internal genitals save for cervicitis, gonococci in the urethra and uterus. It was at this juncture that she developed a fever, apparently from food poisoning, in which the temperature went to 104°. The general condition became much depressed. The patient had been getting protargol bougies in the vagina and urethra and the author comforted her by the statement that the fever would antagonize the gonorrhea. She was not seen from June 26 to September 7 and on the latter date was found free from gonococci. The case was followed up to the end of the year and provocative measures tested to bring back any latent discharge but the disease seemed completely cured. Owing to the severe illness of the woman the treatment of the gonorrhea had been perfunctory; the protargol bougies would hardly have been expected to cure so inveterate a case and credit for the latter must be awarded to the high temperature. From May to December she had lived apart from her husband and thus had not been exposed to reinfection.

News of the Week.

Public Health Committee of the New York Academy of Medicine.—At the meeting of this committee on Monday, May 23, Dr. Cofer, who is in charge of the Quarantine Service, appeared and explained the financial needs of the Quarantine Station. It appears that for a long time little has been done to keep up the needs of the service on Hoffman Island. The water has to be brought to the island by two special boats, there is no satisfactory sewage plant, the barracks need to be enlarged to accommodate 3,500 or more and other changes need to be made. At the lowest estimate the plans call for \$640,000, and the committee is appealing to the United States Senators to secure that amount, the House of Representatives having voted only \$500.

The subject of drug addiction was brought before the committee. It appears that there is a plan to reenact practically the now dead Whitney law into the sanitary code, thus putting New York City under the same conditions that prevailed before this law was abolished. A committee working with the chairman of the Legislative Committee of the County Medical Society, has drawn up some provisions which would possibly make it less difficult for physicians and more practical in its workings. The Public Health Committee approved the plans suggested, but questioned the wisdom of putting the administrative control of drug addiction under the sanitary code.

The committee approved of the plan that the Board of Estimate and Apportionment of this city should purchase the Mohansic property which now belongs to the State and which, by recent legislation, the State has been authorized to sell. This property is part of the land that drains into the New York City water supply and was originally acquired by the State to protest the watershed.

Funds for a Medical University in Jerusalem.—American Jewish physicians gave a dinner at the Waldorf-Astoria on the evening of May 18, at which Professor Albert Einstein and Dr. Chaim Weizmann, president of the World Zionist Organization, were guests of honor. Dr. Nathan Ratnoff, chairman of the physicians' committee, presided, and addresses were made by Dr. A. M. Hilkowich, Dr. Samuel Kopetzky, Dr. Schmaryah Levin, and others. Some eight hundred physicians were in attendance, and it was announced that they had subscribed \$250,000 toward the fund of \$1,000,000 needed to establish a medical university in Jerusalem.

Dr. Walter W. Palmer has been appointed Professor of Medicine at Columbia University and Director of the Medical Service at the Presbyterian Hospital.

Dr. Allen O. Whipple has been appointed Professor of Surgery and Director of the Surgical Service of the Combined College of Physicians and Surgeons of Columbia University and the Presbyterian Hospital.

Dr. Herbert B. Wilcox has been appointed Carpenter Professor of Diseases of Children in the College of Physicians and Surgeons, Columbia University, to succeed Dr. L. Emmett Holt, who resigned after twenty years' service.

Dr. John J. O'Connor, for the past three years resident physician at Gouverneur Hospital, was the guest at a farewell dinner given at the hospital on May 21.

Dr. Walter A. Dannreuther has been promoted from assistant professor to associate professor of gynecology at the New York Post Graduate Medical School and Hospital.

Appropriation to Fight Imported Diseases.—The New York City Department of Health has asked for a special appropriation of \$50,000 to enable it to examine immigrants and to carry on the work of rat extermination along the water front. The committee considering the matter has reported favorably to the Board of Estimate.

Plague in Tampico.—According to a dispatch from Havana, under date of May 26, thirty-eight cases of bubonic plague, with twenty-five deaths, were registered in Tampico, Mexico, and its environs in April and May.

Smallpox in Switzerland.—A near epidemic of smallpox prevails in the German end of Switzerland, the disease having been introduced by travelers crossing the border. Upwards of a hundred cases occurred in Zurich during May, only two of them having been in vaccinated persons. Compulsory vaccination of the entire population is urged in the daily press and by the medical profession.

County Medical Society Makes Recommendations Relating to Control of Narcotic Drug Addiction.—At the stated meeting of the Medical Society of the County of New York, held May 23, resolutions were introduced, affirming that by the repeal of the

Whitney Act, and the failure of Governor Miller to sign the Fearon-Smith bills (which measures had been approved by the New York County Society, but disapproved by many county societies of the State and by the State Society itself), the State of New York is now without adequate provisions of law for the commitment of drug addicts to proper custody for treatment, or for the prosecution of illicit dealers in narcotic drugs; and urging the enactment of an amendment to the Sanitary Code definitely prohibiting any practice of the ambulatory treatment of drug addiction and declaring the possession of narcotic drugs with intent to use or to sell the same for the purposes of addiction to be unlawful. The resolution also protested against any attempt to give force of law, through provisions of the Sanitary Code or otherwise, to those provisions contained in the former Whitney Act or in the regulations issued under its authority, relating to the registration of physicians and the issuance of special licenses to prescribe narcotic drugs; to the registration of addicts and the issuing of special permits for their treatment by a physician who continues to supply them with narcotic drugs for self-administration, and to the compulsory use of official narcotic prescription blanks in triplicate. On the recommendation of the Comitia Minora these resolutions were adopted.

Medical Society Elections.—THE WESTERN ELECTROTHERAPEUTIC ASSOCIATION, at its third annual meeting held in Kansas City, Mo., April 21-23, 1921, elected the following officers for the ensuing year: *President*, Curran Pope, M. D., Louisville, Ky.; *First Vice-President*, L. A. Marty, M. D., Kansas City, Mo.; *Second Vice-President*, G. M. Liston, M. D., Baldwin, Kansas; *Secretary*, Charles Wood Fasset, M. D., Kansas City, Mo., *Treasurer*, W. P. Grimes, M. D., Kansas City, Mo.; *Registrar*, W. F. Roney, M. D., Marysville, Kansas; *Board of Trustees*: C. J. Cunningham, M. D., Kansas City, Mo., and B. B. Grover, M. D., Colorado Springs. The next meeting will be held in Kansas City, April, 1922.

THE WISE COUNTY (VA.) MEDICAL SOCIETY, at its regular meeting held May 2, 1921, elected the following officers: *President*, Dr. J. A. McGuire; *Secretary and Treasurer*, Dr. C. B. Bowyer.

THE HENRY COUNTY (ILL.) MEDICAL SOCIETY, at its spring meeting held in Kewanee, May 5, 1921, elected the following officers for the ensuing year: *President*, Dr. H. L. Fisher, Kewanee; *Vice-President*, Dr. P. F. Roberts, Kewanee; *Secretary-Treasurer*, Dr. C. P. White, Kewanee.

THE MIDDLESEX (MASS.) NORTH DISTRICT MEDICAL SOCIETY at its annual meeting held in Lowell, April 27, 1921, elected the following officers for the ensuing year: *President*, Dr. Andrew J. Halpin; *Vice-President*, Dr. Thomas F. Carroll; *Secretary*, Dr. James Y. Rodger; *Treasurer*, Dr. Thomas B. Smith.

THE LITCHFIELD COUNTY (CONN.) MEDICAL SOCIETY, at its 157th annual meeting held at Canaan, April 30, 1921, elected the following officers for the ensuing year: *President*, Dr. John G. Adair, Canaan; *Vice-President*, Dr. C. N. Warner, Litchfield; *Secretary and Treasurer*, Dr. H. B. Hanchett, Torrington.

THE ARKANSAS STATE MEDICAL SOCIETY, at its

annual meeting, held in Hot Springs, May 2-5, 1921, elected the following officers for the ensuing year: *President*, Dr. C. H. Cargile, Bentonville; *First Vice-President*, Dr. Don Smith, Mount Hope; *Second Vice-President*, Dr. A. W. Elton, Newport; *Third Vice-President*, Dr. J. O. Rush, Forrest City; *Secretary*, Dr. W. R. Bathurst, Little Rock; *Treasurer*, Dr. Saxton, Little Rock.

THE SALINA COUNTY (ILL.) MEDICAL SOCIETY, at its meeting held in Harrisburg, April 25, 1921, elected the following officers for the ensuing year: *President*, Dr. A. J. Butner; *Vice-President*, Dr. L. N. Parish; *Secretary*, Dr. R. B. Nyberg.

THE NORTH CAROLINA STATE MEDICAL SOCIETY, at its annual meeting, held in Pinehurst, April 27-28, 1921, elected the following officers for the ensuing year: *President*, Dr. Hubert A. Royster, Raleigh; *First Vice-President*, Dr. W. T. Parrott, Kingston; *Secretary-Treasurer*, Dr. L. B. McBrayer, Asheville.

THE MARYLAND MEDICAL AND CHIRURGICAL FACULTY, at its twenty-third annual meeting held in Osler Hall, April 23, 1921, elected the following officers: *President*, Dr. A. H. Hawkins, Cumberland; *Vice-Presidents*, Dr. R. W. White, Ellicott City; Dr. Harry Friedenwald, Baltimore; Dr. J. S. Bowen, Mt. Washington, Baltimore; *Secretary*, Dr. J. A. Chatard, Baltimore; *Treasurer*, Dr. C. E. Brack, Baltimore; *Members of State Board of Medical Examiners*: Dr. H. T. Collenberg, Baltimore, and Dr. E. E. Wolf, Cambridge.

THE NORTH CAROLINA STATE HEALTH OFFICERS, at their annual meeting held in Pinehurst, April 26, 1921, elected the following officers for the ensuing year: *President*, Dr. L. J. Smith, Wilson; *Vice-President*, Dr. A. C. Bulla, Winston-Salem; *Secretary*, Dr. F. M. Register, Raleigh.

THE SOUTHEAST MISSOURI MEDICAL ASSOCIATION, at its meeting held in Poplar Bluff, May 6, 1921, elected the following officers for the ensuing year: *President*, Dr. T. F. Frazer, Commerce; *Vice-President*, Dr. Ross, Sikeston; *Secretary*, Dr. Love, Charleston; *Treasurer*, Dr. Gondykootz, Caladonia.

THE STATE MEDICAL ASSOCIATION OF TEXAS, at its meeting held in Dallas, May 10-12, 1921, elected the following officers for the ensuing year: *President*, Dr. Joseph Becton, Greenville; *Vice-Presidents*, Dr. C. E. Durham, Hico; Dr. William Meyers, Sequin, and Dr. S. J. Wilson, Fort Worth; *Secretary*, H. Taylor, Fort Worth.

THE NEBRASKA STATE MEDICAL ASSOCIATION, at its annual meeting, held in Lincoln, May 12, 1921, elected the following officers for the ensuing year: *President*, Dr. B. B. David, Omaha; *First Vice-President*, Dr. Porter F. Dodson, Wilber; *Second Vice-President*, Dr. P. R. Howard, North Bend; *Secretary-Treasurer (short term)*, Dr. E. R. Manning, Omaha; *Secretary-Treasurer (long term)*, Dr. R. B. Adams, Lincoln.

THE CENTRAL ILLINOIS MEDICAL ASSOCIATION, at its 45th annual meeting held in Pana, May 2, 1921, elected the following officers for the ensuing year: *President*, Dr. George Rivard, Assumption; *Vice-President*, Dr. D. M. Littlejohn, Bana; *Secretary-Treasurer*, Dr. F. A. Martin, Pana.

THE SOUTHWESTERN KENTUCKY MEDICAL SO-

CIETY, at its annual meeting held in Paducah, May 10, 1921, elected the following officers for the ensuing year: *President*, Dr. E. W. Jackson, Paducah; *Vice-President*, Dr. W. R. Moss, Clinton; *Secretary*, Dr. Vernon Blythm, Paducah; *Treasurer*, Dr. Frank Boyd, Paducah.

THE ASSOCIATED PHYSICIANS OF MONTCLAIR AND VICINITY, at its meeting held May 17, 1921, elected the following officers for the ensuing year: *President*, Dr. Martin J. Synnott, Montclair; *Vice-President*, Dr. D. Clark Thompson, Bloomfield; *Secretary*, Dr. Allan S. Kirkwood, Montclair; *Treasurer*, Dr. John H. Young, Montclair; *Historian*, Dr. Henry Wallace, Glen Ridge.

THE LOGAN COUNTY (ILL.) MEDICAL ASSOCIATION, at its annual meeting held in Lincoln, May 12, 1921, elected the following officers for the ensuing year: *President*, Dr. C. B. Caldwell; *First Vice-President*, Dr. Forrest Van Hook, Mt. Pulaski; *Second Vice-President*, Dr. J. H. Butler, Lincoln; *Secretary-Treasurer*, Dr. E. C. Gaffney.

THE ORANGE COUNTY (CAL.) MEDICAL SOCIETY, at its annual meeting held in Santa Ana, May 4, 1921, elected the following officers for the ensuing year: *President*, Dr. J. H. Lang, Fullerton; *Vice-President*, Dr. A. H. Domann, Orange; *Secretary*, Dr. W. C. Mayes, Santa Ana; *Treasurer*, Dr. D. C. Cowles, Fullerton.

THE HAMPSHIRE MEDICAL SOCIETY, at its meeting held in Northampton, Mass., May 11, 1921, elected the following officers for the ensuing year: *President*, Dr. A. J. Bonneville, Hatfield; *Vice-President*, Dr. C. E. Perry, Northampton; *Secretary and Treasurer*, Dr. E. E. Thomas.

THE HOMEOPATHIC MEDICAL SOCIETY OF THE STATE OF MICHIGAN, at its meeting held in Grand Rapids, May 12, elected the following officers for the ensuing year: *President*, Dr. F. B. McMullen, Detroit; *First Vice-President*, Dr. C. E. Beeman, Grand Rapids; *Second Vice-President*, Dr. C. B. Stouffer, Ann Arbor; *Secretary-Treasurer*, Dr. Milton A. Darling, Detroit; *Corresponding Secretary*, Dr. Scott Runnels, Ann Arbor.

THE ILLINOIS STATE HOMEOPATHIC MEDICAL SOCIETY, at its 63rd annual meeting held in Chicago, May 12, elected the following officers for the ensuing year: *President*, Dr. G. E. Dienst, Aurora; *Vice-Presidents*, Dr. C. A. Harkness, Chicago, and Dr. Hyde West, Woodstock; *Secretary*, Dr. J. H. Reece, Palatine; *Treasurer*, Dr. Rich H. Street, Chicago.

THE ELGIN (ILL.) PHYSICIANS' CLUB, at its regular meeting held May 11, 1921, elected the following officers for the ensuing year: *President*, Dr. Ralph T. Hintano; *Vice-President*, Dr. H. W. Dueringer; *Secretary and Treasurer*, Dr. Olive H. Kocker.

Obituary Notes.—DR. ENOCH AUSTIN JACKMAN, a graduate of the University of Vermont College of Medicine in 1886, died suddenly at his home in Wadsworth, Nev., on May 5 at the age of sixty-three years. He was for many years physician for the Southern Pacific railroad and at the time of his death was justice of the peace of Wadsworth township.

DR. JOHN S. WOOD of Cleveland, a graduate of the Western Reserve Medical College in 1876, died

suddenly of heart disease on May 6, at the age of sixty-eight years. He was well known as a collector of rare and first editions of books and etchings.

DR. A. M. POTTER, a graduate of the Cincinnati Medical College in 1871, died at his home in Springfield, Ohio, on May 5, at the age of seventy-one years.

DR. RUDOLPH HEYM, a graduate of the Homeopathic Medical College, Cleveland, in 1876, died at his home in Springfield, Ohio, on May 7, at the age of seventy-one years.

DR. WILLIAM G. COCHRANE, formerly of Bloomington, Ill., died in Los Angeles, Cal., on May 4, at the age of seventy-six years. He was graduated from Rush Medical College in 1869.

DR. ALDER E. SMITH of Freeport, Ill., a graduate of the Chicago Homeopathic Medical College in 1884 died on May 3, at the age of sixty-one years. He was a member of the Illinois Homeopathic Medical Society and the Illinois Tuberculosis Society. He served as a surgeon during the Spanish-American War.

DR. ROBERT BOLT DAY of Pendleton, S. C., died in a local sanitarium of a complication of diseases on May 8, at the age of forty-seven years. He was a graduate of Barnes Medical College, St. Louis in 1897, and served in the Medical Corps of the Army during the recent war.

DR. LEO J. HINES of Oaklawn, R. I., a graduate of the College of Physicians and Surgeons, Baltimore, 1905, died at his home on May 2, at the age of forty years.

DR. JOSEPH COMB MARARDA, formerly a resident of Woonsocket, R. I., died of paralysis at his home in Montreal on May 7, at the age of seventy-six years.

DR. GEORGE M. STITES of Williamstown, Pa., a graduate of the College of Physicians and Surgeons, Baltimore, in 1882, died at his home on May 1, at the age of sixty-one years.

DR. WILLIAM ALLEN BROOKS of Brookline, Mass., died of heart disease in his private hospital there on May 20, at the age of fifty-seven years. He was graduated from the Harvard Medical School in 1891.

DR. FRANK AUGUSTUS BRYANT of New York City, a graduate of Bellevue Hospital Medical College in 1895, died at the White Plains Hospital on May 17, at the age of seventy years. He was a member of the American Medical Association and the New York Academy of Medicine.

DR. N. N. JOHN NEILSON of Chicago, a graduate of the University of Illinois College of Medicine in 1903, died suddenly on May 14.

DR. EDWARD O. PORTER of Cornwall, Vt., a graduate of Castleton Medical College, Castleton, Vt., in 1859, died on May 5, at the age of eighty-six years.

DR. ELBERT JUDSON CLARK, a veteran of the Civil and Indian wars, and for many years a practitioner at Winnebago, Ill., died at the home of a relative in Cleveland on May 8, at the age of seventy-four years. He was a graduate of the Northwestern University Medical School in 1871.

DR. J. F. GRABILL of Elyria, Ill., a graduate of the Miami Medical College in 1880, died suddenly on May 12, at the age of sixty-five years.

DR. ROBERT R. JETER of Goshen Hill, S. C., a

graduate of the Medical College of South Carolina in 1889, died on May 7, at the age of fifty-four years.

Dr. D. W. RAMER of Bethlehem Church, Tenn., a graduate of the University of Nashville Medical School in 1874, died on May 12, at the age of seventy-one years.

Dr. WILLIAM H. ROBERTS of Terre Haute, Ind., a graduate of Jefferson Medical College in 1861, died on May 8, at the age of eighty-one years.

Dr. WILLIAM C. POWELL, JR., a graduate of Hahnemann Medical College, Phila., in 1911, died of typhoid fever on May 5, at his home in Bryn Mawr, Pa., at the age of thirty-six years.

Dr. PIERRE N. BERGERON of Philadelphia, Pa., died from blood poisoning, the result of pricking his finger while performing an operation on May 11, at the age of fifty-three years. He was graduated from Jefferson Medical College in 1898.

Dr. ARTHUR SCRIMEGEUR, a graduate of Long Island College Hospital in 1909, died at his home in Bridgeport, Conn., on May 11, at the age of thirty-eight years.

Dr. HARRY HARPER GREEN of Paines Hollow, Va., a graduate of the Geneva Medical College, New York, in 1859, died on May 9, at the age of eighty-three years.

Dr. REMUS G. ELLIOTT of Greenville, S. C., a graduate of the Medical College of the State of South Carolina in 1881, died on May 8, at the age of sixty-two years.

Dr. EDWARD KIRKLAND, a graduate of the Hahnemann Medical College, Phila., in 1886, died at his home in Bellows Falls, Vt., on May 2, at the age of fifty-nine years.

Correspondence.

A MESSAGE OF HOPE. NO 2.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—In your issue of May 21 there is a letter from my friend Dr. Henry C. Coe, criticizing certain few excerpts which the *New York World* saw fit to make from my letter to you published February 12. In this letter, under the title "A Message of Hope," I took exception to the use of that expression regarding the purpose and result of the work of the American Society for the Control of Cancer during the eight years of its existence. I wish that Dr. Coe had consulted my original letter instead of the meager abstract by the editor of the *New York World*, for, if he is interested in the society I should like to have had him answer the questions which I there proposed.

Some of us who for many years have been in constant contact with cancer, largely with the deplorable cases which have been submitted to surgery, x-ray, radium, etc., and who have watched the steady rise in its mortality during the years of the existence of the society, have wondered what the latter had accomplished in the way of controlling the disease, and what its members propose to do in order to effect the result longed for by all.

Dr. Coe criticizes the figures I gave from the United States Mortality Reports, and then quotes the well-known statistician, Mr. Hoffman, as saying that the mortality from cancer "had not risen since

1915, but remained steadily at 80 per 100,000. I do not know where he gets his figures from, but until better official figures are furnished we must rely on those "imperfect statistics" (Dr. Coe) given by the United States officials. I have the large quarto volumes furnished by the Census Bureau now before me, and find that in 1916 the rate was 81.8 per 100,000 population, in 1917, 81.6 per 100,000, while in 1918 it had fallen to 79.8 per 100,000. This late improvement may possibly have been partly owing to the strenuous opposition to surgery on all sides, and probably also in part due to the prevalence of more wise and rational views regarding cancer, and a more humane and successful internal treatment, now so widely accepted.

My statement, however, which statistics prove, was that "in the year 1915, which directly followed the crusade of over-zealous surgeons throughout the country propagating ideas" (regarding the local nature of the disease, and urging immediate and radical surgical removal of every blemish or lesion which one chose to call precancerous) "there was a rise in cancer mortality which was actually more than double the average rise during the preceding five years," as shown by the United States statistics; this cannot be refuted.

Dr. Coe indirectly attacks an incidental remark which I made including the word "radium." What I said in my former letter was that "a recent study of the death statistics of the Board of Health of New York City has revealed the alarming fact that during the period from July 1 to December 31, 1920, the deaths from cancer had actually exceeded those from tuberculosis by 22—2,691 to 2,669, and this in spite of radium aiding surgery." He intimates that I have "not given sufficient attention to this subject to speak *ex cathedra*," though I did not speak *ex cathedra*, but only mentioned a fact which everyone knows. In regard to radium, while I have not had very great personal experience with it, I have paid particular attention to its effects for years, in dozens or scores of patients, private and public, in whom it has been employed; in some of these there have been beneficial results, temporary at least, in others negative, and in still others decidedly harmful results. I have also followed its literature closely and written a long chapter on x-ray and radium in cancer in my new book, and have observed its application for months, at a certain hospital where it is largely and intelligently used. I agree that, with the x-ray, it forms a good adjuvant when needed in certain cases of cancer, if associated with the proper dietetic, hygienic, and medicinal treatment of the disease.

In regard to this latter Dr. Coe states that he has had no experience along this line, but questions my statement that "with minute and proper dietetic hygienic, and medicinal treatment not only early lesions be made to disappear, but metastases yield, and the cancerous habit be overcome, and the patient remain well indefinitely, provided the proper course is pursued indefinitely." This has been so abundantly shown by various cases which I have reported in full in my writings, that no further comment is necessary.

I wish that Dr. Coe, as a member of the American Society for the Control of Cancer, had answered the suggestions which I made in my former letter. The

public would like the society to state what they claim has been accomplished toward the "control of cancer," from which disease all surgeons agree that 90 per cent. of those once afflicted still die, and from which there are still about 80,000 deaths per year in the United States. Also what they are doing to help the 300,000 sufferers from cancer now existing in the United States, with at least 80,000 new cases yearly, to make up for the deaths. Furthermore, what they are doing to prevent the millions of people who fear cancer from acquiring the dire disease.

L. DUNCAN BULKLEY, M.D.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, May 13, 1921.

Lunacy in London.—Last year's lunacy returns for London show that the total number of patients, parish, criminal and private, on January 1 last, for whom the County Council had to find accommodation was 17,816 (7213 males and 10,603 females), as compared with 17,296 (7019 males and 10,277 females) on Jan. 1, 1920, an increase of 520, the largest recorded since 1905. Although there was some increase in the number of fresh cases of insanity admitted during the year, the total rise is accounted for largely by accumulation caused by low death and discharge rates. The total number of ascertained lunatics belonging to the County of London (including those in the Metropolitan Asylums Board's institutions, in workhouses, or with relatives or friends, as well as those for whom the Council was responsible) was 23,567, as compared with 22,915 on Jan. 1, 1920, an increase of 652.

Large Gift to Found a Hospital.—Sir Ernest Cassel has recently declared his intention of devoting the sum of £225,000 to the object of founding and endowing a hospital or sanatorium for the treatment of functional nervous disorders. Such disorders loosely termed nervous and which are not associated with obvious structural changes are, perhaps, largely the result of the manner of modern life and have increased very considerably during and since the war. Also, these disorders cause a good deal of suffering and sometimes result in mental and physical consequences of the gravest nature. However, as is well known, and as was proved conclusively during the war, these disorders can be treated successfully, given favorable conditions, and it was to provide such means that this institution has been founded. Sir Ernest Cassel has purchased as a home for the institution a magnificent mansion and park in ideal surroundings near London. The house, which has been reconstructed for the purpose, will accommodate about sixty patients, and it is chiefly intended for those members of the educated classes who are unable to afford the expenses of a nursing home.

Athletics for Girls.—In this country girls have been going in for athletic exercises of every kind in the most strenuous manner possible. They not only play lawn tennis vigorously, but many of them play cricket and football. Moreover, in many, perhaps in the majority, of the schools for girls, nearly as much attention is paid to physical

as to mental culture. While it is agreed on all hands that a certain amount of this sort of training is beneficial, it is argued by many who ought to know that the system is being carried to excess, and that if moderation is not exercised in this direction, the results from all points of view will be injurious if not actually disastrous. A campaign has just been inaugurated against the continuance of the present system. At a meeting in London on the evening of May 10 last a resolution was passed by an audience of head mistresses of girls' schools and of ladies who have made a study of physical culture, protesting against the existing methods of physical education for girls as something injurious to future generations, and a small committee was formed to draw up and circulate a manifesto on the subject. In a letter of sympathy with the movement from Sir James Crichton Browne it was pointed out that physical exercise and training are as necessary to girls as to boys, but these must have regard to physiological and developmental considerations. To ignore sexual differences is to court disaster in the long run. Dr. Arabella Kenealy presented the question from another point of view, stating that women who develop masculine instead of female attributes do this at the cost of the male potential, which is transmitted by the father to the daughter in trust for the male line. Athletic women produce female offspring mainly, and seldom have sons. When sons are born to them, these are apt to be puny and delicate, or generally emaculate or of inferior type. The cultured classes, who are chiefly affected by athletic training, are failing to provide sons of the fine physique and many talents and initiative which have set the Anglo-Saxon race in the van of evolution. Miss Cowdroy, the principal of a girls' high school in the vicinity of London, who moved the resolution of protest, said that the girl who had been trained to hockey, cricket, and football suffered at childbirth. Sometimes the child suffered and sometimes the mother; sometimes one of them died. Medical men had told her that difficult confinements could often be traced to strenuous sports. Eighty per cent. of the girls she had known who had been trained to become gymnastic mistresses had been incapacitated for motherhood. A girl had a large store of vital and nervous energy which she could draw upon, if normally developed, at the great crisis of motherhood. That strength was a deposit account; but if she used it as a current account, as a boy could afford to do, her children would pay the bill. She believed that the Victorian girl was a better mother than the modern athletic girl.

Although some of the above statements seem somewhat exaggerated, and while Dr. Kenealy's views are somewhat hypothetical, it doubtless is the fact that physical culture for girls is often considerably overdone. Of course, it must not be forgotten that the personal equation enters into this question largely, and that what is one girl's meat is another girl's poison. However, speaking generally, the cultivation of athleticism has become quite a fetish with the modern British girl whose parents can afford to indulge these tendencies. It is another proof of her emancipa-

tion and of her equality with man. The home-loving woman, endowed with the old-fashioned virtues, is decried, when not derided, and the ambition of the modern girl is, or so it appears, to differ in every respect from the girls of the Victorian era. It is more than possible that the present craze for athletics among women is only a phase, a revolt from former conditions; the pendulum has swung too far. What is really required is the happy medium, if that can be determined. American medical men should be able to speak with a good deal of authority regarding athletics for women, as the craze is probably as manifest in the girls' colleges in your country as in the girls' schools here.

Psychoanalysis.—At a recent talk given at St. Paul's Church, Covent Garden, Dr. W. E. Orchard, a well-known nerve specialist, criticized severely the methods of psychoanalysts of delving into the unexplored depths of the mind. He said that repression plays a part in life, and that what has been repressed should not be disturbed. He pointed out that as he passed along the street he heard a great number of filthy, unclean, and unpleasant words. He never used them himself, but they were all in his mind. If he went out of his mind, the first thing to happen might be a constant flow of filthy language from his lips. He could if he chose sit down and write as fine a collection of filthy expressions as any porter in Billingsgate. They were in the dust bin of his mind, but in his opinion the dust bin should not be disturbed. Moreover, Dr. Orchard held that the psychoanalysts had built up their theories on the study of pathological subjects. They did not study the normal, but the abnormal, and they had not always been careful enough to see that all possibility of suggestion to the patient was cut off. The remedy, he thought, was frequently worse than the disease.

Interesting Figures in Connection with the Tuberculosis Bill.—In moving the second reading of the Tuberculosis Bill, introduced recently into the House of Commons, the Earl of Onslow said that the number of deaths from tuberculosis in this country and the rate per 100,000 of the population for each year since 1915 were as follows:

Year	Deaths	Rate per 100,000
1915	54,295	151.5
1916	53,855	152.9
1917	55,931	162.4
1918	58,073	169.4
1919	46,312	125.8
1920	42,545	112.8

The fall in the rate of 56.6 per 100,000 between 1918 and 1920 was attributable partly to the cessation of the war and consequent better living conditions, and partly to the valuable work done by the councils. The increase of facilities for the treatment since 1912 was as follows:

	Number of Beds in Public Institutions	Dispensaries
1912	1,500	8
1918	6,719	37
1921	9,879	470

At the same time, the beds in voluntary institutions had increased from 2800 in 1912 to 7568 in 1921. This gave a total increase of beds from 4300 in 1912 to 17,447 in 1921. It was the fixed policy of the Government to continue this institutional treatment.

Progress of Medical Science.

British Medical and Surgical Journal.

May 19, 1921, clxxiv, 20.

1. The Essential Factors of Cancer Causation. James W. Shannon.
2. Spinal Curves in Growing Children. E. H. Bradford.
3. A Study of Leprosy in the Holy Land. Izak Alcazar.
4. Lymphatic Drainage of Ascitic Abdomen Through Parafined Veins. Richard Behan.
5. A New Tonsil Hemostat. Frederick J. McVey.

1. The Essential Factors of Cancer Causation.—James W. Shannon elaborates the theory of a casual relation between cancer and protozoal organisms in water.

2. Spinal Curves in Growing Children.—E. H. Bradford presents the claim that the surgeon can avail himself of a number of serviceable measures which enable him to meet the surgical indications of a slowly changing distortion, checking its progress and, in some cases, correcting deformity.

New York Medical Journal.

May 18, 1921, cxlii, 14.

1. Studies on the Bacteriology of the Alimentary Tract. N. Mutch and Jane Mutch.
2. Scalloped Diseases of the Blood. Oliver T. Osborne.
3. Clinic: Blood Chemistry in Modern Medicine. M. Ford Morris.
4. Bacteriology and Pathogenesis of Pneumonia. Russell L. Cecil.
5. The Willets Treatment of Joint Lesions. Harry Cohen.
6. Willets Treatment of Knee Joint Injuries. Eugene H. Mising.
7. A Study of Orthopedic Surgery from a Psychological Point of View. Henry Keller.
8. The Mobile V. Colon, Its Causes, Effects and Correction. Elizer Mosher.
9. Points of Prognostic Importance in Pneumonia. H. Apfel.
10. The Nonsurgical Methods of Treating Cancer. Henry Pancoast.
11. Report of Neuropsychiatric Work at Camp Devens, Mass. Vernon Briggs and Morgan E. Hodskins.
12. Factors Concerned in the Incidence of the Contagious Diseases. Arthur I. Blare.
13. Therapeutic Management of Arteriosclerosis and Its Relation to the Etiology of This Disease. N. Philip Norman.
14. Influenza Versus Typhoid Fever. Bernard Frantal.
15. Postgraduate Beginnings in This Country. Thomas E. Satterthwaite.
16. Classification and Segregation of Male Inmates in New York City Prisons. James A. Hamilton.

1. Studies on the Bacteriology of the Alimentary Tract.—N. Mutch and Jane Mutch record these observations, made in the wards and bacteriological laboratory of Guy's Hospital, London, which they summarize as follows: (1) Glycophyllia is a property peculiar to streptococci of alimentary origin, and is almost universal among the streptococci present in the bowel. It may therefore serve as a criterion for the differentiation of streptococci of alimentary origin from other streptococci. (2) The proportion of streptococcal strains at any point which possess extreme glycophyllia increases progressively at successive intestinal levels from mouth to anus. (3) A streptococcus can possess extreme glycophyllia and at the same time considerable infective power. Such an organism is particularly well equipped for the evolution of chronic infection of the bowel. (4) A well defined pattern of distribution of *Streptococcus longus* in the alimentary canal has been observed. (5) Extensive streptococcal infection of the small intestine may exist even when repeated cultivation of the feces fail to yield any growth of *Streptococcus longus*. (6) The presence of carbohydrate is the most potent factor in determining the dominance of glycolytic streptococci over *Bacillus coli* at any level of the intestines. Laboratory experiments with symbiotic coefficients and clinical observations are recorded in support of this statement. (7) Absolute suppression of *Bacillus coli* by glycolytic streptococci takes place when the hydron concentration is measured by $\text{Ph}=5.2$. The streptococcus itself dies if the Ph falls below 4.6. (8) *Streptococcus fecalis*, as well as glycolytic *Streptococcus longus*, can suppress *Bacillus coli* when grown in glucose broth. This property is also possessed by a small proportion of long-chained cocci from the mouth. (9) The following factors appear to control the evolution of chronic streptococcal infection of the bowel: (a) the presence in the mouth of centers for the production of glycolytic streptococci, (b) impaired digestion, (c) Loci of stagnation in the intes-

tines. (d) Diminished resistance of the tissues generally or locally.

13. Therapeutic Management of Arteriosclerosis and Its Relation to the Etiology of this Disease.—N. Philip Norman describes a method of treating arteriosclerosis which, he considers, seems to offer a prompt and more permanent relief for this disease than the current methods now in practice. It is based on the theory that arteriosclerosis is the direct result of infection. Every infection, disease, or disorder from which one may suffer, whether or not a microbic cause, can be demonstrated, leaves its imprint, so to speak, its clearities, upon the organisms. If this theory be correct, the first step is to localize and remove the foci of infection, whether these be in the teeth, the tonsils, the sinuses, the gall bladder or the intestinal tract. The technique described deals with colonic infection. It involves the determination of the type of infection to be dealt with and an attempt to determine the deformity of the colon, especially that related to the sigmoid and descending colon, by abdominal palpation and proctoscopic and sigmoidoscopic examination, and later, when irrigating by the sense of touch which one acquires by passing a colonic tube, a soft rubber tube from three-fourths to seven-eighths of an inch in diameter and forty inches in length is used. Two percolating jars are necessary for the irrigating solution and each should hold two gallons. A three-way valve in one position allows of the flow of the fluid from the percolating jars into the colon, and, when reversed, cuts off the jars and allows the fluid to syphon from the colon into the waste jar. The solutions used depend upon the stool examination. For instance, if highly acid, a sodium carbonate solution is used until the stool is rendered neutral or alkaline. From one to three gallons of solution are used every day, until the tube passes through the sigmoid, into the descending, and, if one is fortunate, into the transverse colon. It usually requires from ten to twelve consecutive daily irrigations to cleanse the colon, and when this has been accomplished one is ready to implant the colonic tract with live, uncontaminated cultures of the *Bacillus acidophilus*. This bacterium being lactic acid formers, creates an environment unfavorable for the growth of the pathogenic organisms, and it also stimulates the diseased mucous membrane to heal. The culture is kept up until a good growth is obtained. After this the *Bacillus acidophilus* is implanted about once every ten days until permanency of growth is assured. When the patient's alimentary tract has been thoroughly disinfected, and granting that the possibility of a syphilitic infection has been eliminated, it becomes logical to assume that the patient has been given every chance of staying and improving the arteriosclerotic process. The readjustment of the blood pressure level is accomplished slowly, and this readjustment is in keeping with the metabolic compensation necessary.

Journal of the American Medical Association.

May 21, 1921, LXXVI, 21.

1. Acute Rheumatic Fever and Its Variants in Childhood and Adolescence. David Riesman.
2. The Auto-Urine Test for Active Tuberculosis. Cole B. Gibson and William E. Carroll.
3. Iodine in the Cerebrospinal Fluid, with Special Reference to Iodid Therapy. Earl D. Osborne.
4. Treatment of the Subnormal and Psychopathic Child: A New Avenue of Approach. Louis A. Lurie.
5. The Dangers of the Pituitary Extract: Some Clinical and Experimental Observations. M. Pierce Rucker and Charles C. Haskell.
6. Massive Doses of Alkali in Two Cases of Impending Diabetic Coma. William E. Cary.

1. Acute Rheumatic Fever and Its Variants in Childhood and Adolescence.—David Riesman reminds one that rheumatism is not, like typhoid fever or diphtheria, a unit disease, manifesting itself in a more or less uniform manner; the "rheumatic chain," on the contrary, has a number of apparently dissimilar links, the connection of which with rheumatic fever is not always easily established. There is abundant evidence, however, that such connection exists. Among these links may be mentioned chorea, tonsillitis, rheumatic skin affections, especially rheumatic nodules, cerebral rheumatism, acute rheumatic polyarthritis, and rheumatic carditis. In childhood, the disease presents certain important peculiarities: (1) Though occurring in children of all ages—even intrauterine infection has been described—

it is most frequent between the ages of five and fifteen years, and is especially common about the period of puberty. It seems to affect girls a little more frequently than boys, which is interesting in view of the fact that in the adult the male sex greatly predominates over the female. (2) The joint involvement is often slight; indeed, so slight as to be easily overlooked. The so-called growing pains are frequently rheumatic signals. (3) Involvement of the heart is very common in children. Neither its occurrence nor its intensity bears any definite relation to the severity of the joint involvement. Trivial joint involvement may be followed by severe cardiac damage. (4) Tonsillitis, follicular tonsillitis, is a frequent pre-occurrence in the acute attack, and is a common antecedent in the patient's history. (5) Chorea is a sequel in a number of cases. (6) Skin manifestations are more common in children than in adults. (7) Cerebral rheumatism, characterized by delirium and hyperpyrexia, is rarely seen in childhood, but is a complication of the disease in adults. In making the diagnosis one should always be skeptical when only one joint is involved. In adults, this is practically never acute articular rheumatism. In children it may be; but if the pain persists and is sharply localized in one joint or in its neighborhood, the probabilities are that the condition is an osteomyelitis, a tuberculous process, or, in infants, Barlow's disease or scurvy. The early occurrence of endocarditis or pericarditis is a point in favor of the rheumatic nature of the trouble. The acute stages of polyarthritis, arthritis deformans, or infectious arthritis may resemble acute articular rheumatism. However in the former the small joints are predominantly involved, especially those that are rarely attacked by articular rheumatism, as, for example, the sternoclavicular, the temporomaxillary and the vertebral joints. The inflammation does not shift so rapidly from joint to joint, and heart complications are exceedingly rare. Gonorrheal rheumatism in its acute stages may be mistaken for acute articular rheumatism; but the history, the presence of the gonococcus in the prostatic secretion, the inefficacy of the salicylates, and the complement fixation and precipitin tests assist in the diagnosis. Endocardial involvement is quite common in gonorrheal arthritis; pericardial, while it occurs, is rare. Treatment resolves itself largely into the use of the salicylates, morphine where the pain is excruciating, local measures, water in abundance, and the diet of all febrile diseases. The use of vaccines and serums is purely empiric at present, but this does not of necessity condemn their employment. General prophylactic care in the matter of clothing and the avoidance of exposure to wet and cold, should be observed. Tonsilectomy is justifiable if the tonsils are diseased.

3. Iodine in the Cerebrospinal Fluid, with Special Reference to Iodid Therapy.—Earl D. Osborne presents the tabulated results obtained with normal spinal fluid, after the administration of potassium iodide by mouth, after administration by rectum only, and at varying intervals after an intravenous injection of 10 per cent. solution of sodium iodide. Four case histories are presented in brief. These four observations point to one or both of two possibilities: Either the meninges are more permeable to iodine compounds when there is meningitis, or tissue actively involved by syphilis takes up more iodine than normal tissue. The data presented suggest the possibility that the iodine content of the cerebrospinal fluid following iodide administration may be of diagnostic importance in the study of diseases of the central nervous system. From this study the following conclusions are drawn: (1) Iodine is present in the cerebrospinal fluid of normal individuals. (2) Iodine in increased amounts, is present in the cerebrospinal fluid following the administration of iodides by mouth, by rectum and intravenously. (3) The iodine content of the cerebrospinal fluid following administration of iodide by mouth or rectum is small compared with that following the administration intravenously. (4) The iodine content of the cerebrospinal fluid following the administration of iodide intravenously plots a definite curve, depending on the amount administered. (5) Certain observations made in the course of this study suggest the possibility that (a) neurosyphilitic tissue takes up more iodine than normal nervous tissue, and (b) the presence of a meningitis increases the permeability of the meninges to iodine compounds in the blood.

The Lancet.

April 30, 1921, cc, 18.

1. A Report Upon 25 Cases of Actinomycosis, with Especial Reference to Vaccine Therapy. A Discussion of Some Problems Connected with the Disease. Leonard Colebrook.
2. The Production of Bactericidins by Micro-Organisms. J. W. McLeod and P. Govenlock.
3. Observations on the Mobile Ascending Colon. E. R. Flint.
4. An Experimental Investigation Into the Action of Certain Electrical Treatments on the Blood, Blood Pressure, and Metabolism. W. Bain, W. Edgcombe, Shirley Kidd, and Sinclair Miller.
5. Delayed Manifestations of Syphilis, Including the Report of a Case of Luetic Duodenal Ulcer. Harold Spence.
6. Examination of Wounded Pensioners: Some Practical Suggestions. A. E. Chisholm.
7. Quality of Protein Nutrition. R. H. A. Plimmer.

2. The Production of Bactericidins by Micro-Organisms.—J. W. McLeod and P. Govenlock state that a considerable amount of evidence has been brought forward to show that in the course of reproduction many bacteria produce substances inhibitory to their own growth and to that of other bacteria. In the case of the pneumococcus we believe that we have obtained conclusive evidence that such substances are produced and that they are relatively labile bodies destroyed by heat at 80-85° C. A free supply of oxygen seems to be important for their production, and it seems possible that it is in this fact that we have the explanation of the therapeutic value of oxygen administration in pneumonia. The possible application of these findings are various. They have considerable theoretical interest, in the sense that a class of substances, perhaps of the nature of enzyme, which has not as yet been seriously investigated, is brought under examination. Further, it may be possible in taking those substances into account to elucidate some pathological and bacteriological problems till now obscure, such as the crisis in pneumonia or the predominance of certain types of bacteria in different parts of the alimentary tract. Among the likely practical applications are mentioned a better understanding of the factors dealt with in preserving stock cultures and in obtaining growths of "delicate" bacteria; also the production of media capable of promoting selective bacterial growth, e.g. it may be possible to prepare a medium capable of growing cholera and not *B. coli*, etc. Lastly it is remotely possible that such substances may have a therapeutic application, since it may be that pneumococcal product which kills staphylococci and leaves streptococci much less affected may be more lethal to the former than it is to the issues of the body.

3. Observations on the Mobile Ascending Colon.—E. R. Flint summarizes his views on this subject: The colon has a considerable degree of mobility. There is frequently a band present which prevents undue movement of the cecum across the true pelvis. The statement that a mobile proximal colon exerts a drag on the other viscera requires further evidence before it can be accepted. It is not proved that the mobility of the colon accounts for the formation of ulcers, or even for dyspeptic symptoms; the same symptoms occur when the colon is fixed. Colopexy is indicated for certain cases, and the symptoms in such cases may simulate appendicular colic. Colectomy is indicated when the cecum is obviously acting as a "cesspool" and the results of hemi-colectomy are as good as, and the risks much less than, those of complete colectomy.

Western Medical Times.

April, 1921, xl, 10.

1. Workmen's Compensation: The Surgeon's Fee and the Carrying Insurance Company. George Chaffee.
2. True Intestinal Pain (Continued). W. H. Foreman.
3. Calcipriva Stigmata in Heart Disease. John Aulde.

2. True Intestinal Pain.—W. H. Foreman concludes the discussion of this subject by a categorical summary: (1) Functional digestive disturbances rarely occur in the stomach and small bowel adequate for a distress or pain. (2) Nature limits and controls bacterial fermentation in the colon: (a) By relative complete digestion and absorption in the small bowel. (b) By continued digestion and absorption of liquid food residue in the proximal colon. (c) By solid food residue in the remainder of the colon. (3) Cathartics, enemas, rough foods, heavy oils, carbonated drinks, roughage, not only are mechanical and chemical irritants, but they produce changes

within the colon which result in bowel overtone or spasm adequate for distress or pain, and establish an intestinal toxemia by softening or liquefying the colon contents, and interfere with proper elimination. (4) The equilibrium of the viscera is maintained by the two systems of vegetative nerves, the one activating and the other inhibiting action. Symptoms appear when this equilibrium is disturbed. (5) The great mass of visceral stimuli are never adequate to reach consciousness, but are only concerned in unconscious physiologic function. (6) In visceral disease the cerebrospinal nerve centers become hyperirritable from constant amplified stimuli, so that their threshold of response is lowered, and impulses which are normally unnoticed may penetrate the nerve synapses and reach consciousness, likewise exaggerated reflexes may induce bowel tone or spasm adequate for distress or pain. (7) Psychoses and neuroses or organic disease of the nerve centers may result in altered nerve response adequate for pain. (8) The endocrine system is a very important factor in bowel tonus and true intestinal pain. (9) Bowel tone and true intestinal distress or pain are influenced by: (a) Conditions in the bowel itself or in its walls. (b) Reflexes from other structures through the vegetative nerves. (c) Hyperirritability of the cerebrospinal nerve centers due to visceral disease. (d) Psychoses and neuroses or organic disease of the nerve centers. (e) Endocrine secretions.

Indianapolis Medical Journal.

April, 1921, xlv, 4.

1. Address of Dr. Robert H. Babcock of Chicago on the Recognition and Management of the Cardiovascular Diseases. Reported by S. E. Earp, M.D.
2. Perforated Gastric Ulcer—Report of Two Fatal Cases. M. C. Sexton.
3. Personal Experience in Sclerocorneal Trephining. Frank A. Morrison.
4. Deep Furrows. Grace M. Cook.

2. Perforated Gastric Ulcer.—M. C. Sexton, in reporting two fatal cases, emphasizes the point that patients on whom operation is performed for perforated ulcer die most frequently from the following causes, in the order named: (1) shock; (2) septic peritonitis, due either to too long delay before operation or to imperfect surgery; (3) pneumonia. Early diagnosis, early surgery, scrupulous postoperative care and rigid attention to detail are the essential factors in the successful management of these cases.

Therapeutic Gazette.

April 15, 1921, xiv, 4.

1. Truths and Fallacies About Appendicitis. John B. Deaver.
2. The Drug Armamentarium of the Endoscopist. Chevalier Jackson and William H. Spencer.
3. The Diagnosis and Treatment of Conditions of the Heart Complicating Pregnancy. Edward P. Davis.

3. The Diagnosis and Treatment of Conditions of the Heart Complicating Pregnancy.—Edward P. Davis emphasizes the importance of including in the general examination of every pregnant patient, an examination of the heart and the vascular system by taking the blood pressure and observing the presence or absence of dilated veins. If the examination reveals a heart murmur, irregular and rapid heart action, rapid pulse, of variable tension, perhaps slightly raised, yet gives no reason to believe that organic disease has developed, the hygiene of pregnancy should be strictly enforced. Under ordinary circumstances, if the patient has a naturally sound constitution and her hygiene is good, such a condition is in no way serious and will gradually disappear as pregnancy advances. In considering actual lesions of the heart complicating pregnancy attention must first be drawn to those of congenital origin. One thinks at once of patulous foramen ovale, but this is not the important congenital lesion in these cases. The most important congenital lesion in these patients is that affecting the mitral orifice and producing mitral stenosis. A patient with a congenital heart lesion complicating pregnancy should follow a strict hygiene. In acquired diseases of the heart complicating pregnancy, the most important is mitral regurgitation. This often follows rheumatism in childhood or at adolescence, or perhaps repeated attacks of tonsillitis. On examina-

tion the usual signs of regurgitation are present. The presence of the murmur over this area is not of primary importance in diagnosis or prognosis, or in suggested treatment. The question is not the presence or absence of the mitral lesion, but whether compensation is present. Should compensation rapidly fail, despite hygiene and care, the indication at once arises to terminate the pregnancy. This should be done in the manner least calculated to bring strain and suffering upon the patient. If section is to be the mode of delivery, the question of sterilization must be considered. In cases of aortic and mitral stenotic disease, the question of sterilization is sometimes difficult to solve. It is impossible to state accurately in figures the mortality of heart lesions complicating pregnancy and parturition. So much depends upon so many factors present in each case. The claims of the child must not be overlooked. Disease of the thyroid gland is not to be forgotten in studying cases of the class under discussion.

Gazette des Hôpitaux.

February 22-24, 1921, xciv, 16.

Proteinic Intoxication from Cow's Milk, and Marasmus.—Gueit makes use of the term atrophisa, or failure to thrive, instead of marasmus, but with the exception of the implied fatality of the latter one term covers the other fairly well. The French pediatricians who employ Parrot's word have usually stated that atrophisa is secondary to chronic gastroenteritis—a gastroenteric cachexia. It is known that in some cases there is retention of urea—uremic atrophisa. Parrot was careful to distinguish his malady from the marasmus of congenital syphilis. Parrot, Marfan, and others have insisted that atrophisa must begin in the first three or four months of life when the digestive secretions are more or less in abeyance, and the organism is poor in defensive forces. This is a period peculiarly favorable for protein intoxication. Since 1833 we have known of the existence of enzymes in milk which are specific for the animal, and presumably alien to the blood of other species. The possibility that these could cause morbidity is greatly weakened by the fact that they are readily destroyed by heat and in sterilized or pasteurized milk they should be inert. The destruction of enzymes as well as of the antiscorbutic vitamin by heat has been one of the great objections to the use of this resource in infant feeding. The injurious protein is not enzymatic in nature, and is apparently heat-stable to a considerable extent. It is only imperfectly attacked by the digestive solutions of the infant, and also is able to make its way through the gastroenteric wall and into the circulation, where it deranges the metabolism. Incidentally it often leads to nitrogen retention, and the picture of uremic intoxication may be recognized among the symptoms. Another disturbance of metabolism is seen in the not infrequent development of acidosis. To the diminution of the alkaline reserve of the body is attributed the lowered resistance to infections of various kinds. In general the condition tends invariably to terminate in marasmus, atrophy, atrophy, wasting, atrophisa, or whatever we choose to term it. The acidosis in these cases is not really primary, but akin to the acidosis of inanition. While it does not cause uremia the inanition aggravates it. The infant cannot handle the protein of the cow's milk because it is heterologous. Not only is it in itself a proteinic poison, but there develops a pathological nitrogen retention. The condition is antagonized in nature by two factors, the child's own digestive enzymes and the enzymes of human milk in the breast-fed.

Le Progrès Médical.

February 19, 1921, xlix, 8.

Clinical Value of Echymsoses.—Brecht states that echymsoses occur in all organs, but only when visible do they have clinical importance. Concealed echymsoses, on the other hand, have value in autopsy chiefly in forensic medicine. They are readily recognized, as the color is deeper in the center and pales out toward the periphery. They show no alteration of appearance on pressure. They always suggest trauma but often appear as if spontaneously. Washing or flushing the

surface will eliminate accidental coloring in certain cases. Of other than traumatic components is increased blood pressure. If this is sufficiently high in the particular tissues echymsoses are bound to result as in asphyxia. Certain neuroses and organic nervous affections, including tabes, alcoholic neuritis, and hysteria, may be attended with their formation. The predisposing influence of blood changes is wellknown and seen in very dissimilar conditions, as hemophilia, scurvy, and sepsis. The relation between the trauma and the site of the hemorrhage may be greatly modified by the locality, notably in the face where an expert may often determine the kind of violence from the shape of the discoloration. Another element is the spread of the extravasation along the loose cellular tissue, long after the violence has been sustained. Thus an extensive echymsosis may suggest a degree of violence far greater than that which actually occurred. The peculiar change of color begins about the third day and the discoloration does not completely vanish before a fortnight. The author goes into much detail in regard to echymsoses in the various parts of the surface and the types due to special kinds of violence.

Brazil-Medico.

February 12, 1921, xxxv, 7.

Aporionerosis.—Austregesilo would substitute this term for the German *Angstneurose*, which he regards as too Freudian for the present state of our knowledge. "Aporio" in the author's term is from the Greek *aporia*, indicating doubt, anxiety, worry, embarrassment, etc. The dominant character of the condition is anguish and anxiety, expressed as pantophobia. While anxiety is a mental state anguish implies physical suffering—a sense of oppression or constriction, presumably of bulbar origin. In the author's practice the two conditions have invariably been associated in the same subject and it is very difficult to determine where one begins and the other leaves off. The condition is physiopsychic, and in addition to the thoracic localization of the principal symptoms there are added many vasomotor symptoms, vascular and secretory. The author cannot subscribe to a universal psychosexual motivation of this affection which is evidently one of his chief reasons for discarding the term *Angstneurose* as employed by Freud and his school. He prefers, in fact, to eliminate this view for the time, while not denying the operation of a sexual factor here and there. The author finds among his aporionerositics married women and men who have ample sexual freedom. Sexual gratification does not prevent crises of neurotic attacks. The Freudian idea leads to the recommendation to indulge in coitus. Naturally the author is opposed to psychoanalysis as a routine procedure, and compares it to the methods and tortures of the Spanish Inquisition.

La Presse Médicale.

March 2, 1921, xxxix, 18.

Angina and Scarlatina.—Mironesco goes into the subject of the exact relationship which subsists between the disease scarlatina and the local condition of angina. In a few cases only, as when the disease is contracted surgically, is there conclusive evidence that angina is purely a secondary manifestation and disconnected with the original lodgment of the causal virus in the tonsillar structures and vicinity. The same sequence has been seen when monkeys are inoculated with scarlatinal virus. The inoculated material came from the deposit in the throat yet could be conveyed by inoculation and in turn cause secondary angina. The latter lesion must be conceived as a sort of reservoir of infectious material which can infect the rest of the organism anew and also spread the disease to others. A perennial source of mystery is the association in an epidemic of scarlatina and simple angina. Does the latter predispose to the former? Or, is the simple angina abortive scarlatina? Attempts have been made in the direction of the serodiagnosis of these simple anginas. The author describes the case of a suspect with sore throat who was practically free from rash, but many streptococci were found in smears taken from the throat.

Book Reviews.

THE OXFORD MEDICINE. By Various Authors. Edited by HENRY A. CHRISTIAN, A.M., M.D., Hersey Professor of the Theory and Practice of Physic, Harvard University, and Sir JAMES MACKENZIE, M.D., F.R.C.P., LL.D., F.R.S., Consulting Physician to the London Hospital. In six Volumes, Vols. I, II and III. New York: Oxford University Press, 1920-1921.

DURING the late war this new system of medicine was undertaken. Owing to changes of concept of medicine, new presentations had to be made. The functional concept to a large extent had replaced the structural concept or had supplemented it. New conditions created by the war changed and modified even this. The progress of research in medicine had become so great that the loose-leaf system was adopted with a view to enabling the possessors of the system to keep up to date and remain in tune with succeeding periods. The activities of American and English men of medicine have been recognized in this work, for they have chiefly contributed to these newer methods. In the system as so far published, emphasis has been laid upon function without neglecting structure, and treatment based upon this has received adequate discussion in its application.

Vol. I is contributed to by twenty-one Americans, one English, one Canadian, and, not least, the late Sir William Osler. Dr. Christian and Sir James Mackenzie write the introductions on Present-day Medicine and the Future of Medicine, respectively, while Dr. William B. Johnston completes the Introduction with the Heritage of Modern Medicine. This volume goes on to deal with the fundamental sciences and the general topics of medicine therewith connected and each contribution bears out the central aim of the work, the emphasis on function as distinct from but allied with structure, and the treatment which belongs thereto. Dr. Albion W. Hewlett presents Pathological Physiology and its relation to Internal Medicine, an able presentation of a very wide subject, even if the title is almost a contradiction in terms. Dr. John J. Mackenzie writes on the living causes of disease and how they act, a subject which is allied to Focal Infection by Dr. Frank Billings and the Mechanism of Bodily Resistance to Disease by Dr. Frederick P. Gay. Indeed, these chapters, like others which succeed on other topics, are arranged so as to form sections—a valuable arrangement. Dr. Donald Van Slyke deals with the Chemistry of the Proteins and their relation to Disease, and no abler presentment could be made. And this chapter is followed by those linked by the subject of Biochemistry on Acidosis and the Physicochemical Equilibrium of the Organism by Dr. Lawrence J. Henderson; on Radiations and their Effects by Dr. William T. Bovie; on Calorimetric Methods of the Study of Disease by Dr. Eugene F. Du Bois; on Respiration in Disease by Dr. Francis Peabody, specially valuable in the light of more recent research; and On the part Played in Diet by Food Substances of Unknown Chemical Nature, by Dr. Elmer V. McCollum, though this latter might possibly be extended in the loose-leaf by more recent researches. Then come chapters on Climate in Relation to Health and Disease by Dr. Henry Sewall; on Aviation Medicine, by Dr. W. H. Milner and Dr. L. G. Rowntree, who later contributes the chapter on The Pharmacological Basis of Medicine. Dr. Charles B. Davenport writes on Eugenics in relation to Medicine, and Dr. William Palmer Lucas on Adolescence. The Rationale of Clinical Diagnosis receives attention from Dr. Lewellys F. Barker, who with irresistible logic emphasizes the need of the Group system, and this is followed by Tests of Function, a subject at the root of the purpose of the system, and receiving treatment from Dr. Christian, one of the editors-in-chief. Treatment of Disease then gets its share at the hand of Sir William Osler. Hydrotherapy and its place gets able attention from Dr. Guy Hinsdale, and three chapters are given to Preventive Medicine in The Prevention and Control of Acute Respiratory Infections by Dr. Joseph A. Capps; on Environment, Its Bearing upon the Maintenance of Health, by Dr. Walter B. James; and on Medical Social Service as a Factor in the Diagnosis and Treatment of Disease, by Dr. Richard C. Cabot. The whole volume is well arranged and conceived as treating the Principles of Medicine. The paper and print-

ing of the volumes are worthy of all praise, the binding is strong and good and should endure the changes which it is proposed to make each quarter-year. Altogether the outside of the volume is worthy of the firm which publishes the work and the subject and plan of the work will enhance the reputation of those who have written it.

Vol. II deals with the Thorax and its diseases; first the Lungs, Pleura and Mediastinum; then the Pericardium, Heart and Blood-vessels, concluding with five chapters on Blood Formation and Destruction, together with the essential blood diseases. Here are twenty chapters divided among twelve American and seven English authors. Dr. Charles F. Hoover writes on Disease of the Bronchi and Respiratory Excursion of the Thorax. Dr. Louis Hamman gives the introduction and general view of Diseases of the Lungs, Lobar Pneumonia and Tuberculosis being reserved for full account in a later volume. Disease of the Pleura and of the Mediastinum are by Dr. Joseph A. Capps and Dr. James Mclester, respectively, while Dr. I. Chandler Walker contributes chapters on Bronchial Asthma and Hay Fever, bringing the subject up to date in regard to sensitization and the relation of anaphylaxis. Diseases of the Pericardium are sagely dealt with by Sir T. Clifford Allbutt. Dr. Ivy Mackenzie writes a full account of The Circulation in Infectious and Toxic Processes, including Acute Endocarditis, and Sir James Mackenzie covers fully, and with common sense, the subject of Chronic Diseases of the Heart; and also, in association with Dr. Girdwood, describes the Diseases of the Arteries, and Aneurysm of the Aorta. Irregular Action of the Heart receives full attention from Dr. John Hay, and Dr. John Thomson covers the ground of Congenital Malformation of the Heart and Large Vessels. Dr. Cecil K. Drinker fully covers the long subject of the pathological Physiology of Blood-cell Formation and Blood-cell Destruction, dealing carefully with the certainties and avoiding the disputed points of research. Dr. George R. Minot enters on the Clinical Discussion of the Anemias, after which Leukemia receives attention from Drs. Thomas Ordway and Whittington Gorham; Polycythemia is discussed by Dr. Reginald Fitz, Hemophilia by Dr. Jay McLean, and Purpura and Allied Conditions receive full attention from Dr. Christian. All the subjects are fully dealt with and the entire volume of 817 pages maintains the character of the issuing publishers, the purpose of the System, and the reputations for careful accuracy of the various authors.

Vol. III covers the Diseases of the Gastrointestinal Tract, Nephritis, and Disturbances Affecting the Supra-nal, Pituitary, Thyroid, and Parathyroid Glands. Dr. Frothingham describes most excellently the Diseases of the Esophagus, Dr. Rehfuess covers all the Diseases of the Stomach with the exception of Ulcer, which is left to Dr. Sippy. In the latter article Roentgenograms and their interpretations are dealt with, although Dr. Rehfuess gives the laboratory findings but does not reproduce the pictures, and a little addition of such pictures would have helped Dr. Frothingham's article. Dr. Stockton in his article on Diseases of the Intestine covers this point and the whole subject thoroughly. Sir Humphry Rolleston gives a well-written analysis of the Diseases of the Liver, Gall-Bladder, and Bile Ducts, and Dr. Joseph A. Pratt deals with the difficult subject of Diseases of the Pancreas. Diseases of the Peritoneum are discussed by Drs. Pincoffs and Boggs, with the recognition that there is no medical treatment for such diseases. One of the chief editors, Dr. Christian, deals carefully and excellently with the subject of Nephritis, giving valuable suggestions for treatment, especially in the illustrative diets. War Nephritis receives attention from Sir John Rose Bradford, and Diseases of the Adrenals and Pituitary is covered by Drs. Riesman and Horrax, valuable contributions to this field of medical science. Dr. Plummer's article has yet to be added. The volume maintains the character of its predecessors.

It is too soon to judge of the convenience of the loose-leaf system in a medical work. If the alterations are made promptly and frequently they will probably be appreciated by those who have no other means of keeping up with the progress of medicine. How it will work out in respect to the Index remains to be seen.

Society Reports.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

One Hundred and Fifteenth Annual Meeting, Held in Brooklyn, May 3, 4, and 5, 1921.

SECTION ON MEDICINE.

(Concluded from page 939.)

Nature of Hypertension.—Dr. HENRY A. CHRISTIAN of Boston presented this communication. He stated that two types of change in blood pressure were recognized, one a transitory rise of relatively little clinical significance, and the other, a persistent high blood pressure which was the one generally understood when they spoke of hypertension or hyperpiesis. In connection with persistent hypertension we must recognize first that there was a very considerable variation in blood pressure in individuals with hypertension. On the whole the individual with high blood pressure was rather more unstable than the individual with a normal blood pressure. If one had a quiet patient and introduced a disagreeable or worrying topic the blood pressure rose abruptly and then fell to its preceding level. He emphasized that point because it served as a warning of the clinical methods of managing these cases. If one realized that the blood pressure was unstable he would not be surprised when it rose or unduly elated when under his methods of treatment there was a fall in blood pressure. The chief factors in increasing blood pressure were as follows: (1) Anything that decreased the peripheral stream or contracted the vessels raised the blood pressure. (2) Any increased output of blood, other factors being equal, raised the blood pressure. (3) Anything that increased the total volume of blood increased the blood pressure. (4) Anything that increased the viscosity increased the blood pressure. Most observers regarded the first as the chief factor in causing hypertension. A small group of observers thought an important factor in increasing blood pressure was increase of the total volume of blood. The cardiac output in its variations was a considerable factor but few had regarded it as a very important cause of hypertension. Increase in viscosity as a cause of high blood pressure had had many adherents but at the present time the majority of observers did not regard increased viscosity as a very prominent factor in increasing hypertension. Thus two of the four chief causes of hypertension were eliminated. Everyone would agree that anything that increased the volume of cardiac output, the size of the peripheral stream remaining the same, the blood pressure would necessarily rise. Then the important thing to consider was what evidence we had that the total volume of blood was increased in patients in whom the blood pressure was above normal. The first evidence lay in the fact that if one fed excessive amounts of fluid the blood pressure rose, and rose particularly in those patients whose blood pressure was above normal. Further evidence lay in observations made on that particular type of acute nephritis common under war conditions, in which the lesion developed rapidly but the patient had little or no edema, the blood pressure rose, and with the rise in blood pressure there was evidence of increased bulk. This increase was due to the fluid rather than the solid constituents of the blood. It was also observed that the subcutaneous tissues took on a tense feeling as though they should be edematous but they did not pit on pressure. When this lesion cleared up the blood pressure and blood volume came to normal. In contrast to this, in chronic types of nephritis the majority of observers had failed to find increase in blood volume in chronic and persistent types of high blood pressure, but rather a decrease in the bulk of the blood. However, methods of measuring blood volume were unsatisfactory and must be accepted with caution. Dr. Christian then discussed the evidence brought forward to show that the increase of blood volume lay in the sodium chloride content of the blood. He reported observations made by Dr. O'Hare on 50 cases of hypertension, one-half of which had more than the normal amount of sodium chloride in the blood and one-

half had less than the normal amount. The results showed that the amount of sodium chloride in the blood did not furnish an explanation of the increase in blood pressure. On the other hand he would not say that sodium chloride had nothing to do with it. Discussing the evidence furnished by therapeutic results of a marked decrease in sodium chloride intake, he said that Dr. O'Hare had come to the conclusion that the blood pressure did not come down much better with decreased sodium chloride intake than with some other forms of treatment, and furthermore, when the blood pressure did come down it had a habit of going up again when the patient was out of the hospital and back in a busy life. The popular belief was that the main factor in increased blood pressure lay in something that decreased the size of the peripheral blood stream by decreasing the caliber of the vessels. This might be caused by vasomotor contraction or vasomotor spasm or it might be brought about by reason of lesions decreasing the lumen of the vessels. The same changes in blood pressure might be brought about in both ways. Lesion in the blood vessels need not necessarily decrease the caliber of the vessels but might affect them so that they did not respond to vasomotor stimuli, and might derange compensatory contraction and dilatation, and thus favor the production of hypertension. Changes in the vessel walls affected more particularly the smaller vessels, arterioles, capillaries, venules. However, arteriosclerosis was not a cause of hypertension nor could it prevent hypertension, but hypertension could cause arteriosclerosis. As to the relation of nephritis to high blood pressure, an organic lesion might interfere with dilatation of the peripheral vessels and bring its force to bear in that way without decreasing the lumen of the vessels. Observations were in agreement with the idea that vasomotor spasm kept up continuously might produce eventually organic lesion. If one accepted that theory one could explain a large number of cases of hypertension. On this theory or a combination of these two factors one could explain why the blood pressure was practically always above normal, and, in addition, why it rose and fell abruptly. He thought all were agreed that the kidney could bring about this change, through its failure to eliminate toxic substances, but it was also quite generally agreed that other factors besides renal lesions might have this effect. Possibly, the internal secretions, but he was rather skeptical on this point as nothing had been definitely proven. He would warn the endocrinologist against explaining high blood pressure by an endocrine disturbance. Infection probably played a considerable part in producing these vascular changes. Possibly sodium chloride did also, but because of its irritating effect on the vessel walls rather than because it drew fluid into the blood stream. Nervous strain must be accepted as another important factor. In concluding, Dr. Christian said that hypertension had other causes than renal insufficiency. Its presence did not make the diagnosis of chronic or acute nephritis; its causes were probably not one but many. The mechanism was probably not the same in each case, but with certain variations lay in changes in the peripheral blood stream. It might be said that increased blood pressure was due to disturbances in the peripheral cardiovascular system in much the same way that we said that fever was an indication of infection, and by the same token hypertension was just as little a disease as was fever. If one assumed that the causes of hypertension were multiple there would be no single way of treating every case, but there would be a variety of therapeutic measures which, if applied to individual cases on a correct basis, would give satisfactory therapeutic results.

Symptoms of Hypertension.—Dr. ALFRED STENGEL of Philadelphia made this contribution, in which he said he took his stand with Dr. Christian in regarding hypertension as a symptom and a symptom commonly due to renal disease. There was also hypertension without renal disease, so-called essential hypertension. There were other cases due to intracranial difficulties, organic or functional, and possibly some associated with disease elsewhere, such as arteriosclerosis, not yet recognized. Dr. Stengel stated that he was not dogmatic in any statement he made in regard to the symptomatology, still there was a certain number of

cases of hypertension that failed to show renal inadequacy. In some cases one could also exclude other organic diseases, and by studying the early symptomatology could arrive at some notion of essential hypertension. These cases were enormously more common in women than in men, and in them the first symptom was fatigability. These patients complained of excessive exhaustion at the end of the day, it being no trifling symptom, but impelling in its seriousness. This was perhaps in essence a nervous symptom. It did not seem to be cardiac fatigue or reflex cardiac fatigue. Many such cases were probably called neurasthenic, in which there was an unrecognized hypertension. There were other nervous symptoms not so important, such as neuralgia of the occiput and upper spine, and extremely severe headaches. Patients complaining of a feeling of pressure behind the eyes, or of tinnitus aurium, also frequently showed hypertension. This was commonly present where there was arteriosclerosis. There might be severe nervous symptoms as temporary aphasia, unconsciousness, apoplecticiform seizures, followed by temporary paralytic symptoms. It was, however, extremely difficult to say that certain cases of apoplecticiform seizures were due to hypertension and not to an actual lesion in the brain. But these attacks of unconsciousness, followed by a little aphasia, temporary loss of power, corrected in a few hours, and disappearing completely, were exactly the same as attacks of ophthalmoplegia in migraine. There was only one explanation for these occurrences and that was some vasomotor disturbance resulting from hypertension, possibly vascular spasm, but when these symptoms persisted it was risky to say that they were due to arterial spasm, though it was possible that in some cases arterial spasm might be attended with convulsive attacks. Dr. Stengel said he had emphasized these nervous symptoms because patients would often have hypertension for a long time without symptoms, and when they began to have symptoms they rarely began with cardiovascular symptoms first, but with symptoms referable to the nervous system. When cardiovascular symptoms manifested themselves they were sometimes in the form of throbbing of the small vessels, but more frequently were referable to the heart or large blood vessels. Some patients suffered from cardiac depression and substernal pain with aortitis. Such symptoms were in part due to hypertension, but no doubt also to actual lesion in the aorta. Vasomotor symptoms undoubtedly occurred early in some cases of hypertension, such as spasm of the small vessels, very largely displayed in the splanchnic circulation. Patients with hypertension showed a remarkable tendency to flushing and pallor, an exaggeration of what one saw in women at the climacteric. Many cases of hypertension might be recognized with the finger on the pulse. One might have fatigue from many causes, or nervous disturbances from many causes, but the accentuation of the second aortic sound and widening of the arch of the aorta rarely occurred unless there was actual aortitis. However, accentuation of the second aortic sound was not always marked. It was only by taking the blood pressure, even if one thought it was low, that definite evidence of hypertension was established. In the early stage of hypertension, before one had a right to assume that there was any renal disease, one did sometimes find a polyuria that could not be explained on the ground of inability of the kidney to concentrate. Hypertension without renal disease differed from hypertension with renal disease. There were a large number of cases of hypertension which would show an enormous pulse pressure, compared with the renal disease, and similarly the blood pressure might be low in comparison with the degree of kidney involvement, but the difference in the systolic and diastolic pressures was much greater in hypertension without renal disease than in hypertension with renal disease. Another point that must be taken into consideration was the dynamics of the heart. Finally one must be very cautious in attempting to attribute to essential hypertension conditions which might be due to renal disease. The existence of hypertension was very easily overlooked if one depended upon physical signs. One should regard especially the aortic second sound and take the blood pressure. A large number of cases of

supposed cerebral disease were probably not due to that condition, but to disturbances of the circulation. Another point in this connection was that authorities called attention to two kinds of uremic convulsions, one of short duration and not accompanied by stupor or somnolence, and a severe type with stupor and somnolence; he entertained the suspicion that the minor cases were not uremic convulsions, but disturbances of the circulation due to hypertension, and were comparable to cases of convulsions due to arteriosclerosis or to hypertension itself.

Treatment of Hypertension.—Dr. W. D. ALSEVER of Syracuse read this paper, in which he stated that there could be no established treatment of hypertension, for it was neither a disease of itself nor a sign of a single malady. Many people believed hypertension was a disease and expected direct action against it. Blood pressure readings should not be told to patients. Actually hypertension was a desirable compensatory factor in a vicious circle, and the cause being controlled, the pressure should not be disturbed except in real emergencies. Transient hypertension was often of little consequence, was evidence of nervous instability, and in itself called for no treatment. Mild hypertension lasting a few days and relieved by rest or elimination was of great importance. It suggested the early and perhaps curable stage of some disturbance which, if allowed to continue, might cause persistent hypertension and lead ultimately to death. All hypertension called for searching investigation into the underlying cause. Routine yearly examination of people over forty had great prophylactic value. The part of complete examination most neglected in modern practice was history taking. The taking of the history by the doctor himself was an important part of the treatment of hypertension. The family history must be carefully studied. The functioning of every system in the body must be carefully inquired into. One must obtain an intimate knowledge of the patient's pleasures and troubles, his habits and tendencies, even to knowing what, how much, and how he ate, how much he slept, and when and how much he played. All sources of metabolic errors must be controlled. These were perhaps the most difficult to treat of all the causes of hypertension. Under this head came regulation of food and drink, of the motility of the intestines, evacuation of the bowels, and the amount and quality of the urine. Emphasis was laid on the proper mastication of food and making of meal time a period of mental recreation and physical rest. The quantity of food taken was more important than the kind. With hypertension, 25 or 30 calories per kilogram of body weight was often sufficient. It was desirable that the patient be kept at from five to twenty pounds below his optimum weight in health, but inanition must be avoided. Any excess of flesh was to be controlled through restriction of food or through occasional purging and fasting. Two compound cathartic pills at night and the omission of the next three meals would frequently be followed by a fall in blood pressure, a noticeable relief of associated symptoms, and a loss in weight. Protein should be limited to the necessary amount for good nutrition of the cells of the body; one gram per kilo of body weight was usually the desirable amount. Part of the protein might be and probably should be in the form of meat. The color of the meat was of no practical importance, excepting that red meat was desirable if the patient was anemic. It was wise to eliminate extractives, as meat broths and **gravy**, condiments, and all glandular foods, as they put an unnecessary burden on the kidneys. Foods difficult of digestion should be restricted. A sample menu was presented which furnished approximately 70 grams of protein and 2000 calories. It was made elastic, for the object was to develop the habit of eating moderately of well-balanced wholesome menus. Sufficient water should be available for the various chemical processes, and for the solution of food and waste products, which must be transported from place to place. Unless the kidneys were defective enough water should be taken to keep the quantity of urine above 1500 cc. and the specific gravity below 1020. The patient's days should be regulated so that he led an uneventful life. Each day there should be at least eight hours sleep, induced if

necessary. That hypertension patients should be told once how to regulate their lives was not sufficient; the doctor must frequently review in detail the patient's daily routine. When, after thorough treatment it became evident that hypertension was permanent, the therapeutic problem became one of maintaining compensation and avoiding complications. All the treatment suggested for transient hypertension applied with added force, and some additional measures were indicated. Lower caloric values of diet for short periods might be useful, as more frequent and prolonged periods of starvation or the milk diet of Karell, accompanied by rest in bed, and limitation of protein below 1 gram per kilogram of body weight, or even total abstinence from protein, might be tried when there was nitrogen retention. The quantity of salt should never be excessive, perhaps not more than 2 grams per day, but its limitation must depend upon the kidneys' ability to secrete it. A safe, practical rule was to give no more water by mouth than was excreted as urine and fluid stool. If sufficient water was not taken by mouth, rectal injections or Murphy drips of saline, soda, or glucose solution would supply water to the body and also wash the lower bowel. Continued watery catharsis was of doubtful value. Occasional bouts of diuresis were of value if the kidneys were still competent. The withdrawal by needle of 300 to 500 c.c. of venous blood was usually salutary and harmless. In general, exercise was to be continued in sufficient amount to maintain muscle tone, but should not be carried to the point of exhaustion. Mental overwork was more to be dreaded than physical fatigue. Psychotherapy should not be neglected. Water, air and light baths, and massage treatments were valuable if they soothed the nervous system and favored elimination. Extreme degrees of temperature and prostrating treatment should be avoided. Wool should be worn next the skin when the patient was exposed to the abrupt changes of the temperate zone. Iodide of potassium given because of its supposed ability to aid in the elimination of abnormal substances or to diminish the viscosity of the blood had but slight effect; aconite, usually the tincture, 5 minims or more, every four hours, was the best drug for maintaining blood pressure at a lowered level. However, its use was rarely justified except in emergency. The nitrites caused a temporary lowering of the blood pressure, and served to emphasize the fundamental therapeutic principle that drugs must be repeated before the end of their physiological action if sustained effect was to be produced. Nerve sedatives should be given steadily. The high frequency or d'Arsenval current would diminish hypertension, and was useful in emergencies, but it should not be used as a substitute for regulation of the patient's life. Radium was also said to lower blood pressure. As yet there was no reason to believe that functional disturbances of the endocrine system depended on causes other than those already suggested as influencing arterial pressure, consequently one should regulate the underlying causes of disturbed metabolism rather than attempt to dominate the mechanism through which the cause made itself evident. In the prevention of hypertension moderation in all things should be the guide.

Dr. ELI MOSCOWITZ of New York limited himself to the discussion of Dr. Christian's paper. He said that for years he had been trying to correlate the symptoms of hypertension with the pathological findings. Some years ago he had come to the conclusion that hypertension was not explainable by anatomical data alone, in other words that arteriosclerosis and nephritis alone could not explain hypertension, since the degree of hypertension bore no definite relation to the degree of arteriosclerosis or of nephritic involvement. It was only by clinical observations that he was enabled to find an explanation of the problem. If instead of starting with anatomy one started with function one could arrive at a more satisfactory explanation. All evidence seemed to show that hypertension was the actual cause of arteriosclerosis. If one accepted that thesis as valid, how was he going to explain the kidney lesion? He thought it could be explained on the identical ground. We must regard the kidney disease not as a disease of the organ but as a focal manifestation of a general arteriosclerosis.

It was a vascular lesion in the glomeruli. This conception implied the recognition that arteriosclerosis should not be conceived of as a disease of the larger vessels, but of the small vessels and the capillaries. If one said the kidney lesion was a local manifestation of a general condition, why were not the capillaries of other organs affected? The answer was that they were, but it was difficult to show it. Weiss, however, in 1916, devised a method by which the capillaries in the finger could be observed under the microscope. By this method the remarkable fact was shown that the changes in the capillaries were different in different diseases. In nephritis and arteriosclerosis there was a narrowing of the capillaries. Here was the missing link to show that nephritis and arteriosclerosis were due to one and the same cause, which was hypertension. What was the cause of hypertension he did not know, that was so far as the physical and mechanical causes were concerned, but he suspected they were of nervous origin, due to the stress and strain of life, the ambition to succeed, and forgetting how to play. In the treatment of hypertension the essential point was the reduction of the patient's weight. The tables for weights and heights were all wrong; they were too high. Psychology also had an important function; these patients must be taught the value of play.

Dr. ERNST BOAS of New York discussed recent experimental work showing the importance of the capillaries in producing hypertension and general circulatory disorders, referring to observations made on the capillaries by means of Hooker's microcapillary chronometer. These observations had shown that the capillaries were susceptible to vasomotor influences and nervous stimuli and reacted to mechanical reagents. It was reasonable to believe that such influences prolonged would produce anatomical lesions. It had been shown that histamine injections produced capillary paralysis. This and other experimental work indicated that in the future hypertension and other circulatory disorders would be investigated by a study of the capillaries. Another point of importance was the recognition of the variability of blood pressure, both in the normal individual and in the individual with hypertension. This would save the physician from attributing a change in the blood pressure to therapeutic procedures without very definite evidence as to the effect of such procedures. Owing to the great variations in systolic pressure the relation of the systolic to the diastolic pressure as indicated by the pulse pressure gave more reliable information. If a patient came with nephritis and hypertension, with a decrease in pulse pressure, and a gallop rhythm heard at the apex, it signified impending myocardial failure, and it was here that digitalis was of the greatest value.

Dr. FENTON B. TURCK called attention to work he had done far back as 1893, showing that vascular changes were due to cellular autolysis. He had been successful in producing a serum which stimulated antibodies in the body of the patient against the products of tissue autolysis. This serum injected over a period of months would produce regeneration in the kidney and a lowering of the hypertension.

Dr. LOUIS FAUGERES BISHOP emphasized the point that arteriosclerosis was not a primary disease and said this was something he had been teaching for many years. He wished to emphasize it because it was a matter of much clinical importance. He also emphasized the fact that hypertension was a purposeful thing. It was a matter of adjustment. He believed hypertension was always compensatory, though we might not always be able to explain the mechanism. He did not think it was a matter of blood volume because the circulation was able to hold two or three times as much as it was ever called upon to hold. The idea of a mechanical cause of high blood pressure was to his mind absurd; it was a nervous reaction. It was a foolish thing to reduce the blood pressure as such, and he did not think the physician of today attempted to do that. His idea of treating high blood pressure might be said to be condensed to the use of castor oil, a low diet, and outdoor exercise; the removal of worry did a great deal. The excessive use of saline purgatives was to be decried, because it caused secondary anemia and interfered with normal

intraabdominal pressure; for that reason he used castor oil and some alternative vegetable laxative.

Dr. WARD CRAMPTON of New York City said it was refreshing to hear that blood pressure was a symptom and not a disease; it was his opinion that progress would be made by working with that conception. He had come to regard cardio-renal symptoms, arterial symptoms, and blood pressure symptoms as a group of things that cropped up singly or two or three at a time, and if one investigated these things he would find they all came from the same general state; they were all caused by anti-regimental things, too much work, too much worry, or too much of anything. He had found very pronounced cases of arteritis and whipcord arteries in young people, having seen this condition in a boy of ten years and in another of eighteen years. He had found arteriosclerosis on the right side and not on the left side. There was often a great difference in the blood pressure when the patient was standing and lying down. No examination should be considered complete unless the blood pressure was taken in both the standing and the recumbent positions.

Dr. SELLIAN NEUHOF of New York expressed the opinion that, unless there was definite evidence to the contrary, there might be such a thing as functional hypertension, because in the course of his practice he had followed for a very considerable period of time patients in whom there was no clinical evidence of disturbance of the cardiovascular system or other organs, and no change in the eye-grounds or cerebral arteries. He also spoke of a small group of middle-aged, rather obese people, who had high blood pressure, which he called cases of cardi-spasm; in these a simple regulation of the diet and atropine served to bring the blood pressure down, and it remained normal unless a new dietetic insult was added. The only way in which to pick out the cases of simple hypertension was by exclusion, by laboratory tests, by the x-ray, and by taking a careful history, and that applied not only to cardiovascular disease, but to every other disease.

Thursday, May 5—Third Day.

Intermittent Spasm of the Renal Artery, With Report of Two Cases.—Dr. MEYER A. RABINOWITZ of Brooklyn read this paper and presented two patients. He stated that angiospasm might be caused by arteriosclerosis, and that the reverse was also true. He called attention to the fact that intermittent spasm of the small blood vessels of the eye might cause temporary blindness, and explained the way in which spasm of the small arteries affected different viscera. Spasm of the renal artery might cause very severe renal disturbance during life, and yet no pathology be shown at postmortem. The first patient presented was an elderly woman who had had incomplete anuria for three days and complete anuria for four days. She had had occasional abdominal cramps, but practically no symptoms. She was not a hysterical woman. Her eye-grounds showed slight arteriosclerotic changes; her heart was slightly enlarged; the aortic second sound was not accentuated. The diagnosis was bilateral spasm of the renal arteries. The blood pressure was systolic 215, diastolic 104. Under treatment the blood pressure dropped to systolic 175, but later rose again. She had three or four similar attacks of anuria, and learned that by taking nitroglycerine the capillaries would relax and the attack be relieved. The second patient was an elderly man who, five years ago, was seized with sudden blindness which lasted for about an hour and then disappeared. The eye-grounds were perfectly normal. The systolic blood pressure was 130, diastolic 88. He complained of precordial pain and lumbar pain. He had marked arteriosclerosis affecting many blood vessels. He gave a history of arterial spasm affecting many parts of the body. He had had attacks of partial anuria and his case was diagnosed as one of unilateral spasm of the renal artery.

Dr. LOUIS FAUGERES BISHOP said this paper should not pass without discussion. It was certain that spasm of the renal artery did happen under a good many different circumstances. He stated that he had seen a case recently due to digitalis poisoning. Someone in trying to slow a rapid pulse, in which there

was no specific irregularity, had given much more digitalis than was wise. The patient had developed edema of the lower extremities and other evidences of digitalis poisoning. He had not passed much urine in several days. The digitalis was stopped and the vasomotors dilated. The man then passed about 200 ounces of urine in an hour. Evidently a spasm of the renal artery had been produced by digitalis. The reader of the paper had spoken of congestion as a cause of anuria; he was prone to attribute anuria to congestion rather than to anemia.

Points of Contact Between Some Surgical Conditions and Cardiac Disorders.—Dr. SAMUEL A. LEVINE of Boston, Mass., presented this communication in which he discussed some conditions having certain surgical features concerning them, but in which a disturbance in the heart was playing a significant rôle. He described several cases which he had seen in which the clinical picture pointed very definitely to an acute surgical abdomen. The history in these cases was sudden, severe pain in the upper abdomen, associated with nausea, vomiting and collapse. When seen these patients had marked pain in the epigastrium, between the naval and the right costal margin, and also in the gallbladder region. There was spasm, and rigidity of the abdominal muscles in this area, and it was suspected that a tumor mass could be felt in the right costal margin, which might have been gallbladder or liver. The temperature in these patients was about 102° and the leucocyte count over 20,000. The rest of the examination was essentially negative, except that the heart sounds, though regular, and only slightly rapid, were quite distant. This point was particularly striking, because the intensity of the first sound at the apex was diminished more than the second. The systolic blood pressure was low. These cases suggested that it was not at all unlikely that some of the patients operated upon for gallbladder disease or gastric ulcer, in which the surgeon found no abnormalities, might be explained on this basis. It was important to bear in mind the possibility of coronary thrombosis with cardiac infarction in patients presenting the picture of acute upper abdominal disturbance when it occurred in patients over forty years of age. An entirely different type of cardiac patient which might present a perplexing problem to the surgeon was that in which there was auricular fibrillation or delirium cordis. As an illustration of this type of cases Dr. Levine cited the case of a middle-aged woman who entered the hospital with acute pain in the gallbladder region of sudden onset; also abdominal pain, nausea, vomiting, jaundice, slight fever, marked tenderness in the gallbladder region and yellow sclera. She was operated upon for gallstones and none found. She had a similar attack two years later. The first attack probably resulted when her heart, which had previously been well compensated, developed the new rhythm of auricular fibrillation with the accompanying rapid ventricular rate. She recovered from the first attack, while with the second attack the auricular fibrillation became permanent. Mention was made of instances in which the presenting symptoms were those of acute appendicitis, but which subsequently proved to be pericarditis. This was probably a rare occurrence. Of possible help in the diagnosis of such cases would be careful auscultation of the heart, listening to the heart with the patient in different positions, and with the patient's chest inclining forward. An entirely different set of circumstances might lead the surgeon to call for advice, namely, if the heart had some queer upset during or following operation. These disturbances were generally included in the term paroxysmal tachycardia and might take on the form of auricular tachycardia, auricular flutter, or auricular fibrillation. The writer cited three cases of the first type in which the attack was immediately arrested by vagal stimulation. Two patients during the early stage of convalescence after operation had attacks of paroxysmal auricular flutter and five had paroxysmal auricular fibrillation. All the patients in these two groups responded well to digitalis therapy. Possibly with a closer cooperation between the surgeon and the internist the incidence of these upsets would be found greater than was generally thought. The surgeon often asked whether a

cardiac patient could stand operation. Most cardiac patients stood operation very well. There was no available study to show which type of cardiac patient was apt to do poorly. For the present it was probably safe to say that patients with evidence of conduction difficulty in the heart might be subject to sudden calamity during anesthesia, and that all other cardiacs not markedly decompensated would do satisfactorily. A much more important decision for the clinician to make was not whether the patient suffering from cardiac disease could stand operation, but whether the operation was indicated. The possibilities of error in diagnosis brought out in the paper must be borne in mind and the ultimate prognosis of the patient from the cardiac point of view should influence the decision.

Diagnosis of Myocardial Disease.—Dr. HAROLD E. B. PARDEE of New York made this presentation, which was illustrated by lantern slides. He stated that the difficulty encountered in attempting to make a diagnosis of myocardial disease and the frequency with which this diagnosis was made upon a wholly improper and insufficient foundation had led him to attempt an analysis of their methods of making a diagnosis of myocarditis so as to suggest, if possible, how it could be made more surely. To show how very wrong even the best practice might be he quoted the figures of Dr. Richard Cabot from the Massachusetts General Hospital where, of 59 cases that came to autopsy, 22 per cent. were diagnosed during life to have chronic myocardial disease, and were found to have it at autopsy; 52 per cent. were diagnosed to have it, but autopsy showed that it was not present, while 26 per cent. were found to have a chronic myocarditis at autopsy which was not diagnosed during life—78 per cent. of error. This diagnosis was made on certain symptoms and physical signs for the most part in no way specific for myocardial disease. These symptoms were sense of easy fatigue, dyspnea on exertion, slight or moderate, precordial pain, edema about the ankles, chronic cough. Obviously these symptoms were those of circulatory insufficiency and said nothing as to the cause of this. The physical signs were enlarged heart, irregularity, weak first sound (valvular quality), weak, diffuse apex beat and systolic blow at the apex and gallop rhythm. Neither did these physical signs depend wholly upon myocardial disease; they might arise from cardiac failure of any origin. For a correct diagnosis these symptoms and signs must be found in certain combinations, and at the same time one must be able to exclude certain other conditions which might cause them. For instance, if chronic pulmonary tuberculosis was present the dyspnea on exertion could not be attributed to myocardial disease, nor could precordial pain in the presence of aortic aneurysm. In the presence of high blood pressure an enlarged heart did not mean myocarditis, nor did a weak first sound in the presence of emphysema. But if a patient did not have valvular disease, or increased blood pressure or pulmonary disease, and complained of dyspnea on ordinary exertion, had an enlarged heart with valvular quality to the first sound, then in all likelihood he had a diseased myocardium. And yet Cabot's figures were obtained on just this sort of evidence. Nor could tests of the ability of the heart to perform work, as shown by blood pressure reactions or by the responses to exercises be properly applied as a test of the heart muscle's integrity. These tests showed very well the patient's ability to respond to exercise, but there were many other things than heart muscle concerned in this response; the valves, blood pressure, nervous system adiposity, presence of febrile or wasting diseases, etc. Of late years a new sign of myocardial disease had been brought forward in the electrocardiogram record. Variations in these records were coming to tell us more and more about the contraction of the muscle fibers of the auricles and ventricles. To understand the theory of the electrocardiogram was not necessary in order to understand these records. Dr. Pardee then showed normal and abnormal electrocardiograms, and the myocardial condition that usually caused the abnormality of the record. They had learned but little, relatively, about the auricular muscle from variations in the auricular wave P. This had been very little studied.

The ventricles were the important blood-driving muscles. Notching or slurring of the QRS group in two or more leads depended upon either a diseased condition in a large focal area of the myocardium or one affecting a considerable number of the branches of the Puckinje network beneath the endocardium. It was usually a disease of some extent and, therefore, appreciably diminished the functional efficiency of the ventricles. An increased duration of the QRS wave could arise from the same cause, and so, often, notching and increased duration were found together. An abnormal T or T₂ wave was due to an abnormal character of the ventricular contraction, and might be caused by the same disease that caused notching, or by a diffuse myocardial disease that did not cause notching of the QRS wave, or it might be due to poisoning of the muscle as by uremia or digitalis. After a branch of the coronary artery had been stopped by a thrombus or the artery excessively narrowed by disease one might find a peculiarly characteristic downward curve to the T wave of lead three or lead one, and that of lead two would also be turned downward. This was not found in all patients who had precordial pain or discomfort, and therein lay its importance, for those who showed it had an area of heart muscle that was scarred. This remarkable change in the record was not always as serious as it was remarkable, but it was usually serious enough, being due, as a rule, to a diffuse process involving the endocardium and the myocardium in a chronic sclerotic degeneration. Other records showed four typical features: (1) The direction of the QRS wave opposite in leads one and three; (2) notching of the QRS group; (3) wide QRS group (0.14 or more); (4) direction of T wave opposite to largest QRS excursion. Some of the curves had nothing of the QRS group and very small excursions of the waves. These were from hearts that had a similar pathology to those giving the larger waves of the last picture, but the disease was probably more extensive. Sometimes records were obtained in which the waves of the ventricular QRS and T groups were very small in size, and yet there was not notching of the QRS or increased duration, though the T wave was usually abnormally inverted. These were waves of hearts that had a diffuse pathology, and with improvement in the patient's condition these waves would sometimes increase in amplitude. Sometimes they did not so increase, and hearts of this group that he had seen at autopsy showed a diffuse fibrosis, but not one involving the subendocardial layers. When any of these changes were present one could feel quite certain that the ventricular muscle was diseased. The different abnormalities of the record were not so much the result of different degrees of myocardial involvement as they were of different location of the process. The question, what one was to say when all these abnormalities were absent, could only be decided finally by an immense amount of autopsy work. He felt, however, that when a heart did not show some of these abnormalities there was but a minimal amount of disease in the ventricular muscle, not enough to cause symptoms, if it were the only abnormality present. This method of examining the heart in conjunction with the older methods should serve to correct their clinical diagnosis of myocarditis and to reduce some of Dr. Cabot's 52 per cent. or more of error, due to diagnosing myocarditis when it was not; it might also discover some of Dr. Cabot's 26 per cent. in whom the clinical diagnosis was not made, though the heart muscle was found diseased.

Tuberculosis of the Pericardium.—Dr. WILLIAM W. MACLACHLAN of Pittsburgh, Pa., read this paper, in which he stated that the pericardium, situated as it was in proximity to the common site of primary foci of tuberculosis in the thorax, did not present evidences of this disease as often as one would expect. On the other hand, there was little doubt that many of the clinical types of the disease were not diagnosed. From the pathological aspect there was a considerable group of old healed fibrous lesions found at autopsy which were at times not unlikely tuberculous, but as to their exact nature it was a difficult matter to speak positively. Osler, in 1893, described seven cases of tuberculous pericarditis which he had observed either in autopsy rooms or wards, and no essential facts had been

added to his observations. The seropurulent type was probably the more common, though one found also a typical tuberculous exudate which seemed to be more of the plastic type. One could by no means include all lesions produced by the tubercle bacillus in the pericardium in the above mentioned types; there was a large group called the adherent or obliterative pericarditis in which undoubtedly a certain number of cases represented the healed stage of a tuberculous process. Calcification, a cardinal symptom of healed tuberculosis, when it occurred in the pericardium, rarely meant this disease. After reviewing the incidence of tuberculous pericarditis as found at autopsy by a number of observers, the writer analyzed 1000 records from D. Oscar Klotz's department at the University of Pittsburgh with reference to pericarditis in general. His findings in this series were in close agreement with those of other observers. There were 10 cases that were frankly tuberculous, nine male and one female. There were no cases in the first decade of life and only one in the sixth decade. The remaining cases were evenly distributed among the second, fourth and fifth decades. Of the debatable tuberculous cases there were 40 instances of chronic fibrinous adhesions in the pericardial sac; of these 23 were totally and 17 partially adherent. Of these cases three were undoubtedly tuberculous and five probably so. There was definite evidence to indicate that spontaneous healing of the tuberculous process in the pericardium undoubtedly occurred, probably more often than had been imagined. Their material also indicated that the development of lesions on the pericardium had little or no relation to the extent of the tuberculous in other parts of the body. It was surprising to find but three cases of tuberculous pericarditis among 23 cases of general miliary tuberculosis. Acute fibrinous or serofibrinous tuberculous pericarditis was probably the only clinical form of the disease that might be recognized, as it was an entity in the same way as the well-known types of tuberculous peritonitis. The writer had followed two cases of tuberculous pericarditis to autopsy. The history and physical signs and the course of these cases was comparable in general with the description given by Osler. The picture was similar to that seen in acute fibrinous or serofibrinous infections, the rheumatic fever group of diseases, namely, pain, dyspnea, cyanosis followed by the development of a pericardial friction sound. The increase in cardiac dullness was often pronounced. If the fluid accumulated slowly there might be little apparent discomfort. These signs were all compatible with nontuberculous pericarditis; a persistence of the signs beyond the period when it was usual for the ordinary form of acute pericarditis to subside was of considerable value in the diagnosis. During a prolonged course of two to four months one might recognize the pericardial rub often widely distributed. In the writer's cases the pulse was rapid, respiration increased, and the temperature was of the tuberculous type. It was his impression that tuberculous pericarditis which produced a recognizable clinical entity was a disease with a high mortality. Pericardial puncture had the value almost of an emergency measure in relieving the heart and lungs, particularly where the fluid had developed suddenly. Thayer suggested that cyanosis, dyspnea and irregular pulse, with fluid present in the pericardium, furnished the indications for puncture of the pericardium. In the more chronic effusions might be removed in order to promote absorption and prevent reaccumulation. There were some cases, however, in which there was an enormous amount of fibrin and very little fluid, and in these pericardial puncture would yield a dry tap.

Dr. SELIAN NEUHOF of New York considered the point brought out in Dr. Levine's paper in reference to the need of cooperation between the physician and the surgeon in dealing with cardiac cases. There was a definite correlation between the cardiac and abdominal symptomatology, as was well known to those who saw many cardiac cases. It had been pointed out in the literature that a great many cardiac cases had epigastric distress which could be definitely correlated with their cardiac condition. A considerable number of cases of auricular fibrillation suffered very much from gastric disturbances, most of which were due to gas and pressure and were relieved by proper medi-

cation, which usually meant digitalis. Following the proper use of digitalis the digestive disturbances cleared up very rapidly. The cases Dr. Levine had referred to were the more aggravated forms of such gastric disturbances. He had seen in the course of years similar cases, and his observation was correct when he stated that these cases were often incorrectly diagnosed. Likewise his observation with reference to paroxysmal tachycardia during narcosis was correct. He had seen three cases of the type referred to die. He cited one case somewhat in detail in which vagus pressure and all other measures were tried without avail, and this patient died. In these conditions there was a difference whether one was called in early or when the paroxysmal tachycardia was well established. The patients of this kind that died usually developed cardiac dilatation, but the dilatation was not the primary thing; where it occurred it might be assumed that paroxysmal tachycardia had continued for a certain length of time. As for Dr. Pardee's paper, he made a very important distinction between myocardial insufficiency and myocarditis. Myocardial insufficiency by no means spelled myocarditis. He fully agreed with Dr. Pardee as to the importance of electrocardiographic studies, though he was not quite as enthusiastic in regard to the interpretation of electrocardiograms. It had not been his experience that a slight notching of the QRS wave in itself was definite evidence of myocarditis. He still thought we should stick to the term electrocardiographic preponderance rather than electrocardiographic hypertrophy. His experience would also negative the statement that deviation of the T wave in the third lead was in itself evidence of auricular hypertrophy.

Dr. LOUIS FAUGERES BISHOP of New York said he had been talking with Dr. Bennett, the dean of anesthetists, and he had stated that a fibrillating patient unwisely prepared for operation by over-digitalization was a very bad operative risk; the patient might better be under-digitalized than over-digitalized when he came to the operating table. He thoroughly agreed with Dr. Pardee as to the importance of the electrocardiograph and advocated its use in every serious heart case. He deserved credit for having pointed out that the abnormality of the T wave indicated myocardial danger. Dr. Bishop stated that he was so enthusiastic in regard to what one could learn from the electrocardiograph and what could be done for cardiac patients, that he had started a model cardiac clinic at the Good Samaritan Dispensary where the ordinary cases of cardiac disease would be carefully studied, because he felt that we were short in our knowledge of cardiac disease, and had given too much attention to the rare cases and not sufficient study to the ordinary type of cases.

Dr. LEVINE felt that the figures quoted showing a large error in the diagnosis of cardiac cases at the Massachusetts General Hospital could be explained by the fact that the term myocarditis was used rather loosely, and thought the figures from other clinics would make no better showing. He said that many cases died of heart failure and yet the pathological examination showed nothing. Many cases of chronic myocarditis showed nothing at autopsy and he had seen cases of extensive myocardial disease which gave normal electrocardiograms; the T waves were all upright. He thought they must not be led astray by the idea that the electrocardiogram would tell everything. It added a great deal and was an aid, but one must not be carried away by too much enthusiasm.

Dr. ALFRED MEYER said that in dealing with acute paroxysmal tachycardia he had been disappointed by pressure on the vagus. The method which had succeeded in his hands in several instances was the administration of morphine; digitalis was valueless. He agreed with Dr. Levine as to the frequency with which their colleagues failed to recognize right-sided angina pectoris, and mistook it for gallstones. With reference to Dr. Pardee's figures, he said he was sure Dr. Levine's feelings would be soothed if he inspected the records of the New York hospitals and saw the frequency with which myocarditis was diagnosed. Immediately when an irregularity of the heart action was discovered it was put down as myocarditis; they did not even say myocardial degeneration. Speaking of Dr. MacLachlan's paper, Dr. Meyer referred to observa-

tions made by Dr. Warthin, who found tuberculous lesions in the liver in an unusually large percentage of cases of miliary tuberculosis and not even recognized at autopsy. A more thorough study of pericardial adhesions might show that a considerable number were due to tuberculosis. The electrocardiograph was a help in the diagnosis of cardiac disease but not in the therapy. He would make a plea for the use of the x-ray at the bedside. With reference to the treatment of pericardial effusion, especially in tuberculous pericarditis, Dr. Meyer stated that three or four years ago he had made a plea before the American Medical Association for the employment of pneumopericardium. He had been the first to use it in the United States, but the method had not had as extensive trial as it deserved. He felt that the method had a definite future in the treatment of pericarditis with effusion.

Transient Myelosis in the Course of an Acute Infectious Disease.—Dr. SIMON R. BLATTEIS of Brooklyn reported this case, which occurred in a man 45 years of age, giving a history of a recent influenza and possibly endemic typhus. The leucocyte count reached as high as 100,000, the myelocytes 48 per cent., and the eosinophiles from 10 to 14 per cent. The enlarged spleen and liver and other findings seemed to point to a myelogenous leukemia. Later the blood count returned to approximately normal. The study of this case led to the conclusion that many so-called cases of leukemia were after all only cases of infection presenting an unusual leucocytosis, though it was possible that an early myelogenous leukemia might be set in motion by an acute intercurrent infection.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, Held March 28, 1921.

THE PRESIDENT, DR. GEORGE GRAY WARD, JR., IN THE CHAIR.

Symposium on Pneumonia.—Etiology of Pneumonia.—Dr. RUSSELL L. CECIL made this contribution, in which he stated that when a physician had made a clinical diagnosis of pneumonia, there were several questions which immediately presented themselves for solution: 'Is it a primary pneumonia, or is it secondary to some preexisting pathological condition? Is it lobar or bronchial pneumonia? How many lobes are involved?' 'Finally, and in some respects the most important question of all—Which of the various bacteria are responsible for the infection?' Dr. Cecil said he was aware that many clinicians would disagree with him on the relative importance of the bacteriology of pneumonia, while, strangely enough, these same clinicians would admit the necessity for bacteriological information in other infectious diseases. He thought there were two reasons for a lack of interest in the bacteriology of pneumonia: First, because the bacteriology of pneumonia had been one of the last branches of this subject to be worked out accurately; secondly, because there had been no specific treatment for pneumonia. Neither of these reasons, however, held good at the present time. Then, too, the prognostic value of bacteriological diagnosis in pneumonia had not been sufficiently emphasized. In respect to prognosis the microorganism present had great significance. For example, *B. friedlander* pneumonia was nearly always fatal. The mortality rate in pneumococcus pneumonia varied greatly with the type. A similar divergence was found in streptococcus pneumonia. The figures of Lochez and Gillespie at the Rockefeller Institute gave the rate for pneumococcus Type III pneumonia as high as 50 per cent., while pneumococcus Type IV showed a rate of only 10 to 15 per cent. *Streptococcus emolyticus* pneumonia had a death rate varying from 0 to 60 per cent.; whereas *Streptococcus viridans* pneumonia was one of the mildest forms encountered, lying under 10 per cent. in the Camp Upton series. From the figures it appeared that in many instances the type of bacterium present had a more important bearing on the prognosis in pneumonia than either the character or the extent of the consolidation. Practically speaking there were only three bacteria that were

commonly concerned in the etiology of pneumonia,—pneumococcus, streptococcus, and *B. influenzae*. Friedlander's bacillus, *Staphylococcus aureus*, meningococcus, and other microorganisms were occasionally responsible for this disease, but they constituted such a small percentage of the whole that they must be looked upon as rarities. The pneumococcus was the usual cause of lobar pneumonia. In a study of the various types of pneumococci, the fixed types were found to be responsible for about 80 per cent. of all lobar pneumonias, the remaining 20 per cent. being caused by Group IV strains. The streptococcus was the organism most frequently found in bronchopneumonia. Here again we must classify into "hemolytic" and "viridans" groups. It should be emphasized that both types of streptococcus pneumonia occurred as a complication or sequel to some preceding disease or injury. During the war the hemolytic streptococcus attained such a high degree of virulence that it appeared in some instances to excite a primary pneumonia, but such cases were exceptions to the rule. The influenza bacillus also produced a characteristic type of pneumonia, best exemplified by the nodular hemorrhagic pneumonias so frequently seen during the big epidemic. *Staphylococcus pneumoniae*, like *B. friedlander* pneumonia, was usually fatal. In discussing the mode of infection the essayist stated that recent experiments indicated that lobar pneumonia was bronchiogenic rather than hematogenous in origin. The constant production of the disease in monkeys by intratracheal injection and the constant failure to produce it by subcutaneous or intravenous injection were believed to be conclusive evidence that infection in lobar pneumonia took place not through the blood stream but by way of the respiratory passages. The hematogenous theory had apparently depended upon the clinical observation of cases in which the pneumococcus was known to be present in the blood at the time of onset of clinical symptoms of pneumonia, or in occasional instances before the clinical symptoms of pneumonia had appeared. The interpretation of this observation as indicative of the hematogenous origin of pneumonia was incorrect; this was established by the fact that in pneumonia experimentally produced by the intratracheal injection of pneumococcus, the organisms had appeared in the blood stream within six to twenty-four hours after injection, frequently before clinical evidence of pneumonia or elevation of temperature had developed. The spread of pneumococci in the lung in lobar pneumonia was by way of the perivascular, peribronchial, and septal tissue and lymphatics, the alveolar structure was primarily infected by spread of the pneumococcus from the grosser framework of the lungs into the alveolar walls. Experiments with the *Streptococcus hemolyticus* on monkeys indicated that the mode of infection in streptococcus pneumonia was similar to that in pneumococcus pneumonia. The reaction of the tissues to the streptococcus was different and therefore the pathological picture was different, but the mode of infection was apparently the same. With the influenza bacillus, a different mechanism seemed to be at work. The influenza bacillus lacked the invasive character possessed by the pneumococcus and streptococcus, consequently the lesions produced by this organism were local while those produced by pneumococcus and streptococcus involved extensive areas. The influenza bacillus injured chiefly contiguous parts, probably by means of toxic substances which it secreted. Referring to the epidemiology of pneumonia, the United States Census for 1900 showed that more than 10 per cent. of all deaths were due to some variety of pneumonia, and statistics seemed to indicate that the incidence was increasing. During the past few years important studies on the epidemiology of pneumonia were carried out at the hospital of the Rockefeller Institute. In a study of 297 normal individuals, Type I and Type II pneumococcus were practically never encountered in the buccal secretions; Type III on the contrary was found in 28 per cent. of the cases. Type IV was most frequently encountered, appearing in 53 per cent. of normal saliva. In contrast to these figures the Rockefeller Institute investigators showed that in a series of 454 cases of lobar pneumonia, either pneumococcus Type I or pneumococcus Type II was present

in 62 per cent. of the cases; Type III was present in only 13 per cent.; Type IV in only 20 per cent. of the cases. In other words, the pneumococci most commonly present in the mouth secretions of normal individuals give rise to a minority of cases of lobar pneumonia. A study of the types of pneumococci present during convalescence in pneumonia revealed the fact that only in exceptional instances did one find for a considerable time after recovery the same type of pneumococcus with which the individual was infected during the disease. Usually, the infecting organism was found to have disappeared in three or four weeks after the illness. These observations afforded further evidence that infection in pneumonia occurred from without. Other observations indicated that carriers of virulent pneumococci probably played an important part in the dissemination of the disease. It was also shown that the pneumococcus was more frequently present in the dust of rooms in which pneumonia had occurred than in dust in rooms in which no pneumonia had existed. Moreover, the type of pneumococcus found in the dust corresponded to the type of pneumococcus found in the patient. It was probable that *Streptococcus hemolyticus* pneumonia as it existed in army camps was transmitted from man to man by direct or indirect contact. The mouse method was undoubtedly the quickest and most reliable method of determining the type of organism in pneumonic sputum. In closing, Dr. Cecil again emphasized the importance of accurate bacteriological examination, and said that if Type I pneumococcus was present the administration of Type I serum was to be seriously considered. The time had come when medical men should think of pneumonia in terms of the causative agent rather than in terms of anatomy or pathology.

Serum Treatment and Management of Lobar Pneumonia.—Dr. W. W. HERRICK presented this paper. (See page 948.)

Complications.—Dr. NELLIS B. FOSTER made this contribution. (See page 950.)

Convalescence.—Dr. CHARLES N. B. CAMAC discussed this phase of the subject. He stated that he had had several opportunities during the winter to speak of pneumonia and he had never lost an occasion to speak of Dr. Cecil's work. He thought that Dr. Cecil's monographs were most enlightening. Unlike most monographs, recording detail laboratory technique, every paragraph was readable and could be understood by the general practitioner. Furthermore, Dr. Cecil had summarized his investigations so that they could be applied at the bedside. Coming to his subject, Dr. Camac said he considered convalescence, as related to lobar pneumonia, a rather limited subject because the practitioner felt that when the crisis was passed the patient would rapidly go on to complete recovery. Unlike typhoid fever and some other conditions, the fight was practically over when the crisis of lobar pneumonia occurred. In 1916, he had begun to use the serum at the Gouverneur Hospital and during that winter it had been necessary to send the sputum by runners to the Board of Health laboratories to have the examinations made. That year Dr. Cole had given them the serum prepared at the Rockefeller Hospital Laboratory. Since that time, with the exception of the war, they had used the serum at the hospital systematically. During the war he had also had the opportunity to use it in the military hospitals. That made practically four years' experience with the use of the serum. His feeling was that the convalescence of patients treated with the serum presented an entirely different picture from that presented by patients in whom the serum was not administered. The investigations of the Rockefeller Institute and of the Army Medical School made clear the necessity of using more carefully the term pneumonia. One must first consider clinically whether it was a lobar or a bronchopneumonia or whether it was that new condition we had learned to recognize as pneumonitis, the latter probably a *Streptococcus hemolyticus* infection. Those three groups were recognized pretty generally by the physical signs. Pneumonitis seen in connection with influenza and measles was characterized by a complete infiltration of the lungs and pleura. In these cases the lungs at autopsy might best be described as looking like a sponge dipped in bloody fluid; they were practi-

cally soaked in bloody exudate. These patients drowned in their own exudate. One could tell that the exudate was increasing by the character of the râles, until finally the bloody exudate bubbled out of the nose and mouth and the individual drowned in his own excretions. This condition was seen among the soldiers during the epidemics but it was seldom seen in the civil hospitals. In this condition the mortality was extremely high and the convalescence was protracted and threatened with sequelæ. A second point of importance in connection with the pneumonias was the bacteriology. We had the pneumococcus pneumonias of the various types, the *Streptococcus hemolyticus* and other streptococcus pneumonias and the pneumonias due to other organisms that had been mentioned. In dealing with patients it was necessary to make a distinction and to realize how dangerous it was to allow certain types of pneumonia patients to get away from medical care. Pathological investigations had been made upon individuals who had died with a beginning process in another lobe while they had succumbed to a process elsewhere in the lung. A study of the pathology showed that in pneumococcus pneumonia the involvement was a surface affair. Only the mucous membrane was involved and this was in sharp contrast to the streptococcus (specially hemolyticus) pneumonia. *Pneumococcus mucosus* (Type III.) differed from Type I and II pneumococcus in virulence but not in the histological pathology of the lung. Hence in Types I and II convalescence was more rapid than in pneumonia of the *Streptococcus hemolyticus* variety. The fact that pneumococcus pneumonia was a surface process must not be taken as evidence against its systemic character, for Dr. Cecil stated that the pneumococci invaded the blood stream in from six to twenty-four hours after injection. In the clinical consideration of pneumonia it was a very significant fact that out of 529 cases of pneumonia in the Rockefeller series 454 were of the pneumococcus type; of his own series of 139 cases, Dr. Camac stated that 81 were due to the pneumococcus. We had evidence therefore in lobar pneumonia, accurately observed and studied bacteriologically, that the large majority of cases diagnosed clinically as lobar pneumonia were due to the pneumococcus. Where one had the opportunity to study and determine the bacteriology of pneumonia cases the information was of great importance in determining the rapidity with which they would recover. Dr. Camac recalled that they were very late in studying pneumonia intensively; that most of the medical meetings at which pneumonia was the subject the discussion had centered on digitalis and "How I treat pneumonia." Very little consideration had been given to the etiology of this complex disease until recently, yet according to Osler it was the most fatal of all diseases, outranking diphtheria and tuberculosis. In a series of 46 cases at Gouverneur Hospital 22 were successfully treated with serum and 14 recovered without serum. The deaths were classified in four groups: (a) moribund on admission, or dying at the end of thirty-six hours; (b) dying at the end of seventy-two hours; (c) dying on the fifth day; (d) admitted late with complications. Including all deaths there was a mortality of 23.8 per cent. Excluding all those who died at or before seventy-two hours the mortality was 6.5 per cent. Regarding those treated with serum he would emphasize the fact that during convalescence these patients did not have the toxic appearance of the older cases. In fact within twenty-four hours after the administration of the serum he had seen these patients reading the newspapers and wanting to sit up in bed. Their rule was to retain cases for two weeks after the last dose of serum, if possible, though it was frequently difficult to keep them in the hospital more than eight or ten days. The reason for keeping the patients treated with serum for two weeks was to determine whether any serum sickness would develop, as at times that was deferred as long as two weeks. In regard to the danger of serum sickness, he would deny that it had any danger comparable in any way to the danger from the disease. It should be remembered that in dealing with pneumonia one was dealing with a killing disease so that a mild inconvenience from serum sickness for a few days or even for a few weeks was of minor importance, even though there might be a hematuria.

If the effects of serum treatment occurred outside of the hospital it would be considered that it was something that should have been treated before the patient was discharged from the hospital. A marked contrast between convalescence from pneumococcus pneumonia and from streptococcus bronchopneumonia was the danger in the latter condition by exposure of the patient to cold air. That had been brought home to him forcibly during the epidemics in the army. At the end of one of these epidemics seven convalescent pneumonia patients remained in a large ward, which had been used exclusively for those suffering from this infection. The hospital was crowded and the ward was urgently needed for incoming patients with other maladies. Transfer of the pneumonia convalescents (influenza and measles bronchopneumonia) to another building was determined upon. The patients were wrapped up warmly and taken to another barracks. One of these men immediately redeveloped a bronchopneumonia and died; he had been up about the ward and free from symptoms. Therefore in bronchopneumonia of streptococcus origin warmth and fresh air were important. These cases were extremely sensitive to cold air even late in convalescence. On the contrary, the cases of lobar pneumonia were benefited by open air during convalescence and even during the acute stage. Lobar pneumonia (pneumococcus) cases should be placed on balconies and verandas from 11 A. M. to 4 P. M. The patients should be thoroughly covered, including the head. Screens should be used to prevent currents of cold air. Dr. Camac summarized his remarks as follows: (1) More accurate use of the term pneumonia, clinically and bacteriologically was needed. (2) This accurate knowledge of the pathological process present was necessary for prognosis and treatment, both during the acute stage and convalescence. (3) When serum had been used the patient should be kept under observation for two weeks after the last dose of serum so as to avoid manifestations of serum sickness developing after discharge. If the patient refused to remain this long he should be directed to return for observation should skin manifestations or other symptoms appear. (4) Serum sickness in its most annoying form had not the seriousness of the pneumococcus infection—no fatalities from serum sickness had been reported. (5) Open air was indicated for lobar pneumococcus pneumonia, warmth and indoor fresh air for streptococcus bronchopneumonia.

Dr. WARFIELD T. LONGCOPE said we were very fortunate in hearing these four discussions which had put so clearly and concisely the facts in reference to this common and often fatal disease. There were so many points worthy of discussion that it was impossible to touch upon them all so he would select only a few here and there in the four papers. Dr. Cecil had brought out the relative mortality in the different groups of pneumococcus infection, I, II, III, and IV, together with the mortality in streptococcus pneumonia. He thought we would have to realize always that pneumonia which was really an epidemic disease varied in different years as regards its mortality, not only as to one group but as regards all groups. While the statistics at the Presbyterian Hospital were not completely worked up and could not be used at present there were a few facts that stood out. One was that in certain years, pneumonia was a very fatal disease. In the years 1914 and 1915 pneumonia was a very mild disease and the mortality for any of the groups rarely exceeded 20 per cent., and was as low as five and six per cent. for the serum-treated Type I cases. In 1915 and 1916 the mortality was extremely high for the second and third groups, and even for the fourth group it was 24 per cent.; for Type III pneumonias it was between 50 and 60 per cent.; for the serum-treated Type I pneumonias it was that year only about 10 per cent. So in order therefore to determine the mortality in the different groups we must consider the variability of the disease in the different epidemics. Dr. Longcope said he agreed with everything Dr. Herrick had said. As to the Army cases treated by serum, Dr. Longcope said he was in the Surgeon General's office when those statistics were collected and as they came in he was very much surprised to see how low the mortality in the group I in-

fections was at that time. Of course one must remember that the patients from whom the statistics were gathered were young healthy men. Dr. Foster had spoken of meningitis and the inability to treat meningitis as a complication of pneumonia. Since we did not know much about meningitis as a complication of pneumonia, it was desirable to obtain as much information as possible in reference to it. He had been surprised to find a large proportion of pneumococcus meningitis cases occurring both as a complication and independently of pneumonia due to Type I pneumococcus. That raised the question as to whether one group of pneumococci could invade the meninges oftener and more easily than the other groups. Another complication that Dr. Foster spoke of was lung abscess, not necessarily as a complication of pneumonia, but lung abscess as it existed as a complication of various conditions. Recently we had been seeing a great deal of lung abscess, and from a bacteriological study of the sputum and from material obtained at operation and autopsy it had seemed that it was more common in cases of pneumonia due to the *Streptococcus hemolyticus* than in other varieties of pneumonia. Certainly at the Presbyterian Hospital bacteriological studies seemed to indicate the *Streptococcus hemolyticus* was a frequent cause of lung abscess. Statistics had recently been collected from 44 cases of lung abscess occurring during the last three years at the Presbyterian Hospital. The diagnosis was frequently extremely difficult and the physical signs extraordinarily slight for such extensive disease of the lungs. The actual diagnosis in many cases was really made on the character of the sputum or the x-ray examination, or a combination of the two. The character of the sputum was familiar to all, but there was one point in the x-ray examination of the chest which was of great value in determining whether an abscess was present, namely, the fluid line and the shifting of the fluid line by change of position. Many abscesses were quite localized and in a good x-ray plate when the patient was in the erect position there would appear a semilunar area in the upper portion of the shadow, and when the patient was turned on his side this semilunar area shifted to the upper surface of the shadow. Dr. Camac mentioned serum disease as a complication of cases treated by serum. Occasionally serum sickness occurred and patients might have a relapse. Even if a patient was in the hospital for two weeks, he might have a relapse of serum disease after that time. Only one other point, Dr. Camac spoke of the dangers of serum treatment. In Dr. Longcope's opinion there was no danger of serum disease itself, though there might be some discomfort in having hives. There might, however, be danger in the first administration of serum intravenously. In order to avoid this danger even in such rare cases a method that was quite generally employed was to test the patient's reaction to horse serum to determine whether he was hypersensitive. He had often heard stated that 1 c.c. of horse serum would desensitize a sensitive person but he thought there was no real evidence to uphold that view. As a matter of fact it was extremely difficult to give serum to a person naturally sensitive to it, such as a person who was asthmatic to horse serum. In order to test for sensitiveness he injected 0.02 c.c. of 1-10 or 1-100 dilution of horse serum intradermally, using a saline solution as a control. If no urticarial wheal was produced after one hour, 1 c.c. of horse serum was given subcutaneously and if that did not produce a reaction the serum could be given intravenously. Should the intradermal or subcutaneous test produce a reaction attempts might be made to desensitize the patient by the Besredka method, though this was often unsuccessful.

Dr. RUFUS COLE said he had written so much and talked so much on the subject of pneumonia that he had not much left to add, especially after this extremely interesting discussion which covered almost all the points concerned. One interesting point had come out in his review of the epidemiology of pneumonia in this and other countries. It was generally supposed that there was more lobar pneumonia in America than in England and France, but a closer study of the statistics indicated that pneumonia was about equally prevalent in all countries, and he

imagined that the presence of lobar pneumonia was no greater in this than in other countries. Of course he had been most interested in the serum treatment; that was one of the chief practical points that had come out of their work carried on for a number of years. It was not a very grateful task to criticize the way in which serum was given not only in pneumonia but in other conditions as well. There were a number of therapeutic measures which were life-saving. A physician could be actually responsible for saving but a limited number of lives in the course of his lifetime. Serum even where it was specific, as in diphtheria, was often administered in such a way that he wondered that any good results were obtained. Sir David Bruce had concluded that it was doubtful whether during the war the use of antitetanic serum in the treatment of cases of tetanus had been of any value. It seemed certain, however, that where this serum was correctly and intensively employed it might be of value. To be of value antinephritis serum must also be correctly employed. It was not at all easy to immunize a series of animals without loss of life, and if it was difficult to immunize a normal healthy animal, how much more difficult was it to immunize a sick patient! It could not be done simply by giving a dose three times a day. Theoretically Type I serum should be effective in Type I cases and he had treated a sufficient number of cases to show that it was effective. But unless it could be applied properly it should not be applied at all. There was a large amount of statistical data to show that following the administration of serum, pneumococci disappeared from the blood, and he laid more stress upon this fact than upon mortality statistics in drawing conclusions concerning the value of the serum. If the serum was of value in saving life it should be employed even though the method of its application was complicated. Surgery was complicated and very expensive and yet he had used it.

Dr. HENRY T. CHICKERING stated that in his opinion Dr. Herrick's statement as to the value of rest in pneumonia was of great importance. Most patients were over-treated he thought. Dr. Chickering said that fortunately he had the opportunity to see the results of serum treatment not only in civil practice but also in the army and it seemed to him that the serum treatment was of great value in Type I infections. Of course in the army the mortality from pneumonia was low—in young adults about 10 per cent. It was therefore much more difficult to demonstrate the efficacy in these than in civilian practice where the mortality was greater. At the Rockefeller Institute the mortality had varied slightly from year to year as Dr. Longcope said, but the average was pretty constant in all the groups of pneumonia. The mortality of Type I pneumonia infections treated with serum and reported from other cities paralleled those observed in New York. Consequently a series of 160 treated cases of Type I was a fairly good group to at least get an impression as to the value of serum therapy. In the first place those cases with bacteriemia, unless the bacteriemia was of a severe grade, were cleared up with one dose of anti-pneumococcus serum and the mortality was definitely less in the remainder. In the army, Dr. Chickering said, he had studied a group of Porto Rican laborers among whom there were forty cases of Type I infection in the course of about one month. These men were poorly nourished and suffering from intestinal diseases, parasites, etc., and yet the mortality was only 5 per cent. That group did better than the white soldiers treated in the South, but they were few in number. One should make up one's mind when one first saw a case of pneumonia whether one was going to use serum or not, and if one intended to use serum the sputum should be typed immediately and the serum applied at once. In many cases the physician did not become interested until the patient became very ill. It put a great strain on the effectiveness of the serum when it was employed on the sixth or seventh day of the disease. The use of pituitary was mentioned in one of the papers; he felt, however, that one of the important factors in the treatment of pneumonia was to avoid cathartics. Much distention was avoided by the avoidance of cathartics.

He therefore felt that it was better to depend upon enemata. The cases in which it was necessary to use pituitrin were those in which there was great toxemia. The effect of pituitrin was usually brief and the distention rapidly recurred within a short time after its administration.

Dr. ORRIN G. WIGHTMAN said that the public had become so well versed in laboratory methods that the general practitioner had to be carefully guarded in his statements as to the duration and intensity of an attack of pneumonia. Patients were wont to inquire as to the type and they occasionally ventured a prognosis on their lay knowledge of the disease. Dr. Wightman said he believed in differentiating the type as soon as possible, as it was not only of academic interest but of distinct importance in directing the treatment. However, there was frequently too much time spent in the laboratory and not enough clinical study at the bedside. He strongly advocated giving the patient a chance to fight his own disease with his own resources. The management of a case of pneumonia required good generalship, as the battle was won or lost in twelve days. Formerly our best teachers advocated the free use of alcohol; we were to push it until the tongue became moist. In spite of this most of the cases survived. Oxygen has always been advocated in the cyanotic state in pneumonia but Quimby has well said that a patient could be suffocated by its over use. It was all well enough to administer it and the response was immediate but the withdrawal might leave the patient in collapse. Dr. Herrick had used a timely caution "that oxygen should be properly given." Dr. Camac described in an admirable manner the lung condition found in cases of pneumonitis. The lungs were so acutely congested and the attack had been so intense that they were actually waterlogged—the patients drown in their own secretions. A further study of the autopsies disclosed a number of interesting data. The suprarenal glands frequently had hemorrhages, the blood pressure was invariably low, showing an unmistakable connection. These cases bore cold badly and the old cold air treatment was entirely out of place. They were acute infections of the lung, with loss of suprarenal balance. Again many of them have subsequently returned with evidences of mediastinal gland involvement. This with the lowered resistance produced by defective and diseased suprarenal glands had made it easy for latent tuberculosis to assert itself. We should therefore be on our guard to carefully examine every postpneumonitis lung to see that they were not starting up a tuberculous process. Standardization of the prevailing types of pneumonia was all important, and the laboratories were indispensable. As to the use of digitalis, we must not be carried away by any fad which prescribed either unnecessary dosage or dangerous dosage. The medical profession had handled this drug with satisfaction, each one learning to use the form he liked best. Cases went into collapse from overdose just as well as from underdose. The best type of protection against pneumonia was a rapid resistance on the part of the body in its individual ability to manufacture antibodies. As to serum treatment, this offered a careful study for the future. One fact must not be lost sight of, namely, that any foreign protein introduced into the blood stream would produce an active reaction with its consequent leucocytosis. This leucocytosis was not specific but helpful. We should not confuse these two processes but at the same time we should take advantage of any protective body process until we knew of something better.

Dr. MORRIS MANGES took exception to Dr. Foster's statement as to the harmlessness of repeated tapping of the chest in cases of pneumonia to establish an early diagnosis of empyema. There was far more danger in this procedure than was usually believed. Only ten days ago a young man died suddenly at Mount Sinai Hospital during an exploratory aspiration of the chest to establish such an early diagnosis of empyema. The patient collapsed while the needle was being introduced and all efforts to resuscitate him failed. Dr. Manges knew of a number of similar disasters which had been published, and he referred to a case of his own where an aspiration of a tuber-

culous effusion in the pericardial sac was followed by a permanent hemiplegia. This case was reported the *New York Medical Journal*, Sept. 19, 1908. It was also well to recall the work published some years ago by Capps of Chicago in which experimentally he showed the severe reflex effects from irritation of the inflamed serous membranes, especially the pleura. Even in patients who were acutely ill there was a considerable risk in aspiration of the chest, as was well brought out about ten years ago in the paper published by Hughes Dayton from the New York Hospital. It was only after the clinical signs had been checked up by x-ray examinations (preferably in the sitting posture) that one should attempt diagnostic exploratory aspirations of the chest. Then at least we knew when and where to aspirate.

Dr. FERGUS BUTLER said that in reference to the complications of pneumonia, Dr. Foster had spoken of the surgical complications of empyema and lung abscess; there were also changes associated with the pericardium and occasionally abscess of the mediastinum. All these they had encountered in the empyema service at the Walter Reed Hospital. As the mortality varied from year to year so the incidence of complications varied from year to year, but it was worth considering that every pneumonia was potentially a surgical case. With that thought in view and the high ratio of empyema due to pneumonia in comparison with empyema due to gunshot wounds, the ratio being five of the former to one of the latter, they had in the early months of 1920 regarded every pneumonia case as a potential empyema. In order that the empyemas might be recognized early, the surgeons came into contact with the cases early and followed them through. Then if an empyema developed it came to the surgeon not as an unknown quantity but well known because the surgeon had been following it. Dr. Butler stated that he was speaking not from the standpoint of the internist but from that of the thoracic surgeon realizing the fundamental principles upon which the handling of pericardial effusion and lung abscess was based. Dr. Foster had emphasized that one must carry out the treatment on the basis of a correct diagnosis inasmuch as streptococcus and pneumococcus pneumonia were two different entities requiring different treatment if one was to get good results. At the Walter Reed Hospital they had a chief of the x-ray department, a chief of medicine, and a chief of surgery, and the three men functioned as a group in caring for acute chest conditions. They found that daily bedside x-ray examinations were practically invaluable. The surgeon was the head of the team charged with not merely knowing the clinical course of the disease in each patient but actually demonstrating the surgical complications and instituting the proper treatment.

Dr. CAMAC, in closing the discussion, said that Dr. Longcope had advised the intradermal method of testing the patient's sensitiveness to horse serum. Correct interpretation of the intradermal reaction required practice. He felt that with the varied personnel of a hospital staff the safer method of desensitization was in giving 2 c.c. of antipneumococcus serum subcutaneously; then after two hours 3 c.c., after another two hours 5 c.c., making 10 c.c. in all. They had treated two groups of cases, 139 in one group and 46 in the other, and had had only one case of anaphylaxis. That patient was an asthmatic who showed no signs of hypersensitiveness until he had received 80 c.c. of serum when he became cyanosed, respiration became rapid and the pulse bad. After he had had proper treatment to correct the shock the balance of 20 c.c. was given, and in a few hours the temperature dropped and he went on to uncomplicated recovery. The time for the administration of the serum was within the first thirty-six hours. He could not see why one should not give serum and then make the laboratory test, since this first thirty-six hours was most important. As soon as the clinical diagnosis of lobar consolidation was made the desensitization test should be begun, the serum given, and the laboratory examination carried out as soon as possible, but delay during these critical hours might mean the sacrifice of the strategic moment of attack.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

CONNECTICUT MEDICAL EXAMINING BOARD.

November 9 and 10, 1920.

ANATOMY.

1. Describe circulation of blood in a long bone; manner of entering, course within the bone, manner of exit.
2. Describe the tongue: structure blood and nerve supply.
3. In the origin and insertion of muscles in the human body, is motility sacrificed to power or the reverse? Give illustration.
4. Mention muscles moving arm and divide them into groups.
5. Give origin, branches and distribution of the ophthalmic artery.
6. Give a general description of the lymphatic system.
7. Describe the esophagus and give its relations to adjacent structures.
8. Describe a Fallopian tube.
9. Give relations of lungs and pleuræ to the walls of the chest.
10. Describe the radius.

PHYSIOLOGY.

1. (a) How much bile is secreted in 24 hours? (b) How may the secretion be increased? (c) What part does it play in digestion?
2. Under what conditions may phosphaturia occur? What is its significance.
3. and 4. What are the causes of (a) alkalinity, (b) excessive acidity of the urine?
5. Why is each of the following an important article of diet? (a) lettuce, (b) peas, (c) butter?
6. What is amylase? Where is it found? What is its action?
7. Define intrathoracic pressure. Under normal conditions is it positive or negative?
8. Draw a diagram to illustrate a reflex arc for the spinal cord.
9. What is the origin of the red blood corpuscles?
10. What is the fate of the red blood corpuscles?

MATERIA MEDICA AND THERAPEUTICS.

1. Define *Materia Medica*. What is the official standard and how compiled? Define *Therapeutics*. What relation has the "official standard" to therapeutics?
2. Define tincture, extract, ointment, and illustrate each.
3. (a) What is an alkaloid? (b) Name the alkaloids of *nuxvomica* and of *opium*. (c) Differentiate the therapeutic uses of each and give dosage.
4. Name four drugs used hypodermatically, giving dosage. What surgical and clinical precautions should be observed in the administration of each?
5. Name three cerebral sedatives. Give dose and method of administration of each.
6. Give definition of (a) serum therapy; (b) vaccine therapy; (c) illustrations.
7. What is meant by "opsonins" and what is the "opsonic index"?
8. (a) Give physiological action of *santonin*; (b) indications for its use, method of administration, and dose; (c) dangers incident to use.
9. (a) Discuss the following questions: Should or should not physicians' prescriptions be written in Latin? (b) advantages, (c) disadvantages.
10. Write in Latin an unabbreviated prescription for indigestion. Give metric dosage.

ANSWERS.

ANATOMY.

1. *Blood Supply in a Long Bone*.—"The medullary canal of a long bone is supplied by a large artery (sometimes more than one) called the *nutrient artery*. It enters the bone by the nutrient foramen, which is usually near the center of the shaft, runs in an oblique canal through the compact structure, giving off branches to

this structure, and enters the medullary cavity, and sends branches upward and downward. These branches communicate with branches from the periosteal vessels and subdivide into capillaries, which pass into comparatively large vessels. The walls of the vessels are very thin, and in some places deficient; the venous blood enters the spaces of the red marrow, and the current becomes extremely slow. Small veins collect the venous blood and emerge from the bone. In the humerus the nutrient canal is directed toward the elbow-joint; in the radius and the ulna the nutrient canals are directed toward the elbow-joint; in the femur, the canal is directed toward the hip-joint; and in the tibia and the fibula, the canals are directed toward the ankle-joint. The red marrow of the extremities and the medulla of the entire shaft, and the bone of the shaft, except the circumferential lamellæ, are supplied by the nutrient artery. The circumferential lamellæ, wholly, and the cancellous tissue of the extremities, in part, and the medulla of the shaft to a very small extent are supplied by vessels from the periosteum. The extremities of a bone also receive articular arteries. Veins emerge from the long bones in three places: 1. One or two large veins accompany the nutrient artery. 2. Numerous veins emerge at the articular extremities. 3. Many small veins arise in and emerge from compact substance. The latter two classes do not accompany arteries. The veins in the marrow and in the bone are devoid of valves; but immediately after emerging from the bone they have numerous valves."—(Gray's Anatomy.)

2. **THE TONGUE. Structure.** It is composed of two sets of muscles: (1) *The extrinsic*, consisting of the hyo-glossus, genio-hyo-glossus, palato-glossus, stylo-glossus; and (2) *the intrinsic*, consisting of the superior lingualis, inferior lingualis, transverse lingualis and vertical lingualis. The *septum* is a vertical fibrous partition dividing the tongue into two parts; it extends from the hyoid bone to the tip of the tongue. The tongue is covered with mucous membrane, and on the dorsum the anterior two-thirds is covered with *papillæ*; *circumvallate*, seven to ten in number, situated on each side at the back of the tongue, meeting in a V shaped point in front of the foramen cæcum. The *fungiform* papillæ, situated mainly at the tip of the tongue and on the sides; and the *filiform* papillæ, which are the most numerous. The tongue is attached to the hyoid bone, the epiglottis, the soft palate, the pharynx, and the lower jaw.

It is supplied by the lingual, ascending pharyngeal, and ascending palatine arteries.

The nerves which supply the tongue are: (1) The lingual branch of the inferior maxillary division of the trigeminus (sensation); (2) chorda tympani (taste); (3) lingual branch of the glossopharyngeal (taste and sensation); (4) hypoglossal (motor).

3. **The Mechanics of Muscular Attachments.**—"The points of attachment of most muscles are such as to place these organs at a great mechanical disadvantage. This is very evident in a large part of the muscles of the limbs. Take, for example, a muscle which bends the forearm upon the arm. It is attached to the lower half of the front of the humerus, crosses the elbow-joint, and just below this is attached to the ulna. The loss of power involved here is illustrated in a homely way by comparing the effort required to close a door by pulling it toward one, when it is grasped at a point near the hinges, with that which suffices when it is seized near its free edge, where the knob is usually placed. Manifestly the latter method is vastly easier. If the same plan were adopted in the flexion of the forearm, the muscle would be attached high on the humerus and low on the ulna. But, although this would be advantageous as regards the expenditure of force, it would be strikingly otherwise in directions of quite as much importance. In the first place, the contraction of muscular tissue shortens it to one-half its length and no more, on which account the forearm could be bent upon the arm only about half as far as is normally reached. In the second place, there would be a loss of rapidity of movement of the lower end of the limb about proportionate to the gain of power; for the nearer to the hinge the force is applied, the more rapid will be the movement of the long arm of the lever. Then, the occupation by the muscle of each successive portion of the

great triangular space included by it and the two bones when in flexion would be an intolerable interference with the usefulness of the limb, practically reducing the carrying power of the front of the forearm to nothing. There would also be a loss of a great deal of the important ligamentous work of the muscles by their removal from close contact with the joints during their most pronounced activity. Thus it will be seen that the condition which exists, while extremely costly in the matter of muscular expenditure, is attended with advantages which are more than compensatory."—(Gerrish's Anatomy.)

4. **Muscles Which Act on the Arm.**—"The humerus is drawn forward by the Pectoralis major, anterior fibers of the Deltoid, Coracobrachialis, and by the Biceps when the forearm is flexed; backward, by the Latissimus dorsi, Teres major, posterior fibers of the Deltoid, and by the Triceps when the forearm is extended; it is abducted (elevated) by the Deltoid and Supraspinatus; it is adducted (depressed) by the Subscapularis, Pectoralis major, Latissimus dorsi, and Teres major; it is rotated outward by the Infraspinatus and Teres minor; and it is rotated inward by the Subscapularis, Latissimus dorsi, Teres major, and Pectoralis major."—(Gray's Anatomy.)

5. **The ophthalmic artery** is a branch of the internal carotid artery, and arises at inner side of anterior clinoid process, enters orbit through optic foramen, external and below optic nerve; it then crosses over nerve to inner angle of orbit to divide into two terminal branches, frontal and nasal.

Branches arising outside Optic Nerve:—

Lachrymal: accompanies lachrymal nerve over external rectus to lachrymal gland, gives off malar branches to anastomose with deep temporal and transverse facial.

Central of retina: pierces optic nerve, runs in its substance to retina.

Branches arising over Optic Nerve:

Posterior ciliary: divided into two sets. *Short* (10) perforate sclerotic and supply choroid. *Long* (2) pass forward between choroid and sclerotic, anastomose with anterior ciliary and supply iris and ciliary processes.

Supra-orbital: ascends with frontal nerve over muscles, etc., to supra-orbital foramen; passing out, ascends over frontal bone.

Branches arising internal to Optic Nerve:—

Muscular, superior and inferior: to muscles of orbit, give off anterior ciliary (6-8), which pierce sclerotic behind cornea.

Ethmoidal: anterior and posterior to ethmoidal cells, through anterior and posterior internal orbital canals respectively, supplying also dura mater, the anterior accompanying nasal nerve to skin of nose (anterior nasal branch).

Palpebral (2): one for each lid, arise near pulley, form an arch in each lid, and supply lachrymal apparatus.

Terminal Branches:—

Frontal: turns upwards round inner margin of orbit; anastomoses with supra-orbital.

Nasal: over tendo oculi to root of nose; anastomoses with nasal and angular of facial.—(From *Aids to Anatomy*).

6. "The LYMPHATIC SYSTEM includes the lymphatic vessels and glands and the lacteals, and forms an important accessory to the blood-vascular system, collecting the transuded, unappropriated fluids of the body and the nutritive material derived from the food and conveying it into the venous system. It consists of two main trunks: The thoracic duct, and the right lymphatic duct; and five smaller trunks: The jugular lymphatic trunk, subclavian lymphatic trunk, broncho-mediastinal lymphatic trunk, lumbar lymphatic trunk, intestinal lymphatic trunk.

"Lymphatics have been found in nearly every organ and texture in the body except the brain, the spinal cord, cartilage, tendon, eyeball, placenta, umbilical cord, membranes of the ovum, hair, cutis, and the labyrinth of the ear. They appear to originate as fine capillary nets interwoven among the blood-vessels and proper elements of the tissues, or, more minutely, in the lymph, privascular, and perineural spaces. In the villi they commence as closed, club-like tubes.

"The lymphatic capillaries are somewhat larger than

the vascular capillaries and destitute of valves. Their main trunks pass through lymphatic glands lying in their course, before doing which, however, they divide into afferent vessels, which, on emerging, unite into a smaller number of larger vessels, the efferent.

"In structure, they are composed of three coats—the external fibro-areolar, middle muscular, and internal or endothelial and elastic.

"The *lymphatic glands* are generally situated in the course of the blood-vessels, lymphatic vessels, or lacteal vessels, being accumulated together in certain localities, as the neck, abdomen, axilla, etc. The lymphatic glands and vessels are named from the regions they occupy or the vessels they accompany, and consist usually of a superficial and deep set. Thus, we have cervical, axillary, mediastinal, lumbar, inguinal, etc., and the lymphatic vessels corresponding.

"The *lacteals*, or chyliferous vessels, are the lymphatic vessels of the small intestine, and differ only from the others in carrying chyle during digestion from the intestines to the thoracic duct."—(Young's *Handbook of Anatomy*.)

7. The *esophagus* is a muscular canal, about nine or ten inches long, and extending from the lower border of the pharynx (at the upper border of the cricoid cartilage) to the stomach. It passes down along the front of the spine, through the superior and posterior mediastina, through the esophageal opening in the diaphragm, and ends in the cardiac orifice of the stomach (opposite the tenth dorsal vertebra). It is generally in the median line, but it curves to the left at the root of the neck and again at the esophageal opening in the diaphragm. It is composed of a general fibrous covering on the outside, then a muscular coat consisting of two layers, an outer longitudinal layer and an inner circular layer; inside this is a submucous coat of areolar tissue; and the esophagus is lined by a mucous coat which is covered by stratified squamous epithelium.

Its relations are thus given.—"In the neck:

Anterior.	Left Side
Trachea.	Left interior thy-
Thyroid gland.	roid.
Left recurrent laryngeal nerve.	Left carotid.
	Left subclavian.
	Thoracic duct.
Posterior.	Right Side.
Vertebrae.	Right carotid.
Left longus colli muscle.	Right recurrent laryngeal nerve.

"In the posterior mediastinum: passes forwards and downwards to the left, with the two pneumogastrics, which form a plexus on its surface; the left nerve is anterior, and the right is posterior.

Anterior.	Left Side.
Left carotid artery.	Left subclavian artery.
Bifurcation of trachea.	Left pneumogastric nerve.
Right pulmonary artery.	Arch of aorta.
Left bronchus.	Thoracic aorta.
Left recurrent laryngeal nerve.	Left pleura.
Pericardium and left auricle.	Right Side
Diaphragm.	Right pleura.
	Vena azygos major.
Posterior.	
Longus colli.	
Vertebrae.	
Thoracic duct.	
Vena azygos minores.	
Right intercostal vessels.	
Aorta (below).	

(From *Aids to Anatomy*.)

8. The Fallopian tubes are two in number, placed in the upper margin of the broad ligament. Each tube measures about 4 inches in length. The cavity commences by a narrow orifice called the *ostium internum*, and terminates in a *fimbriated extremity*, which passes over the superior and posterior borders of the ovary, and is attached by the fimbria ovarica to the superior pole of the ovary.—(*Aids to Anatomy*.)

9. "The *lines of reflection of the pleura* from the chest-wall are of considerable importance. *Anteriorly*, on the right side, the line begins opposite the interval between the two heads of the sterno-mastoid, runs down and inwards behind the sterno-clavicular articulation, to meet its fellow at the manubrio-gladiolar junction, generally a little to the left of the middle line, whence it descends almost vertically to the sixth intercostal

space, and then curves outwards, becoming continuous with the costo-diaphragmatic reflection. On the left side it behaves similarly, save that at the level of the fourth costal cartilage it deviates outwards behind the inner extremities of the fifth and sixth intercostal spaces, which thus are in contact for a short distance with the pericardium. *Below*, starting from the sternal end of the sixth intercostal space, the reflection on the right side runs down and outwards, crosses the junction of the seventh rib and its cartilage, crosses the seventh space in the mammary line, and so runs down to the tenth rib behind the midaxillary line. Then it runs inwards to the vertebral end of the twelfth rib. On the left side this reflection commences behind the sixth costal cartilage, but otherwise resembles the right. Generally speaking, a line from the lower end of the gladiolus over the cartilage of the ribs to the lower border of the last rib indicates this reflection with sufficient accuracy. *Posteriorly*, the pleura extend to the costo-vertebral junctions. The *lowest part* of the pleural sac is posterior, behind the twelfth rib.

"The *apex of the lung* projects into the root of the neck, corresponding posteriorly to the spine of the seventh cervical vertebra, and anteriorly to a point nearly 1 inch above the inner end of the clavicle. The lines of the anterior borders correspond to those of the pleural reflections already given. The anterior border of the left lung presents a notch or *incisura* corresponding to the cardiac apex, which is thereby left uncovered by lung. The *BASES*, however, do not reach as low as the pleura. Thus, on the right side the base of the lung extends from the sixth intercostal space in front to the lower border of the eighth rib in the axillary line, and that of the tenth rib in the scapular line, and then runs horizontally inwards to the vertebral extremity of the eleventh rib, the lowest level reached being the ninth intercostal space in front of the scapular line. The lower border of the left lung is similar, but rather lower."—(Macewen's *Surgical Anatomy*.)

10. "The *RADIUS* is a long bone, shorter than the ulna, situated on the outer side of the forearm, the upper end small, the shaft slightly curved, and the lower end expanded to form part of the wrist joint. It consists of shaft, upper and lower extremity. The *shaft* is prismatic, slightly curved, and presents: *An internal border*, sharp and prominent, for interosseous membrane; *An anterior border*, marked at its upper third by an *oblique line*, for attachment of flexor longus pollicis, supinator brevis, and flexor sublimis digitorum; *anterior surface*, affords attachment above for flexor longus pollicis, below for pronator quadratus, and presents at the junction of middle and upper two-thirds a *nutrient foramen* directed upward; *posterior surface* gives attachment at upper third to supinator brevis, and at middle third to extensors of thumb.

"The *upper extremity* presents: *Head*—a cup-like cylindrical cavity, for articulation with capitellum of humerus, and on its side an articulating surface for lesser sigmoid cavity of ulna and orbicular ligament, which nearly surrounds it; *neck*, the constricted portion below the head; *bicipital tuberosity*, below and to inner side, divided by a vertical line into a rough surface posteriorly, for attachment of biceps tendon, and smooth surface anteriorly for bursa.

"The *lower extremity*, large, expanded, and quadrilateral, presents: *Carpal articular surface*, smooth, concave, triangular depression divided by an antero-posterior ridge into an outer facet for scaphoid bone and inner for semilunar; *sigmoid cavity*, a shallow concavity at inner side of carpal end, for articulation with ulnar head; *styloid process*, projects obliquely downward from the external surface, for attachment by its apex to external lateral ligament of wrist-joint, and by its base to insertion of supinator longus muscle. Its outer surface is marked by two *grooves* for extensors of thumb. The *posterior surface* of the lower extremity is also marked by three *grooves* from without inward for the following: Ext. carpi radialis longior and brevior in first, ext. secundi internodii in second, and ext. indicis, ext. communis digitorum, and ext. minimi digiti in third. This surface has also attachment of posterior ligament of wrist."—(Young's *Anatomy*.)

PHYSIOLOGY

1. The amount of bile secreted in 24 hours is about

500 to 1000 c.c. The amount may be increased by the administration of bile salts, of secretin, of salicylic acid, or of ox-gall. There was formerly a long list of so-called choliagogues (podophyllin, aloes, rhubarb, jalap, colchicum, etc.) but their effect on the amount of bile secreted is problematical.

The function of bile in digestion.—It aids the pancreatic ferments in their action on proteins, carbohydrates, and fats.

2. **Phosphaturia may occur** under the following conditions:—rickets, osteomalacia, cystitis, gout, anemia, leukemia and various nervous disorders. Its significance may be slight; frequently it denotes a reduced acidity of the urine.

3. and 4. **URINE.**—"The acidity is more intense than normal in concentrated urines, in fevers, gout, acute articular rheumatism, leukemia, scurvy, and sometimes in diabetes. The acidity of diabetic urine frequently increases after it is voided, with separation of crystals of uric acid, from the formation of acids by fermentation. The reaction may become alkaline from the presence of fixed alkalies, carbonates, or alkaline phosphates, or of volatile alkali, ammonium carbonate. Physiological subacidity or alkalinity is always due to the former, which are also the cause of the alkalinity occurring in anemia, after cold baths, after absorption of alkaline transudates, and after administration of organic acids or mineral alkalies. Alkalinity from volatile alkali always results from decomposition of urea, which takes place in the bladder in cystitis."—(Witthaus' *Manual of Chemistry*.)

5. **Lettuce** has little or no nutritive value; it adds variety and flavor to a meal; and it is usually taken with oil, which is nourishing; its main constituent is water; its bulk may be of value.

Peas owe their nutritive value to the large amount of nitrogen which they contain; they also contain much carbohydrate; they may, to some extent, replace meat.

Butter owes its nutritive value to the large amount of fat which it contains; it is also easily digested and absorbed.

6. **Amylase** is an enzyme found in the pancreatic secretion; it converts starch to maltose and achrondextrin in an alkaline medium.

7. **Intrathoracic pressure** is the pressure which normally prevails in the pleural cavity and mediastinal spaces; under normal conditions it is always negative.

8. **Reflex actions** are involuntary or unconscious movements due to suitable stimuli. They depend upon the integrity of the reflex arc, which is a complex made up of: (1) A surface capable of receiving an impression; (2) an afferent nerve; (3) a nerve cell capable of receiving and also of sending out impulses; (4) an efferent nerve, and (5) a surface capable of responding in some way to the impulse conveyed by the efferent nerve. **Example:** The patellar reflex consists of a contraction of the extensor muscles of the leg and a movement of the foot forward when the ligamentum patellæ is struck; the quadriceps extensor must first be slightly stretched by putting one knee over the other. Its integrity depends upon a healthy condition of the entire reflex arc, consisting of tendon, afferent or sensory nerve, posterior roots, and anterior horn of the spinal cord, the efferent or motor nerve, and the muscle itself.

9. **The origin of the red blood corpuscles** is, for the adult, the red marrow of bones; in the embryo, the liver and spleen may also give origin to these red corpuscles.

10. **The fate of the red blood corpuscles** is to be broken up in the liver; some are perhaps destroyed in the blood stream; the spleen and lymphatic glands have also been mentioned as possible places for the destruction of the red blood corpuscles.

MATERIA MEDICA AND THERAPEUTICS.

1. **Materia Medica** is the name given to the agents used in the treatment of disease.

The Official Standard is the United States Pharmacopœia. This pharmacopœia is controlled by the National Convention for Revising the Pharmacopœia, which meets every ten years at Washington, D. C. The Convention is made up of delegates from the various colleges of medicine and pharmacy, and State and national societies, and from the Army, Navy, and Marine Hospital Service. This work standardizes certain drugs

and preparations, and for this reason should be upheld by physicians; but it has no legal authority, and a physician can use or prescribe anything which, in his judgment, will benefit his patient.

Therapeutics is the science of healing, or the use of any remedial agents.

2. **Tinctures** are alcoholic solutions of medicinal substances (usually non-volatile). Example: Tincture of aconite.

Extracts are solid or semi-solid preparations obtained by the evaporation of solutions of vegetable principles. Example: Extract of nux vomica.

Ointment is a soft, fatty mixture of medicinal agents with a basis of petrolatum or lard; or of fixed oils with a solid fat. They are for application to the skin. Example: Unguentum hydrargyri.

3. **Alkaloids** are, as a rule, solid bodies; contain carbon, hydrogen, nitrogen, and oxygen; have very complex constitution; react with acids to form salts in the same way that ammonia does; are of vegetable origin, as a rule; are extremely poisonous; are optically active, generally levorotatory.

The alkaloids of nux vomica are: Strychnine and brucine.

Brucine is hardly used; it is said to have similar effects to strychnine, but to be less powerful and of slower action. Dose of strychnine, gr. 1/40.

The alkaloids of opium are: Morphine, codeine, thebaine, narcotine, narceine, papaverine, and about a dozen more which are hardly used.

The following "differences" are from Sollmann's *Manual of Pharmacology*:

Morphine.—Produces the strongest narcotic, analgesic, hypnotic, and intestinal effects, and the weakest stimulation. It causes the greatest derangement of digestion; and, with heroine, is most apt to induce a habit. Dose, gr. 1/8.

Codeine is less narcotic, less constipating, and less apt to induce a habit or tolerance. It has some advantage in the treatment of cough. Bastedo uses 15 to 30 mg., but Fraenkel claims that at least 40 to 60 mg. are required to affect cough. This dosage is somewhat quieting, but not narcotic, and scarcely analgesic. Larger dosage produces restlessness instead of quieting. The susceptibility is the same for all ages. It increases the spinal reflexes more than morphine. Dose, gr. 1/2.

Dionine seems to stand intermediate between morphine and codeine in all respects. Mering advises it in cough. It sometimes causes itching of the skin. It has a special action on the conjunctiva (edema). Dose, gr. 1/4.

Heroine approaches still more to morphine, of which it shares all the disadvantages, and over which it has no serious advantage. Dose, gr. 1/12.

Thebaine is so markedly convulsant that it may be placed in the strychnine group.

Papaverine.—This was recommended as an analgesic, but its central effects are insignificant. Its toxicity is low. It relaxes the tonus of all smooth muscle, especially when this has been spasmodically contracted, and this without paralyzing the contractility of the muscle; it lowers blood pressure mainly by peripheral vasodilator action, especially in the splanchnic area.

Therapeutic Use of Papaverine.—It has been advised in gastric and intestinal spasms and colics, and in spastic constipation (30 to 80 mg. by mouth or hypodermic). It is a local anesthetic, and has been used on the cornea as solution of 4 to 10 per cent.

Narcotine.—The peripheral actions appear to be similar to papaverine, but weaker; it is quite toxic to the heart, respiration, and other functions.

Narceine.—The peripheral actions resemble narcotine.

4. **Four drugs used hypodermatically:** (1) *Apomorphine hydrochloride*, dose 1/10 grain, as an emetic; (2) *morphine sulphate*, dose 1/2 to 1/4 grain, according to need, to allay pain; (3) *cocaine hydrochloride*, dose 1/6 grain, as a local anesthetic; (4) *mercury bichloride*, dose 1/48 grain, in syphilis.

"To give a hypodermatic injection the dose is placed in the hypodermic syringe (many liquids cannot readily be drawn up through the syringe needle), the sterilized needle (it may be sterilized in a test-tube or spoon) is screwed on, and the syringe is turned needle upward so that any bubbles of air may be driven out by pressure on the piston. There are two methods of injection

for systemic effect, the *subcutaneous* and the *intramuscular*. In the *subcutaneous method* the properly cleansed skin, usually of an arm or a leg, is pinched up between the thumb and finger of one hand, while the needle is quickly plunged in a slanting direction through the skin into the subcutaneous tissue. In the *intramuscular method* the needle is plunged straight through the skin and subcutaneous tissue into the underlying muscle, usually in the back, buttocks, or chest, though sometimes in the limbs. This method favors ready absorption. By either method, a sharp needle and quick puncture give almost no pain. The fluid is slowly injected, the needle is quickly withdrawn, the point of the puncture is covered to prevent the fluid from running out, and the spot is gently massaged to promote diffusion of the liquid into the tissues. The hypodermatic needle may be cleansed by first forcing water through it and then allowing a few drops of alcohol to descend through it by capillarity. A fine wire drawn through the lumen keeps it permeable. (In the introduction of cocaine and similar drugs for local anesthesia, where a local action only is desired, the needle is inserted just beneath the epidermis and gives a *superficial subcutaneous injection*, or an *intracutaneous injection*. This method is not used when a systemic effect is desired.) (Bastedo's *Materia Medica*, etc.)

5. *Three cerebral sedatives:* (1) *Chloral hydrate*, dose, 15 or 20 grains in solution; (2) *hyosine hydrobromide*, dose, 1/120 grain, either by mouth or hypodermatically; (3) *potassium bromide*, dose, 15 grains, well diluted.

6. "A *serum* is a product obtained by injecting into an animal, usually the horse, a culture (e.g. Diphtheria) or the toxin from a culture (e.g. Streptococcus) of the organism. Serums may be subdivided into—(a) *Antitoxic serums*, such as Diphtheria and Tetanus, which are obtained by injecting filtered cultures into the animal used to provide the serum. (b) *Anti-bacterial serums*, such as Anti-Streptococcus and Anti-Gonococcus, in the preparation of which unfiltered cultures are used. Serums are usually injected in the flank or between the shoulder blades, the skin having previously been cleansed and the syringe carefully sterilized. Cases are on record where they have been given intravenously with normal saline solution and also per rectum.

"A *vaccine* is a finely divided suspension of killed cultures of a microorganism which is injected directly into the human subject. The object is to stimulate the individual to elaborate his own antibodies, which results in increased resistance to the ravages of bacterial infection. Vaccines are of two kinds—(a) *Autogenous*—prepared from the organism isolated from pathological material taken from the patient. (b) *Stock prepared* from virulent cultures of the organism, isolated from other cases of similar bacterial origin. Vaccines are administered by subcutaneous injection by means of an all-glass hypodermic syringe. The site of injection may be the flank, thigh, shoulder, or back. The skin is first sterilized by a pledget of cotton wool saturated with a suitable antiseptic, e.g. lysol.

"Briefly, the difference is that with a serum the opposing influence to the toxins is produced outside the human body, while with the vaccine it is produced inside and the degree of immunity conferred is greater with the latter than the former. It should also be noted that the dose of a serum is much higher, from the standpoint of the amount of fluid injected, than in the case of a vaccine. With the former the dose usually ranges from 10 c.c. to 50 c.c., while with the latter it is, as a rule, not more than 1 c.c." (Holland's *Pharmacy Handbook*.)

Illustration of serum-therapy: The use of antitoxin in cases of diphtheria or tetanus.

Illustration of vaccine-therapy: The use of vaccines in cases of acne or boils.

7. *Opsonin* is that quality of a serum which makes a microorganism more susceptible to phagocytosis.

Opsonic index is the relative amount of opsonins in a serum as compared with the normal standard. It is obtained by dividing the average number of bacteria taken up by a leucocyte under the influence of a given serum by the average number taken up by a leucocyte under the influence of standard normal serum.

8. *Santonin* is anthelmintic to the round-worm. It

is taken into the blood as sodium santoninate, and affects the cerebral faculties and the vision; objects appearing at first blue, green, or red, then yellow, often succeeded by blindness for a week or more. Toxic doses disturb the consciousness of the patient, produce a sort of intoxication, tremors, weakness, with enfeebled respiration and slowing of the pulse, coldness of the surface, vomiting, sweating, mydriasis, convulsions, and death from failure of respiration. The dose is one grain for an adult, not to be repeated soon, as the action of the drug is slow; it is best administered in powder with calomel at bedtime after a day of fasting, a senna-draught or dose of castor oil being used the following morning. (From Potter's *Therapeutics, Materia Medica*, etc.)

9. Formerly, when physicians and druggists knew Latin, it was customary to write prescriptions in Latin. Now, when the study of the classics is being more and more neglected, it is more customary to write them in English. Unfortunately, many physicians write them in bad Latin, and add to the disgraceful jargon by trying to hide their ignorance in abbreviations which frequently increase the possibility of mistakes. The question is largely one of custom. But it should always be remembered that it is more scholarly to write good English than bad Latin; and also that abbreviations are, as a rule, a pitfall, the prescriber may mean one thing and the pharmacist may understand another thing.

Advantages of writing prescriptions in Latin: Latin is supposed to be read by so-called educated people all over the world; hence it is a universal language. Being a dead language, it is not liable to change. It is never ambiguous, but is always clear and explicit. Sometimes it may be advisable that the patient should not know what he is taking.

The only *disadvantage* is to be found in the inability of the physician to write the prescription in Latin, or in the inability of the pharmacist to read the Latin.

10. For indigestion:

R. Extracti nucis vomicæ... 0.25 gm.

Extracti quassie..... 1.80 gm.

Quinina sulphatis..... 2.60 gm.

Misce et divide in pilulas numero xx.

Signa.—One three times a day after meals.

(To be continued.)

Books Received.

The MEDICAL RECORD is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.

A MANUAL OF PHYSICS. By HUGH C. H. CANDY, M.D. 451 pages with illustrations. Published by Paul B. Hoeber, New York.

CLINICAL METHODS. By ROBT. HUTCHISON, M.D., and HARRY RAINY, M.D. 685 pages with illustrations. Published by Paul B. Hoeber, New York.

ELEMENTS OF SURGICAL DIAGNOSIS. By Sir ALFRED PEARCE GOULD M.D., and ERIC PEARCE GOULD, M.D. 22 pages with illustrations. Published by Paul B. Hoeber, New York.

LES CARDIO-RÉNAUX. Par Dr. O. JOSUÉ et Dr. M. PARTURIER. 215 pages. Published by E. Le François, Paris.

PRÉCIS DE THÉRAPEUTIQUE MÉDICALE. Par G. DE PARRELL, M.D. 671 pages. Published by A. Maloine et Fils, Paris.

CANCER COMMISSION OF HARVARD UNIVERSITY. Eighth Annual Report of the Collis P. Huntington Memorial Hospital for Cancer Research. 1919-1920. 64 pages. Published by the Medical School of Harvard University, Boston.

LEITFADEN DER NEUROLOGISCHEN DIAGNOSTIK. Von Dr. KURT SINGER 201 pages with 33 illustrations. Published by Urban & Schwarzenberg, Berlin and Vienna.

LEHRBUCH DER NERVENKRANKHEITEN. Von ROBERT BING, M.D. 672 pages with illustrations. Published by Urban & Schwarzenberg, Berlin and Vienna.

Miscellany.

NEW BOOKS AND OLD.

VII.—THE OSLER LIBRARY AT MCGILL.

BY JOHN RUHRÄH, M.D.,

BALTIMORE, MD.

FOR many years Sir William Osler devoted a great deal of time and energy to making a collection of medical books which will have a resting place at McGill University in Montreal. The library is a very remarkable one, perhaps the finest of the kind extant. There are over 7,800 volumes, many of which, however, contain a number of separate works, so that the card index numbers over 8,250. During the later years of Sir William's life he devoted much time to making a catalogue, but unfortunately did not live to see its completion. The collection is still at Oxford, where an assistant from the Bodleian Library is still working on the catalogue, which will probably be finished by the end of the present year.

In addition to the listing of books there is an introduction and a memorandum on how to use the library. It is expected that some time next year the entire collection will be moved to McGill together with the ashes of the late Sir William.

The Library is divided into these groups of works:

I. Manuscripts.

II. Incunabula.

III. *Bibliotheca Prima*. Sir William's idea was to have in a comparatively small number of works the essential literature grouped about the men of the first rank arranged in chronological order. They illustrate the beginnings of medicine (Lucretius, Anthropology, Primitive Medicine; Medicine in Babylonia, Egypt, Persia, China, India, etc.). The Greeks, the Pre-Socratics. Then the work of the great Discoverers in Medicine up to the nineteenth century, as: Plato, Hippocrates, Aristotle, Theophrastus, Celsus, Plinius, Galen, the Byzantines and Arabians; medieval (Roger Bacon and Leonardo da Vinci); the sixteenth century (Copernicus, Paracelsus, etc.); the seventeenth century (Boerhaave, Boyle, Malpighi, Newton, Sydenham, etc.); eighteenth century (Hunter, Jenner, Dalton, etc.); the nineteenth century (Claude, Bernard, Davy, Helmholtz, Koch, Pasteur, Virchow, etc.). And lastly, the special Harvey Collection of works.

IV. *Bibliotheca Secunda*. Books grouped into alphabetical sections, such as those referring to Anatomy, Antiseptics, Blood-letting, Christian Science, Dental Surgery, Epidemics, Famine, Gout, Inoculation, Midwifery, Ophthalmology, Plague, Surgery, Tuberculosis, Vivisection; altogether some ninety subjects.

V. *Bibliotheca Literaria*. Comprising Literary works by medical writers and Medicine and Doctors in fiction.

VI. *Bibliotheca Biographica*. Medical Biography, arranged alphabetically under the subject of the biographer.

VII. *Bibliotheca Bibliographica*. Medical and General Bibliography.

VIII. *Bibliotheca Historica*. The History of Medicine and Medical Institutions.

An additional interest of many of these books, apart from their rarity and intrinsic worth, lies in the fact that so many of them are annotated by Sir William in his own handwriting.

The temporary committee, appointed by the McGill Faculty of Medicine, consists of the Principal (Sir Arthur Currie, Chairman), the Dean of the Faculty of Medicine (Dr. H. S. Birkett), and a Professor of Medicine (Dr. Finley)—all three of whom, as you will see from the "Memoranda," are to be Curators of the Library upon arrival.

The terms of the will as drawn up by Sir William Osler, on March 24, 1919, as they refer to the Library, are given below:

I. Curators: (a) The dean of the Medical Faculty (chairman), ex officio. (b) the principal of the university. (c) A member of the Osler family selected by the other trustees. (d) The professor of medicine. (e) The chairman of the library committee of the College of Physicians, Philadelphia. (f) The chairman of the library committee of the Medical and Chirurgical Faculty of the State of Maryland. (g) The librarian of the Surgeon-General's Library. The traveling expenses of the trustees from a distance to be paid from the fund. Except for special purposes it should not be necessary to hold more than two meetings a year. Three members to constitute a quorum.

II. The library to serve, as far as possible, two functions: the education of students in the history and methods of science and of medicine, and to promote research into these subjects.

III. The Librarian. (a) He shall be selected by the curators and appointed by the governors of the university. (b) He shall be a member of the Medical Faculty and ex officio professor of the history of science (and of medicine), either of which titles he may use. (c) He shall have: (i) Full charge of the collection, and (ii) appoint assistants; (iii) purchase books; (iv) direct the reading of ordinary students and help special students with researches; (v) lecture when he feels it will be useful, but there should be no compulsion to give set courses. Private advice and instruction in the library should be his chief work. (d) The librarian should be a scholar who has given evidence of interest in Bibliography and the History of Science.

IV. As I wish the position to be a comfortable berth for a good scholar, the salary should at first be not less than three-fourths ($\frac{3}{4}$) of the total income. Later, as the income increases, it should be one-half ($\frac{1}{2}$).

V. As I do not wish to embarrass the university in any way, the income shall at first be used: (i) To pay expenses of transport of the books, arranging space, book cases, etc., and (ii) To help pay for the printing (and preparation) of a catalogue, if that has not been already done before my death.

VI. The librarian shall submit an annual statement to the trustees and the university.

VII. Books are not to be lent or removed from the library.

VIII. The library will: (a) Relieve the university and departmental libraries by purchasing the journals on the history of science and of medicine and the special books and monographs in these subjects, and (b) the librarian will fill all gaps in the works of men of the first order in the various sections.

IX. The library is for the use of the members of the medical profession, including, of course, medical students, and I particularly wish my colleagues of Laval and my French Canadian brothers to take advantage of the many important works of the old masters of their native land, in the collection of which I have had them specially in mind.

X. Special students, from outside Montreal, are to be given every possible facility in the library. (A memorandum on how to use the library will be found at the end of the introduction to the catalogue.)

XI. Knowing how with time conditions change, the curators are at liberty to make alterations in these regulations respecting, as far as possible, my wishes as herein expressed.

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A PSYCHOLOGICAL STUDY OF SOME MENTAL DEFECTS IN THE NORMAL DULL ADOLESCENT.*

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NEW YORK.

For several years by means of careful mental tests we have steadily detected a large group of individuals in schools and industrial life who have shown an intelligence beyond that found in the more marked cases of mental arrest. Practically no one, however, has made an attempt to determine and classify the exact degree of qualitative mental disorder from which these individuals suffer. Out of these types of intelligence defects are recruited many socially unstable, delinquent, and aberrant types of transient psychoses. It is highly important that we should make an effort to understand the psychology of the emotional life of the so-called normal dull person and determine to what extent the state is remediable or adaptable to the end of good mental health. While a considerable portion of this contribution is devoted to outlining, from a psychological standpoint, the quantitative detection of the normal dull person, a matter of more importance is to direct specific attention to the qualitative aspects of the minds of such individuals.

Many laymen and not a few physicians have hoped that certain types of mild states of feeble-mindedness might be removed or outgrown. Some endocrinologists continue to hope for this outcome in psychasthenics. They hope for this, in part at least, by viewing the results which have been obtained from thyroid feedings in cretinism and allied states. While there are still chances for a wider and more exact extension of endocrinology in mental defects, as yet it has not materially altered the general statement that once a definite determination of any degree of feeble-mindedness has been made in a child, the condition which remains is hopeless so far as recovery or cure is concerned. Many of us, still optimistic, have searched for that slightest grade or border-line of mental retardation which, by intensive and careful treatment, plus specific medical therapy, may be overcome.

The type of mental retardation which most nearly comes within this optimistic viewpoint is that now classified as the normal dull person. But probably our old therapeutic hope to cure or remove even this slight defect will meet with as

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great a disappointment as in the training treatment of the pronouncedly feeble-minded. For even in the normal dull person the successful outcome in handling such mental defect is by the old, well-proven procedure of education and better adaptation of the individual to his life purposes at the level of his innate capacity.

The fault in many normal dull persons is not simple deficiency of intellectual power. Indeed, the detection of this fault is a relatively simple task compared with an analysis of the psychopathic traits. Just what part mental retardation plays in inducing or encouraging conduct disorders in the so-called normal dull person is a nice question. In all probability the mental defect plays a much less significant role than the average layman or even teacher has inferred. No doubt an inability to keep pace in the average normal school class encourages the dull scholar in no small degree to seek vicarious and abnormal outlets of interest and preoccupations, but is this delinquent tendency resisted in those otherwise properly endowed mentally? For instance, being reduced a grade or repeating a grade is by no means uncommon in school experiences. A fair estimate of its benignity is given me by Miss Farrell, Superintendent of the Ungraded Class System in New York, who states that it occurs in about 1 per cent. of the pupils in all classes. We would, therefore, rightly infer that there is a qualitative as well as a quantitative defect in the character, analogous to that seen in some feeble-minded in whom there is a subinhibition of the instincts shown in different forms of delinquency. Nor can one postulate the ratio of defect in the emotional and social instincts as compared with the quantitative defects of the mental faculties classified as more strictly intellectual. At best one may say that the keener the dull person is aware of his intellectual defect, plus a desire to find some way out, entails not a little strain upon the proper control of character weakness. However, inasmuch as the greatest intellectual faults in case studies are frequently encountered when this moral and spiritual conflict has been seemingly little evidenced, one may easily over-emphasize such a rationalization of cause and effect. Perhaps one had best not attempt any such hypothesis in face of the fewness of data and the inaccurate analyses made in both fields of study (*i.e.* in quantitative and qualitative defects of mentation of the normal dull person). At present it would seem as in the normal person that character, as we commonly speak of it, is quite distinct from the type of intellectual equipment. Exact data in this field are perhaps of

more practical value than one at first sight might suppose. At present effort at relief is largely devoted to improving the intellectual standing of the normal dull person. Only comparatively recently have we begun to realize that character and conduct training is something quite apart from the purely scholastic curriculum of instruction. While no doubt the pedagogic pacing in the normal dull person needs to be slower, more detailed, and repetitive, the essential striving for proper habit and conduct training needs to be somewhat the same in the qualitative sphere of the mind. A mistake is often made in the lack of personal enthusiasm and color in the work laid out. Abstract studies and unstable occupations, such as salesmanship, etc., are not to be encouraged. A concrete education along industrial lines is of greatest value. Practically no institutions exist that provide the proper community environment and ethical training, combined with the amount of restriction, which the normal dull student needs.

We will give our attention for a short period to a review of what has been undertaken by the psychologists in testing out this recently classified group.

However uncomplimentary it may seem to the neuropsychiatrist, we must admit that the more exact recognition of the slighter grades of mental defect was first brought out by the psychologists through their carefully considered tests. However, from the nature of their work with the feeble-minded we might have expected this to be the case. While we have all known of the borderline cases, yet it was thought that even these, on more precise analysis, might be classified either as quite normal or mentally defective. The psychologists, and especially Terman, have divided these into two groups, using the term "borderline" to designate those who are very near the upper limits of feeble-mindedness, and the term "dull normal" for those who more nearly approach average-normal intelligence. Such terms as "backward," "dull," and "retarded" are sometimes used to describe this near-normal group.

Persons of dull-normal intelligence are not feeble-minded, nor do they often fall near enough that group to be considered borderline cases. Yet they are seriously enough retarded to make it necessary that they be differentiated from those who are fully equal to average persons of the same age. To what extent this mental retardation may be due to external factors, such as physical defects, malnutrition, poor training, etc., and how much be due to actual inferiority in natural mental equipment, are problems which clinical psychologists are attempting to solve.

One hundred and fifty-one successive entrants at the San Quentin Prison were tested by the Stanford Revision of the Binet-Simon Intelligence Scale and by three other series of standardized tests.* All degrees of intelligence were found between seven and one-half years mentality and that of very superior adults. Of the total number, 39, or 25.2 per cent., were classified as dull-

normal. It appears that individuals of extreme mental inferiority are directly responsible for at least one-fourth, and possibly for one-third of the total amount of delinquency and crime. But, on the other hand, so far as the prison records go, there is a somewhat smaller proportion of repeaters among the feeble-minded and borderline cases than among those of higher intelligence, which include the normal-dull cases.

When we use such terms as feeble-mindedness, borderline intelligence, dullness, normality, superior intelligence, and genius, Terman* suggests that two facts be borne in mind: (1) That the boundary lines between such groups are absolutely arbitrary, a matter of definition only. (2) That the individuals comprising one of the groups do not make up a homogeneous type. Nevertheless, since terms like the above are convenient and will probably continue to be used, it is desirable to give them as much definiteness as possible. On the basis of tests that have been made, including many cases of all grades of intelligence, Terman offers the following suggestions for the classification of intelligence quotients:

Intelligence Quotient	Classification
Above 140	"Near" genius or genius.
120-140	Very superior intelligence.
110-120	Superior intelligence.
90-110	Normal, or average intelligence.
80-90	Dullness, rarely classifiable as feeble-mindedness.
70-80	Borderline deficiency, sometimes classifiable as dullness, often as feeble-mindedness.
Below 70	Definite feeble-mindedness.

In the dull-normal group (intelligence quotient 80 to 90) are included those children who would not, according to any of the commonly accepted social standards, be considered feeble-minded, but who are, nevertheless, far enough below the actual average of intelligence among races of western European descent that they cannot make ordinary school progress or master other intellectual difficulties to which average children are equal. A few of this class test as low as 75 to 80; but the majority are not far from 85. Those testing 80 and 90 will usually be able to reach the eighth grade, but ordinarily only after from three to four failures. They are very numerous.

The following are typical examples of school children belonging to this class:†

Boy, tested at the age of 10-2; intelligence quotient, 83; and again at 14-1; intelligence quotient, 79. His mental age in the first test was 8-6, and in the second test 11. He was the son of a barber, who was dead. The mother was capable, and made a good home for her children. At 10 years this boy was doing unsatisfactory work in the fourth grade, and at 12 unsatisfactory work in low sixth. He was good looking, normal in appearance and social development, and though occasionally obstinate, was usually steady. Any one unacquainted with his poor school work and low intelligence quotient would consider him normal, and he possessed no physical or moral handicaps that could pos-

*L. M. Terman: "The Measurement of Intelligence. An Explanation and Complete Guide for the Use of the Standard Revision and Extension of the Binet-Simon Intelligence Scale," 1916.

†Terman: "The Intelligence of School Children," 1919.

*L. M. Terman, J. H. Williams, Grace M. Fernald: "Surveys in Mental Deviation in Prisons, Public Schools and Orphanages," Cal. State Joint Com. on Defectives, 1918.

sibly account for his retardation. He was simply dull, and was able to meet a purely vocational training.

Girl, aged 12-4, whose mental age was 10-1; intelligence quotient 82. She had an average home environment, with excellent educational advantages. At 12 years she was doing very poor work in the 5th grade. Her appearance, type of play and attitude toward other children were normal. She was simply dull. She was not likely to make the high school.

Many have called attention to the fact that normal dull persons are not necessarily undesirable members of society. Indeed, the world has abundant use for them. A large proportion of the tasks of modern society can be as well, or better, performed by individuals belonging to this class as by those of superior intelligence. Terman mentions the case of a normal-dull man with an intelligence quotient of 80, who had served several years as policeman in an eastern State at \$65 to \$80 a month. A successful street-car conductor, with an intelligence quotient of 83, was very popular with his patrons because of his genial good nature and his interest in people.

Waugh tested 82 street car motormen and conductors whose work rates as semi-skilled. The investigation showed that an intelligence quotient of 80 to 90 (normal-dull) is entirely satisfactory for this kind of work provided other traits are satisfactory. On the other hand, the data suggested that intelligence above 90 adds nothing to the efficiency of a motorman or conductor and conduces to discontent. Men of normal-dull intelligence usually seem contented and proud of their jobs and find more satisfaction in the performance of their work than individuals of superior intelligence. Though below the average in mental endowment they are not necessarily defective since they are able to manage themselves and their affairs with reasonable prudence, can do semi-skilled and sometimes even skilled labor. Thus the normal-dull person is to be considered a potential social asset of great value. To make the most of him, however, he must be trained, otherwise he may fail and drift into the ranks of the antisocial.

From an analysis of the whole subject it would seem that the "normal-dull person" is not feeble-minded but simply "dull." Being "normal" as far as the emotional part of his nature is concerned, he will get on fairly well and may become a valuable member of society, provided he is in the right milieu. Lack of work and bad company may make a derelict of him and, sooner or later, land him in the workhouse or in jail. What the normal-dull person needs is some training which will enable him to make himself useful in one of the many occupations in which a certain mental inferiority, far from being a handicap, is in reality an advantage.

One is apt to think that these borderline cases with character defects are to be found largely in the lower walks of life, but this is only seemingly so.

Simple mental tests in normal-dull persons rarely indicate the character and emotional fault in evidence. In some respects these conduct disorders when present are not dissimilar to those seen in the moron, although the pattern plan of the antisocial acts is obviously cleverer and more elaborate. The main difference in such acts of

the normal dull person and those of the psychopathic inferior is the presence in the former of a more enduring affect regarding the specific delinquency, and the field of delinquency does not spread over so large a field of activity. Then, too, the acts are more closely connected with the genetic instinct. In many it would seem as though the main first fault were not a disciplinary one, but the boy's unsuccessful repression of his too lively sexual fancy and desire. The general temperament of the normal-dull person is on the whole one of tendermindedness rather than the callous indifference of the so-called psychopathic delinquent. In the composite one would say the antisocial act of the normal-dull person is analogous to the heedless carelessness of the moron combined with a sexual tinge of the socially unstable plus the narrow transgressions of the petty offenses of the psychopathic delinquent.

CASE I.—The case which we shall first consider is that of a boy of nearly seventeen years, who was dismissed from preparatory school for failure in class and examinations, and sent for analysis because of his lying, cheating, dissolute expenditure of money, and general dilapidation of character and conduct. In early childhood he had two operations for the removal of adenoids and tonsils. He also had a slight attack of rheumatism. Both mental and physical development were slow. He preferred to play with boys two to three years his junior. In the home he was wilful, evasive and disrespectful. His teachers reported that he was a clear thinker but a slow worker and lacked mental concentration. At the time he came under analysis it was expected he would be able to enter college at the age of twenty. He was sluggish physically and mentally, even in the sports he liked. He seemed content to drift along in life without much imagination or ambition. Most frequently he blamed others for his faults. He had no natural fortitude in standing aches and pains and seemed unashamed to own to it.

Physical examination showed him to be greatly overgrown for his age, and of the dispituitary diathesis in makeup. Puberty was delayed until his fifteenth year. The revolt of independence at puberty was shown in crass disobedience, affectless indifference, and callous disregard for others. The sexual life naturally was caught in this imperfect development of his emotional life.

The psychologic test showed his mental age to be 16 years, 2 months, nearly up to his chronological age (16 years, 8 months). There was very little scattering shown in the tests. His basal age was 14 years, and he scored four successes out of a possible six in the average adult level, and one success in the superior adult level. The successes included interpretation of fables; differences between abstract words; repeating six digits backwards—which requires a heavy demand on attention besides an ability to manipulate mental imagery; and the code test, requiring also close attention, which must be directed inward since no stimulus to attention is present to the senses; in addition, steadiness of purpose is required. In the Trabue completion test he scored an adult performance. In the cancellation test he scored to the 14th year. He had the power of abstract thinking, ability to elaborate, and excellent visual constructive ability. His intelligence quotient was rated at 99, whereas the intelligence quotient for high school pupils who can get along easily in their studies is 110, which meant that our patient would have to study hard to make the higher grades. Some nervous instability was suggested by rather frequent embarrassed laughing, and his attitude at times was characterized by considerable uncertainty and lack of confidence in himself.

We have here a boy whose slight retardation in development brings him within the group of the normal-dull person. How much the dispituitary constitution is a cause is not easy to determine. It is certain, however, that as in most of such

cases, this boy's stable development rests upon the practical recognition that he is concrete-minded, and as such these individuals should be largely trained in skilled handwork or artisan crafts and professions requiring concrete application. After a short analysis he undertook to enter another preparatory school where he is now making fair progress both intellectually and in conduct training.

CASE II.—My second case is that of a boy in middle adolescence, who failed in his preparatory course for college, and dilapidated in character by cheating in examinations and seeking dissolute companions, which caused his dismissal from school. He was born of good stock and normal parents. The home life had been satisfactory. He had an approximately normal childhood in mental and physical development aside from a singular lack in mental concentration in all his school work, and ordinary educational methods held no appeal. At twelve years he grew rapidly and suffered from a severe facial acne. He was extremely resentful of correction both at home and at school and became more reticent and self centered. The report of his head master is pertinent, and makes the fault in his school record stand out in vivid outline; the report runs as follows:

"This is the boy's third year in my school. The first was wholly unsuccessful from the point of view of studies. He seemed immature and lacking in application, but he was good looking and winning, and made friends easily. He played the part of a girl in several shows, which attracted attention from some of the older students, and he was somewhat spoiled by his experience. He seemed to have the greatest facility in making friends with older boys of the less stable type; I have no suggestion of any impropriety; he simply ran with boys of the slightly sporty kind who were attracted by his good looks and good nature. I felt sure he would come out all right. During vacation his summer camp councillor gave him a good name.

"The second year the boy started well in scholarship, the work being review, but his standing fell off as he got onto new ground, though he managed to pass for the year and was promoted. He had C in English, mathematics and science, and D in Latin and French—not a very good record for a repeater. He began to take some interest in school activities, and was successful in making the paper on the advertising end. In things of this sort he shows his greatest ability; he can solicit advertising, act as assistant manager of a team, greet our athletic rivals, and attend to practical details connected with games.

"This year his scholarship has been indifferent from the start, two failures the first month, three D's, an E and a C for the first term. He belongs to what we call the lazy, self-indulgent, sophisticated group. No boy spends more time than he in hanging around the village and buying sweets, and this in spite of frequent admonition. Recently I found him with a couple of others on Sunday morning in the drugstore after their hour of closing—not a crime but a sadly unworthy while way of spending time. We are more concerned, however, with specific incidents. Last fall he was suspected several times of dishonesty in written work, and finally there was clear evidence of his having copied large parts of a mathematics test from another boy. He absolutely denied any fault when questioned, and when I talked with him he lied circumstantially and in detail, having a full explanation all ready. A few hours later he came to me and said he could not rest easy, and that he had cribbed. He confessed first that he had done such things once or twice, then pretty often. I talked with him in a sympathetic manner, and gave him encouragement. I thought this would have a good effect, especially as he wrote his father how fair I had been and how I had gone out of my way to straighten matters. We do not feel, however, that he is now wholly trustworthy, though we have no more proof; he has a roving eye during tests that bodes no good.

"Another thing came to my attention as follows: This boy got another, younger than he, to promise un-

der mild torture that he would do anything he was told for a given time. He then made the boy go with him to the room of a third boy, who held him while he undid the boy's clothing and otherwise acted indecently. Both of the younger boys were disgusted but rather terrified by the older boy with prestige of being an old boy in the school. When I talked with him about this he said he had done substantially what he was charged with, but thought it had been exaggerated. On sex questions in general I get little response. He has had some instruction at home, and says these things are not on his mind, that he occasionally tells smutty stories, "but no more than anyone else," etc. I have talked his case over in faculty meeting, and one man thinks the boy essentially coarse, and another says the older fellows consider him the worst influence in school. We don't want him back unless we can be assured that we can look for better things."

A psychologic test showed as follows: His chronological age at the time of the test was 16 plus years, his mental age 16-6 years; intelligence quotient, 103, indicating average intelligence. He succeeded with every test of the 12th year, therefore his basal age was 12 years. In the 14th year he passed four of the six tests, i.e. the vocabulary test; the induction test which is little if at all affected by schooling and which tests ability to generalize from particulars; the "problems of fact" test, and the arithmetical reasoning test. In the 16th year he succeeded with three of the six tests, namely, giving difference between abstract words; a problem, the statement of which must be comprehended and its conditions held in mind while it is being solved and in which constructive imagination is required; and the repetition of 6 digits backward which makes a heavy demand on attention. In the 18th year he passed three of the six tests, namely, repeated 8 digits, which indicates excellent rote memory; he got most of the thought of a difficult passage which was read to him; the third test with which he succeeded in this year was the "ingenuity" test. It requires practical judgment and a certain amount of inventiveness. As a summary of the tests, his performance showed he possessed average intelligence. Children with this degree of intelligence seldom have trouble as far as learning is concerned in the elementary school. In high school, however, they are likely to find themselves in "deep water" and are able to earn less than average marks. This boy had a superior memory span but recall memory was not as accurate.

We have here a fairly normal boy in physical development but with a slightly retarded mental development and the steady and insidious ingraft of moral defects. More intensive analysis showed an enormously distorted sexual fancy of a sadistic character. The situation was not so benign in correction as in the other boy of the foregoing record, nor was there the opportunity to painstakingly unravel the special fault afforded. The boy is obviously not sufficiently endowed mentally to make a good university training, nor will he be able to make a successful commercial career without a signal correction of his attitude in fair dealing with his associates. The unconscious or repressed sexual strivings are too dynamic in character formation to portend a healthy life without psychoanalysis. The boy's future is fraught with many pitfalls unless this be undertaken.

General Remarks.—In a summary review of the illustrative cases given in this paper we may say we have here the more or less benign manifestations of adolescent variations bringing the youths into conflict with the orderly routine of home, school, and society in general. The first case shows an emotional defect with slight intellectual retardation as well, and this double defect indicates how great is the amount of care and atten-

tion needed in handling such boys; while the second case has the handicaps of the first plus the potentialities of inborn sexual perversion requiring the most serious consideration.

The number of youths illustrative of these adolescent defects must be legion. Only the short-sighted arraigns these faults upon moral or religious defects rather than upon abnormal psychological trends. No doubt more earnest attention should be given to these variants, but the rôle they play may be quite as easily over-emphasized as the fault of giving them too little concern. A judicious attention and wise guidance of the three parties concerned—the boy, the parents, and the teachers—ought to bring about much more satisfactory results in future.

The question naturally arises, are there early evidences of primary faults in the instinctive life of these youths? To which one may reply positively, as shown in the cases here cited. Secondly, does one find evidence of these faults in the family stock or is it purely a congenital defect? The answer here is by no means so certain and positive. On the whole, however, I may say that several years of preoccupation with these boys, both in private and public school work, has shown that almost invariably one may find exhibition of the same trait character in the ascendants. In many instances the latter have lived their lives in much less exacting environments than their descendants and consequently have not been held up to the sharp scrutiny of a more rigid code of ethics. Even to-day in sparsely settled rural districts it is common to find many normal dull persons with social dilapidations classed as shiftless and "no accounts" or black sheep, who are permitted an astonishing range of liberties without the slightest apprehension of the general public as to its own safety or even discomfiture. They are often mentally ticketed by the community as not to be fully trusted in the responsibilities of life. Living a life of communal ostracism, they ultimately find themselves in almshouses and jails, or eke out a precarious existence at the hands of relatives or charitable persons. Often a vicious inbreeding intensifies the defect, and all sorts of degeneracies follow in the family stock. The whole subject makes an excellent one for intensive study on the part of all interested in the broader application of practical principles of mental hygiene. The subject is excellently begun in the epoch-making survey of mental disorders in Nassau County by Rosanoff.*

Detection and classification of these subnormal individuals are absolutely necessary, not alone because of the mental defect but because many of them are potential antisocial factors in the community with all the various aptitudes for delinquency noted in the text. Second, the character faults would seem to be on the whole independent of the quantitative estimation of mental defect, although the two are frequently correlated and the greater number of delinquents would probably be found in this group than in the normal group. Third, undoubtedly there is a great

need for schools, both private and public, to recognize the qualitative faults in such individuals and establish an education adapted to overcoming the same quite independent of purely an effort toward correcting the mental retardation. It should be somewhat along the lines that have been suggested in this and other studies upon the socially unstable, the high type of feeble-mindedness such as the moron, and for the so-called psychopathic inferiors.

A general pedagogical and training approach to this complex problem of the dull normal person is the immediate practical question, both in the field of his concrete-mindedness, and the training out of the character faults which are likely to occur far more frequently in this group than in the general run of abnormal adolescents. To prevent or train the dull normal adolescent we have need of the very best in pedagogic psychology. Singularly enough most problem pupils in the so-called normal schools are embraced in the equally handicapped though antipodal mental makeup of the concrete-minded and the abstract type. Unfortunately the schools as now arranged more or less exclusively screen out the concrete-minded and do not consider the abstract thinker as a real problem. Our system is so arranged that the importance of rote memory and the grasp of the symbol is overconditioned.

Let us sketch briefly some of the dilemmas of the rather pronounced type of the abstract-minded pupil. First of all he enters school rather overkeen for books and their ways of presenting thought. To him abstract work is the game above all. The actual concrete problems in symbolic studies are embraced par excellence in mathematics and language work. But he falls short in putting such clever means of thinking into an actual constructive plan of work. Things get in his way. He is usually inferior in physical equipment, and does not easily adapt himself to the larger boy group or in the play sports of the school. He is not a good mixer. The boys usually find his highbrowism spoils him for good fellowship, and he is apt to degenerate into a "greasy grind" and thus lose out in gaining an education in any large sense. But because of his excellent class standing he may still be the idol of the faculty and is often held up as an excellent example to the slow-witted members of his class much to his continued disadvantage in making class teams and getting into a more definite rapport with the athletic group. His difficulties are increased as he nears the end of his school career or when he actually enters upon active life work. Not infrequently he is encouraged to take up teaching as a profession, and if so he lends his moral support to a more fixed specie of symbol or abstract thinking. Thus we find the educational system has a tendency to limit its own objective until outside influences compel changes to a larger and more comprehensive plan of education. What usually is the after life of these rather narrow, sharp-pointed types of abstract pupils? Either they reform, in part, at least, by taking up the world's work, or they gravitate into office forces or skilled technicians of the business class. The world is filled with them. The more concrete-minded who

*A. J. Rosanoff: "A Survey of Mental Disorders in Nassau County, N. Y., July to October, 1916." Publication No. 9, National Committee for Mental Hygiene.

limp through the school curriculum get their innings on leaving school. The concrete world actively supplies them an enormous stimulus. One of my patients, at one time a noted football player and now a clergyman, said, "I never could fully understand the book work in undergraduate and theological training, but so soon as I got among men and their daily problems I was once more at home—the real work of the world to me is concrete and vital."

It is obvious, of course, that what one needs, as Dewey* points out, is to develop both attributes. The abstract thinker needs to fill in his empty rationalities with concrete work, while the concrete-minded needs to have his mind extra trained in the use of symbols. Both problems, if we are to fully meet the issues of education, are equally pressing. However, our concern here is to see whether we may not enlarge the capacity or adapt the too concrete-minded pupil. Every child is more or less interested equally in adventure and fairy tales. Their colorful and vivid appeal is for all. Why is it not possible to so ingraft the simple, natural, and appealing principles of symbolic thinking of childhood into ways of thinking upon school studies? Thus we may carry the concrete principles of work of the grammar school into the high school and college curriculum. In point of fact that is what is actually done with these dull-normal concrete-minded pupils when they are sent as educational problems to the cleverly arranged preparatory school. First of all the teaching personnel must be capable of diffusing its own vivid human interest in the subject to the slow-footed, plodding student—a sort of benevolent contagion of thinking is imparted. Then, too, the teacher should constantly add the vividness of concrete application to the symbolic thinking as he advances his subject. Teachers in all walks of life are too apt to consider illustrations as digressions and time-killers, and use them sparingly. If they but realized it the intellectual things which they wish to teach their auditors should have a warp of concrete presentation with a woof of symbolic thinking instead of vice versa; the dull-normal student would then stand a better show of getting on.

While we all know that the concrete dull-normal student can never be made a clever symbolic thinker, yet if we would but take more pains, extend and elaborate more slowly our advance in the development of such minds, many relatively benign states of despair can be removed and the others made more acceptable in life adaptations. These suggestions are offered to the teaching profession to work out by their excellent adaptive methods which everywhere they are putting into modern education.

20 WEST FORTY-EIGHTH STREET.

*John Dewey, "How to Think," 1909.

Sexual Propagation of Trypanosome Disease.—Nattan-Larrier compares the venereal transmission of dourine and Chagas's disease, of which the former has long been recognized as venereally transmitted in the horse. The analogous transmission of Chagas's disease is only recently recognized; and compared with dourine the contagion is feeble.—*La Presse Médicale*.

IODINE IN THE TREATMENT OF GOITER.

By S. P. BEEBE, Ph.D., M.D.,

NEW YORK.

A FACT once established is not overthrown by subsequent progress. It may be neglected or relegated to a point of relative obscurity by the intense interest in other relations, but it has so stubborn a character that it can never be entirely replaced or forgotten. The intense interest which has been shown in the study of goiter in recent years has in many instances led away from one of the most fundamental facts in connection with the problem, and this has to do with the primal importance of the iodine content of the thyroid gland.

The relations which iodine has to thyroid function and to the development of goiter have been the subject of many experimental investigations, and quite diverse opinions have been expressed. From the standpoint of medical progress such interest is easily understood because it has been possible to measure certain factors accurately, and there is no more important subject in internal medicine than the relation of disordered thyroid function to disease.

It is most interesting to note that iodine-containing substances were used as medicine in the treatment of goiter long before the discovery of the element iodine itself, and that it was nearly a century after the discovery of iodine before its presence and very high relative content in the thyroid gland were determined. Empiric medicine not infrequently has been justified by later scientific investigation. One needs only to recall the origin of the quinine treatment for malaria, the use of mercury in the treatment of syphilis, and the history of digitalis to confirm this statement. The pressure to do something to relieve the sick is not a recent acquirement of human nature.

Baumann discovered iodine as a constituent of the thyroid gland in 1895 and isolated a substance from the products of acid hydrolysis to which he gave the name iodothyrene. This substance contained varying quantities of iodine from 9.5 per cent. to 15 per cent. The writer, following his method, has occasionally obtained a product containing as high as 20 per cent. iodine. This product was believed to be the active product, the characteristic agent responsible for thyroid activity, but further investigation has disproved these earlier conclusions. The discovery that the thyroid was peculiarly rich in iodine uncovered a most important fact, the full significance of which is not as yet completely understood. Since Baumann's time practically all tissues of the body have been analyzed for iodine, and thyroids from many different species of animals, the glands from the same species at different ages, different seasons of the year, and under different conditions of feeding have been carefully tested for this most important element. Different types of goiter in both man and animals before and after the administration of iodine in different chemical combinations have been analyzed for iodine. There has been a large volume of this iodine study and the conclusions are not in all respects in harmony. This is due in part no doubt to the variety of technical methods employed, and to the varying skill in the investigators.

Some of the most recent and most interesting studies along this line are those of Kendall, who has isolated a compound, thyroxin, containing 60 per cent. iodine, which he believes is the active and characteristic secretion of the thyroid gland. His conclusions in this matter do not seem to the writer to be in harmony with all the facts. As compared with the other tissues in the body the thyroid contains so much iodine as to make the other tissues relatively unimportant as iodine containers, and its constant occurrence, the avidity with which the gland takes up iodine, the remarkable changes in functional activity and anatomical structure which follow iodine absorption, indicate beyond any reasonable doubt the fundamental nature of the function which iodine plays in the activity of the thyroid gland. The following table shows the iodine content of the normal human glands in this region:

Weight of Gland	Milligram in One Gram of Gland	Total in Milligrams
23.3	0.473	11.02
22.5	0.79	11.02
24.75	0.46	11.38
16.5	0.34	5.61
19.5	0.15	2.92
32.25	0.40	12.10
17.0	0.31	5.27
22.0	0.31	6.82
24.5	0.23	5.63
26.25	0.14	3.67
26.5	0.40	10.60

It is not possible within the limits of this article to discuss in detail or even indeed to outline the nature of the various theories which have been put forward by investigators in explaining the action which iodine has in the thyroid gland, but it is worth while to summarize what seem to be definite conclusions that are subject to little controversy and are compatible with all the different investigations of moment.

1. The thyroid gland is the richest in iodine of all the tissues in the body.

2. The thyroid in its normal natural state contains a relatively higher quantity of iodine per gram of gland than a goitrous gland.

3. The thyroid has the ability to store iodine within limits from practically any iodine compound that is absorbed into the circulation.

4. The iodine content is rapidly increased in many forms of goitrous glands during iodine administration.

5. There is a wide variation in the limits to which iodine may be present in the gland compatible with health.

6. While in very young animals or in those on a restricted diet it would appear that a thyroid without iodine may have sufficient function to keep the animal in health for a time, yet the evidence strongly indicates a relation roughly quantitative between the iodine content and the physiological activity of the gland extract.

7. While the iodine is normally contained in the gland colloid, glands that have become almost entirely cellular as a result of hyperplasia retain the power to absorb and store iodine.

8. A variety of iodine-containing compounds is present in the gland extract.

9. The absorption of iodine frequently assists the reversion to more nearly normal histological conditions in glands that have become the seat of cellular hyperplasia.

Quite a variety of iodine-containing substances have been prepared from thyroid glands. These differ somewhat in their chemical structure, solubilities, and physiological action. Without doubt some of them are not to be understood as natural products of the gland activity, but are rather to be looked upon as cleavage products of varying size obtained through the hydrolytic action of the particular acid or alkali used for the purpose. It need not be supposed that all of them normally are formed and enter the circulation from the living gland merely because they may be obtained in the laboratory by a drastic chemical action, and in this paper there will be no further discussion of their significance.

In the writer's experience three different forms of iodine answer all the requirements for therapeutic purposes. These are potassium iodide, ferrous iodide, and thyroid extract. The writer has never been able to find any advantages in the large array of ointments, organic compounds of iodine, or so-called colloidal preparations of iodine now available in the market. Kendall has recently isolated what he believes to be the active iodine-containing element from the thyroid, thyroxine, and claims for it specific action in certain types of thyroid disease, and his published results certainly seem to substantiate these claims. The writer has had no experience with it and cannot, therefore, give any estimate of its usefulness.

The total quantity of iodine in any thyroid gland is very small in comparison to the amounts usually given as a daily dose for therapeutic administration. In general, the doses used ordinarily are quite unsuited in goiter. The variation in the sensitiveness of different patients to iodine is well known, and this is particularly true of goiter patients. The dangerous consequences of large doses of iodine have been repeatedly emphasized, and the caution is indeed a needed one. Doses of ten, twenty, or thirty grains of potassium iodide are frequently given three times daily in luetic conditions, and the profession has gained most of its experience in iodine administration with such maximum dosage. Such doses are dangerous in any form of goiter. The writer has seen a considerable number of patients during the last ten years in whom these large doses have induced very active thyroid toxemia. Nevertheless, iodine is the most valuable single medicine, and the most universally applicable to all forms of thyroid disease.

There is practically no dispute that iodine should be given in some form to patients having simple goiter, or the early stages of endemic goiter. The dose must be small and long continued. The initial doses should be one or mostly two grains of potassium iodide three times daily. After four to six weeks at this rate the dose may be gradually increased in some cases to five grains three times daily. The writer rarely has found any occasion to exceed this dose. In this respect the writer differs radically from the advice given by McCarrison, who gives to such patients five minims of the tincture and five grains of the potassium salt as the initial dose and increases gradually to three or four times as much. Such dosage may be advisable and suitable for the natives of India, where McCarrison has gained his experience, but it cer-

tainty would cause havoc on the patients seen by the writer in New York City. If the iodine effect is desired in such cases it can be obtained readily by the use of the potassium salt, and the writer has found no occasion to use any ointment or tincture externally. Such applications are irritating, disfiguring, and the absorption of iodine from them is uncertain and irregular. Whatever iodine can do for the gland can be done by the administration of the potassium salt. The writer gives the caution, however, that iodine is only one factor in the treatment, and the general hygienic care of the patient, especially from the standpoint of infections and gastrointestinal disorders, must not be neglected. Such emphasis is necessary, for it is still too frequently the opinion that iodine administration alone answers the physician's responsibility toward his patient in cases of simple goiter. Even Crotti, in his recent book, states: "We may say that medical treatment of simple goitre is contained in this one word—iodine."

The length of time iodine administration must be continued in somewhat a matter of dispute. At times the response of the gland toward iodine is prompt, and three to six weeks' treatment may show very marked results, but it may not be so prompt, and the writer in many cases continues iodine administration for periods of a year, and even two years, in small doses, with occasional interruptions. Even after normal conditions of health and gland have been produced, it is wise to continue the iodine in small doses. This is especially true in those cases that occur in young women who later marry and then become pregnant. During the pregnancy two grains of potassium iodide three times daily will keep the thyroid function up to normal, and the patient has less toxic manifestations. In many cases the iodine effect is slow, and months will be required to effect the desired changes in the gland. A further point of importance in iodine administration to thyroid patients is the necessity of keeping the patient under observation, particularly in the earlier periods of the treatment. The optimum dose varies so much with the different types of the disease that only by constant observation and careful trial can this be determined.

Iodine administration to hyperthyroid patients is the subject of great variation of opinion on the part of the many students of this problem. Some writers condemn its use in the most positive terms and issue the warning that iodine must never be given to hyperthyroid patients. Others assert that it may be given in minimum doses under constant supervision. In going over these statements in the literature it seems probable that the actual basis for the conclusions has been theoretical considerations and preconceived notions rather than careful clinical observations. The precise relation which iodine bears to the Graves' syndrome is not as yet understood. Proceeding from the thesis that the functional activity of the gland is proportional to its iodine content, and the observation that the iodine content is rapidly increased by iodine administration, it has been suggested that iodine may be given in doubtful cases for diagnostic purposes. If a few grains of potassium iodide are given in a doubtful case of hyperthyroidism

and the symptoms are augmented, it may be concluded, according to this hypothesis, that a state of hyperthyroidism actually prevails.

The logic of this argument is so attractive that it has been a factor in restraining a useful therapeutic method. The determination of the quantitative relation between iodine content and physiological action was one of the points in the experiments of Hunt and Seidell, who investigated the protective power of thyroid feeding to acetonitril poisoning in mice. Results of this character are obtained by feeding thyroid extract of an alien species to an otherwise healthy animal and, while they may be accurate within the conditions of the experiment, it is hardly justifiable to apply them literally to an entirely different set of conditions with so many obscure factors as obtain when the human animal is apparently poisoned by an excessive action of his own gland. We do not know as yet to what degree the thyroid is primarily at fault, and to what degree it is reacting in a mechanism of defense to stimuli, both nervous and chemical, which reach it from without. It seems reasonably certain, however, that the conditions which govern the therapeutic administration of iodine to human patients with varying types of hyperthyroidism are not fully covered by the interesting syllogism cited above.

The hyperthyroid gland is poor in iodine. Several years ago the writer made iodine analyses of many such glands, and as compared with the normal gland, containing 0.364 milligrams, an average of 0.095 milligrams of iodine per gram of fresh gland was obtained from the hyperthyroid glands. In at least some and at times all portions the hyperthyroid gland is the seat of very definite hyperplasia. The purpose of treatment is to restore the gland to normal, both in structure and function. Iodine must be taken up by the gland to accomplish this end. If not given as a medicine the iodine in the food supply must be depended upon for this purpose. The sensitiveness of some hyperthyroid patients to iodine administration is well known and the doses must be regulated carefully, but the desirability of giving iodine as a medicine to patients in this group cannot be determined by animal experimentation. This matter can be determined only by clinical use on the diseased human animal.

In the writer's experience iodine is one of the most valuable therapeutic agents we have in the treatment of the hyperthyroid forms of goiter. As in the case of any potent drug, injury can be done with it. So can we do injury with digitalis and salvarsan. During the last ten years the writer has treated a large number of cases of hyperthyroidism, and with most of them the administration of iodine has been a part of the treatment. There is no danger in so doing if the dose is properly regulated. The extreme sensitiveness described by some writers is a rare event. If the dose is properly regulated there need be no fear of iodism or iodine Basedowism. At rare intervals a patient will be encountered whose sensitiveness to iodine is so marked that only minimal doses, a fraction of a grain, can be given, but it should be remembered that the total quantity of iodine in a normal adult gland is very small, from one-third to one-half a

grain. In the earlier stages of the disease and in the acute fulminating types, smaller doses are to be used than in the later stages and chronic forms.

In young women with active hyperthyroidism extending over a short period of time the beneficial effects are slower to appear and smaller dosage must be used than in the later stages of the disease when its character has changed somewhat. A dose of one-half to one grain of potassium iodide three times daily is enough to begin with, and the dose must be kept at that amount for several weeks, perhaps two months, before increasing it. Overdosage will promptly show itself by the increased disturbance it causes.

In those patients, for the most part young women who have the typical Basedow condition from the outset in severe form, *i.e.* their hyperthyroid manifestations have not been grafted upon a previously developed simple goitre, iodine must be administered with great caution. Unless given in minimal doses the possibilities for doing harm are greater than in any other type of the disease. Small doses, one-half grain potassium iodide twice daily, rarely cause any disturbing reaction, and if continued with occasional interruptions, over some weeks or months, it appears to the writer to be of benefit for the majority of these patients.

The most pronounced effects of iodine are often seen in the thyroid disease, occurring in women who have had the disease for several years, often for eight to twelve years. They usually have the cardinal symptoms, exophthalmos, goiter, tachycardia, and tremor, well developed. They are usually constipated and have a history of much gastrointestinal disturbance, severe headache, high blood pressure, congested inflamed pharynx, the skin of neck and chest pigmented, and a very pronounced tremor.

In patients of this type iodine often acts like a specific, and in a few days the entire clinical picture has changed for the better. No other medicine can replace iodine in this group. The drop in blood pressure, slowing of the heart, diminution in tremor and extreme restlessness, relief from the toxic manifestations are so prompt and decided, and the general change for the better so promptly follows the proper administration of iodine, that it seems at times a more simple matter to influence favorably these old worn-out cases than it is to get equally good results in the younger stages of the disease. From the operative standpoint they are bad risks, and even if the patients survive, their condition is little, if any better, and frequently, indeed, it is worse.

Every case of hyperthyroidism subjected to operation is a medical case before and for a long time following the operation. If this procedure is not followed, the beneficial effects of an operation will be largely lost. In the recurrent cases, as well as those treated with the x-ray, iodine is an essential part of the treatment.

Glands that have been the seat of hyperplasia and have been the origin of hyperthyroid symptoms do not always regain the ability to maintain normal function on the iodine supply of a mixed diet, and not infrequently they may need additional iodine supplied occasionally for a period of some years. This is particularly true in case the pa-

tient has unusual demands on the thyroid apparatus, such as pregnancy or infectious disease.

In this paper emphasis has been placed upon the use of iodine in the treatment of hyperthyroidism. In the writer's opinion the disease will not be properly treated until the value of iodine and its proper administration are learned by the medical profession. However, it is not the whole of medical treatment. Other factors may be of equal or even greater importance, but they cannot be outlined in the limits of this paper.

116 EAST FIFTY-THIRD STREET.

SOME MEDICAL ECONOMICS PROBLEMS.*

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A PRACTICAL farmer does not buy a horse just because it happens to have a high sounding name. About the first thing he does is to look at the eyes to see whether the beast is blind or not and to determine whether it is true or not. The next thing he does is to run his hands over the joints to find out whether it has a spavin or ringbone, or steifel; then he tests its wind to determine whether or not it has heaves, and finally he looks at its teeth to see whether it is as old as Methuselah or not. The story is told of a city man who became an agriculturist. About the first thing he did was to buy a horse. He was shown a gentleman horse by the horse dealer. It was not worth much but he bought it and paid about twice as much as it was worth, principally because the horse jockey kept calling the beast by the not altogether appropriate but very euphonious name of Lady Clementine. This is about the way we of the medical profession have in the recent past been asked to buy welfare schemes of all kinds. If such a scheme has had either the word Charity, Philanthropy, Health or Welfare interwoven into its title, we, of the rank and file of the medical profession, have been asked by some of our high-brow near-medical leaders to buy without further examination. It is about time that the medical profession of America use as much judgment and discretion when it goes into new schemes as does the ordinary plain farmer when he buys a horse.

This is the age of standardization. We have standardized medical colleges, standardized surgeons, we are soon to have standardized hospitals and we are creditably informed that the lay Health Commissioner of Detroit is trying to standardize the stomachs of its citizens. It occurred to me recently that it might be a good idea if we would standardize all these schemes that are being presented to us. Give them the acid test and if they are not true gold, let us not buy them even if they are called Lady Clementine.

I think the medical profession ought to oppose all schemes (1) *which are not absolutely necessary*, (2) *which introduce new evils*, (3) *which advertise a few at the expense of the many*, (4) *which appropriate without fair remuneration the skill, knowl-*

*Address delivered before the North Side Branch of the Chicago Medical Society on April 7, 1921. An address of similar scope was delivered before the Northwest Branch of the same society and published in the *Illinois Medical Journal*.

edge and time of the physician, (5) which are palliative instead of preventive or curative, (6) which further place medical men under lay supervision and control, (7) which unduly interfere with the individualism of the medical man or are paternalistic, (8) which have a tendency to pauperize the public and thus destroy the self-respect and self-reliance of the people.

Let us revert and briefly consider each one of the above eight tests.

1. I believe that the medical profession of America renders better service to its fellow men than does any other group of its citizens. I believe that the average American citizen has better medical care than has the average citizen of any other country on the globe. If these two statements are true, what is the need of any of these new fangled schemes? Of course, we must have progress, but

2. Let us be very careful in adopting new schemes to see that they do not introduce new evils—evils which may be greater than those we are trying to correct. I heard an English publicist and lecturer speak in Chicago some eight or ten years ago and he described a little scene that he had witnessed the day before on Wabash Avenue as rather typical of American life and thought. He said he was riding on the front platform of a street car. It was a slushy, blustery, snowy, muddy day and the conductor stopped at a crossing at the side of a mud puddle and rather querulously ordered the passengers to "Step lively please, step lively." The Englishman said he felt like saying "Don't look where you are stepping, but keep a-moving." It is about time that we physicians look where we are stepping. Make sure first that we are going in the right direction before we adopt any scheme. Then, if it proves good, adopt it, but let us not keep a-moving just for the sake of moving.

3. Let us analyze the real fundamental reasons for the establishing of free clinics and dispensaries in Chicago as elsewhere. You will find four reasons—two are legitimate and two are not. The legitimate ones are to provide proper medical care for the sick poor, and to provide teaching material for medical students. The illegitimate ones are for the purpose of advertising a certain doctor or group of doctors, or to act as a feeder for a certain hospital. When we adopt new schemes let us be careful that they are for the benefit of the rank and file of the profession and the people and not for the aggrandizement of a few. A very large per cent of the dispensaries of Chicago should be abolished. They are detrimental to the profession and to the citizenship of Chicago. This is not popular doctrine but it is true just the same.

4. We should also oppose every scheme which appropriates the time, skill, and knowledge of physicians without just, fair, and reasonable remuneration. Why? Because anything which continuously works to the disadvantage of the medical profession will in the end work to the harm of all the people of this country. Next to stability of government, honesty of administration, and general intelligence of the people, the welfare of a nation depends more upon the quality of medical service which is rendered to its citizens than upon any one other thing. The longevity, health, efficiency, and happiness of a people depend more upon the

integrity, ability, and industry of its medical profession than upon anything else. If these two postulates are true, and I think they are, then anything which hinders medical progress and which will have a tendency to prevent suitable young men from entering the profession is inimical to the best interests of the whole nation.

5. We should oppose every scheme which is a palliative instead of a preventive or curative. It is an axiom in medicine and surgery and should be in political economy that a palliative must not be used continuously for any considerable period of time unless the case is hopeless. These people who want to reform every one except themselves are continually advocating the continuous use of palliatives and this is a serious economic mistake. We physicians have learned better. We use morphine only to bridge over a period of short stress or to alleviate a hopeless condition.

6. We should oppose any scheme which has a tendency to further place medical men under lay political supervision and control. Medical men are being more and more dominated by laymen. This is a bad thing for the medical profession and a very serious obstacle to medical progress. Our hospitals are being more and more dominated by lay boards; our medical colleges are virtually completely under the control of laymen. Quite a number of our medical schools have deans who are not medical men, who cannot practise medicine in the State in which they are deans because they are not medical graduates. Another group of our medical deans, while they are graduates from medical schools, are unfit to practise medicine because they have had no practical experience in the practise of medicine. A very large group of our medical teachers are not medical men and while the old system of ownership of medical colleges by physicians had many objections, the new system has many objections which are even more serious. Our national, state, and county institutions with their thousands of patients are controlled by lay boards. In Europe, where Compulsory Health Insurance has been in force, this control is so menacing that medical progress has practically ceased. Frederick L. Hoffman is reported as having found a very amusing incident in his recent investigation of the workings of the Compulsory Health Insurance act in England. An English panel doctor prescribed fifteen capsules for a patient, but the patient got well when he had taken nine. This physician was called before the lay board, censured and fined because the lay board claimed that he should have known that the patient needed only nine capsules for his recovery. How would you gentlemen like to have some lay board appointed by Hinky Dink, Bath-house John, or John the Pow, or some other group of equally powerful politicians in this city, any one of whom has more political influence than all of you combined, tell you just what you may and may not do in the practice of medicine?

7. It is time, gentlemen, that the medical profession wake up. I am not a pessimist but the medical profession is to-day facing the most serious crisis that it has ever faced in the history of American medicine and it is facing it partly because of the general unrest among the people and partly because of muddle headed leadership. Most of these

schemes interfere with the individualism of the medical man. There can be no medical progress without individualism and without individual liberty. In political economy I believe in *voluntary cooperative individualism*, in other words, *democracy*, as opposed to *socialism and autocracy*. I am opposed to each and every one of the fifty-seven varieties of socialism because it interferes too much with individualism and dampens personal enthusiasm and incentive. I am opposed to autocracy for much the same reason.

8. We should oppose any scheme which has a tendency to pauperize the public or which robs people of their self-respect and self-reliance. Practically every eleemosynary institution is evidence of some fault in our economic system. It may be necessary now but our supreme effort should be to make all such institutions superfluous. We must have certain charitable institutions to-day but outside of charitable institutions for mental, moral, and physical defectives, who are unable to provide for themselves, the time should come and must come and will come, if we progress in civilization, when there will be no other charitable institutions because charitable institutions, no matter how carefully managed, have a tendency to take from independence its proper pride and from mendicancy its salutary shame. Shakespeare said very well, as he always said very well,

"Who steals my purse steals trash; 't is something, nothing;

'T was mine, 't is his, and has been slave to thousands;

But he that filches from me my good name

Robs me of that which not enriches him

And makes me poor indeed."

If Shakespeare had lived in this present day with all the innumerable welfare schemes in operation and contemplation he would have added in very much better English than I can command the following thought: And he who deliberately robs any man of his self-respect and self-reliance is infinitely worse than even the thief or the blackguard. He is an enemy to society and a menace to free institutions. Free institutions depend upon a self-respecting citizenship and many of these welfare schemes rob men and women of their self-respect and self-reliance.

In this connection let me read just one illustration from many which could be cited. Several months ago the wife of a public school teacher, suffering from a lacerated perineum with a very pronounced rectocele, came to me with the following story: Has had six children, youngest about six months old. When seven months pregnant with the last pregnancy, she decided to go to one of our largest quasi public hospitals to be confined, because this hospital was under the management of a religious organization of which she had been a member since childhood. She was examined by one of the hospital staff, told that she had a severe rectocele and an immediate operation was advised. She consulted her brother-in-law, a physician, who advised against the operation at this time and told her to wait six months after the delivery and then see me about repair work. In spite of the most persistent urging of the hospital physician, she refused operation, was delivered six months ago and

a few days before I saw her, the follow-up nurse from the above hospital called on her and told her that she ought now to have her repair work done and that a certain prominent gynecologist had agreed to do it for her free of charge; instead, she came to me for examination and advice.

I operated on her a few days later. On examining her to-day, two months after the operation, I find the result perfect and the patient profuse in her expressions of gratitude for having been so completely relieved of the constipation and rectal trouble and in to-day's mail I received a letter from her husband, from which I quote the following: "Your statement was received a few days ago. Please accept my thanks for its amount, associated as it is with the highest grade of service. Thanking you with all my heart for what you have done for her and my family, I am, very gratefully yours."

I am not reading this letter to throw a bouquet at myself. I am simply reading it in order to be able to ask you whether you do not think that this patient was better off because she came to me and because she paid for her operation than if she had gone to this hospital, had had a free operation by a gynecologist who spent much time and money in acquiring the education and training which enabled him to do such an operation. What moral right had that hospital to donate this doctor's skill, knowledge, and time and give it to the wife of a teacher in our public schools? If our public schools do not pay enough so that its male teachers can provide medical care for their dependents, so that they may be and grow up as self-respecting free American citizens, it is time that we raise the salary of the public school teachers. What the men and women who are doing the work of this country want is not charity but justice. They want the privilege of having for themselves and their families the doctor of their own personal choice. They do not want to be pauperized, and practices such as above cited are nothing short of indefensible.

The activities of medical men, as medical men, can be classified into three functions: First, sanitation and public hygiene; second, the teaching of personal hygiene, and finally, the treating of disease. The first is distinctly the function of the State and the last is distinctly the function of the private practitioners of medicine. If any one has found anywhere in the writings of any of the gentlemen who are trying to make us swallow Health Insurance, Health Centers, and what not, the above fundamental classification and distinction, I would like to have a copy of it and I will thank you for it. They do not seem to be able clearly to comprehend that the State is the only agent that can really look after sanitation and public hygiene and that private physicians are the only ones who in the long run efficiently and effectively treat the sick. Why is it that in 145 years of existence of this republic nothing has ever come out of a government controlled institution that has materially improved the treatment of the sick? Here again if you can find a single exception I would like to have it. During the time of the existence of our republic approximately 1 per cent. of the citizens of this country have been under the medical care of the nation, State, county, or city authorities and yet not one single thing in the improvement of the

treating of disease has come out of these activities of the government. To-day there are approximately 1,000,000 people under absolute medical control of the above governmental agencies. What are they doing to improve the treating of disease? Absolutely nothing. Why? Because just about the time a medical man gets warm in his seat in a medical job and gets really interested in a certain line of work, he has to move on. Some lay bureaucrat down in Washington or Springfield pulls the string and the doctor has to move and the result is that after a few such experiences the doctor loses his interest and enthusiasm in treating the sick and he becomes interested in the only things that are permanent in government medical service—fawning for favor and political advancement, paper work, statistics, and public hygiene and sanitation. This is very well so far as it goes, but it does not cure the sick or make for greater efficiency in the treatment of disease. If you or I had the results in the treatment of empyema that occurred in some of our training camps we would have to go out of business. I have practised surgery for twenty-seven years. I have lost some empyema cases, but I have never had an acute empyema case which I operated on primarily that did not heal promptly without a secondary operation. Not one.

The teaching of personal hygiene is a function that may be equally divided by the State and private practitioner, but the treating of the sick is distinctly the function of the private practitioners of medicine. He who thinks that the successful practice of medicine and surgery depends entirely upon the ability to make a correct diagnosis, knowledge of the action of drugs, and a certain skill in the handling of surgical instruments, is as far wrong as he who thinks that all that is worth while in life is money and what money will buy. While money is needed in our modern economic system to procure the necessities of life, the finest things in life, such as true friendship, true love, and self-respect, cannot be purchased with it. So with the practise of medicine and surgery. To make it really worth while, the above requirements must be supplemented by an untiring devotion to detail and duty, a degree of personal sacrifice unknown in any other vocation in life. These coupled with the other things alone can secure that respect and confidence on the part of the patient so essential to recovery from a critical illness. How many times has the real true physician not been told by his patient after a desperate illness "Doctor, the only thing that kept me alive was that I just knew you would not let me die," and do not make the mistake of thinking that this is necessarily the twaddle of a weakling. Every really great physician has been told this time and again by some of the finest and strongest of his patients, who in time of severe illness and temporary physical weakness, needed some one stronger than themselves to lean on. This is one of the chief reasons why the attempt to treat the sick by impersonal, wholesale, commercial methods, always has been and always will be a failure, relatively speaking.

In the *American Labor Legislation Review*, vii., 1, page 54, March, 1917, Dr. Frank Billings wrote as follows:

I am unequivocally in favor of compulsory insurance

and the protection of maternity. That, I think, must be the attitude of any one who studies the question of illness in its relation to economic conditions. I am in favor of them, too, because our present method of managing the sick poor is about as bad as it can be. While we endeavor in every way to alleviate their sufferings and to put them back at work, our methods are loose. There is no unit of efficiency. The great number of hospitals and dispensaries which exist are said not to be enough, because they cannot take care of all the sick poor; and yet, from the standpoint of what would be necessary if we controlled the sources of disease, they are too many.

To my mind health insurance is going to be one of the best measures of preventive medicine. Under its stimulus the time will come when every community, to economize its taxes under this law, will see that there are practically no patients suffering from typhoid fever within its limits. We will have no smallpox; diphtheria will be diminished; everything known to be communicable will be diminished and many of the diseases incident to some confined, chronic affection will be removed. Such results will not be achieved except by some measure of State supervision, and I know of no State supervision which will equal state compulsory insurance.

I would like to have Dr. Lambert describe a little better the provisions for an inquisitorial body over all the health insurance work. You know, and I know, that we do not do our work well unless there is some incentive, something to make us do it properly, and so I think that in this bill there must be something of that kind.

If the gentleman who wrote the above needs an inquisitorial body to stand over him in order that he may render the best possible service of which he is capable, I am just plain sorry for him. In the last thirty years I have learned to know hundreds of American physicians and my experience is that the great majority of them have a well-developed, active, perfectly normally functioning conscience, a much better monitor I believe than a lay political straw-boss would be. In addition I would like to know by what process of reasoning or stretch of imagination the gentleman arrived at the conclusion that any system of Compulsory Health Insurance now in operation or in contemplation would be "one of the best measures of preventive medicine." To the contrary, about the best and only thing that can be said in favor of Compulsory Health Insurance is that it might temporarily be an economic palliative. That was probably the theory on which Lloyd George acted when he had the Compulsory Health Insurance law passed in England. The opiate is already beginning to wear off and the unrest in England is undoubtedly greater than it would have been had this palliative never been employed.

On Dec. 2, 1920, the gentleman who wrote the above quotation from the *American Labor Legislation Review* (Dr. Frank Billings) delivered an address before the North Side Branch of the Chicago Medical Society as reported in the *Journal of the American Medical Association*, Feb. 5, 1921, lxxvi., 6, page 352.

Compulsory Health Insurance, I believe, would be unsatisfactory to the people it is intended to benefit. In the main, it is class legislation, which usually brings injustice to some other class than those it is intended to help. Under Compulsory Health Insurance the chief sacrifice made in service and money would apparently fall upon the medical profession. It is intended to benefit the working class, many of whom earn as much or more in wages than the average annual income of the private practitioner. In my opinion, its alleged advantages to the laboring class do not solve the prob-

lem of better and more efficient medical service for the people whom it is intended to benefit. Its application will be more likely to degrade the members of the medical profession who become its servants. This derogatory influence on a part of the profession is most likely to be reflected on other physicians in the community with the resulting deterioration of medical service to the whole population. There is an axiom which is related to all schemes intended to benefit the public health. It is this: The chief dependence for the conduct of the necessary ways and means to improve health and lengthen life must be placed on the medical profession. I think it may be said that the majority of the medical profession is opposed to the statutory enactment of Compulsory Health Insurance.

After four years of enlightening missionary work by some of the opponents of Compulsory Health Insurance note the change of front. But then he goes on in the next three pages and describes the new panacea for all medical ills—Health Centers. I wonder, gentlemen, whether we have not a right to conclude that this gentleman is no longer a safe advisor for the American medical profession on matters of medical economics? I leave it to you to judge. Health centers, according to my humble opinion, is the same old baby with a new name and a couple of its feet cut off, and one of the feet is not quite severed either. He says that health centers are not compulsory. No, not until you adopt them. Compulsory Health Insurance is not compulsory either until you adopt it. The only difference between the health center and Compulsory Health Insurance in this regard is that you make the health center a matter of home rule and local conditions, but when you once adopt the health center it is practically just as much compulsory as Compulsory Health Insurance. Another feature that is actually cut off is that there is no provision for paying indemnity to people who are sick or out of work. But what assurance has the medical profession that if it should adopt this baby with a new name, rear it with loving care and kindness, that it might not turn out to be a baby newt or a baby salamander and that within five or ten years those feet might not grow out again? We cannot tell. Let it in once and you will get the same old baby back that we have been fighting for six years and that this gentleman has himself disowned.

I met one of my colleagues in the hospital the other day and he said to me, "Why do you not get in the bandwagon? Why do you not adopt this makeshift scheme proposed at the North Side Branch? I know it is only a makeshift, but you had better adopt it rather than ultimately submit to Compulsory Health Insurance. *You know we sometimes have to compromise with the devil.*" My answer was "No, doctor. The minute you compromise with the devil you are lost. We are in the right and I am a firm believer in the ultimate victory of the right." There is only one real antidote for all of these uplift schemes, ladies and gentlemen, and that is better and better and ever better work on the part of private physicians, be they either general practitioners or specialists. That is the only antidote that is worth considering. The others are all makeshifts, they are all compromises. Individual effort and private enterprise have done wonders for the science and art of medicine in this country in the past and I believe they can be relied upon to meet any and all conditions that may arise from time to time in the future.

METABOLIMETRY IN HYPERTHYROIDISM.

By HENRY R. HARROWER, M.D., F.R.S.M. (Lond.).

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THE so-called "basal metabolism," or heat production of an individual at the lowest level of cell chemistry can now be determined with considerable accuracy by indirect calculation from the data of the gaseous exchange. The latter become available through determinations with comparatively simple respiration apparatus, and the estimations are made fourteen or more hours after the taking of food, at complete rest, whereby the stimulus to heat production incident to muscular activity or digestive changes is avoided. As few pathologic conditions that are not easily differentiated from hyperthyroidism show a rise in the basal metabolism, this feature serves as one of the most striking and characteristic manifestations of overactivity of the thyroid. Thus a novel index of the intensity of thyroid intoxication has been added to the hitherto recognized symptoms, including tachycardia, nervousness, loss of weight, and tendency to increased sweating. The foregoing editorial expression from the *Journal of the American Medical Association* aptly expresses the gist of this phase of the subject.

To DuBois, of New York City, is due the credit of pioneering metabolimetry in this country, though evidently the basic idea was first thought of many years ago by the German physician, Magnus-Levy. From that time on there accumulated a voluminous literature on this particular subject, but practically nothing appeared in American medical literature until 1916. At the present time metabolism studies are quite fashionable, and metabolism laboratories have been established in many parts of the country. The simplification of the calorimeters, or "metabolimeters," as they are beginning to be called, has facilitated the work and the complicated estimations of times gone by are now very much more convenient. As an editorial writer in the *Journal of the American Medical Association* said, in commenting some years ago upon DuBois' first paper: "At the present time (that is in 1916) the scientific status of the treatment of exophthalmic goitre is about at the point where we would be with diabetes if there were no laboratory tests for glucose and the acetone bodies."

The accurate technique of metabolimetry need not be discussed here. (The reader is referred to the papers of DuBois, Benedict, Means and Aub, and to the more recent books on laboratory procedure.) Briefly, the method consists in determining the gas exchange with the Benedict universal respiration apparatus (or modifications of this basic calorimeter), and from these data the heat production is calculated in relation to the body surface, which, in turn, may be conveniently determined by DuBois' height-weight chart. The calorific value of oxygen is used to estimate the respiratory quotient obtained.

According to DuBois, exophthalmic goitre stands out *par excellence* as a disease of increased metabolism, and the increased metabolism stands out as the chief symptom of hyperthyroidism. The determination of the heat production seems to afford

the best index of the severity of the disease. An increased basal metabolism is found with great regularity in exophthalmic goitre, and in severe cases reaches a level found in no other condition. All other diseases in which metabolism is increased are easily distinguishable from exophthalmic goitre, and they never approach the extreme found in this condition.

Measurements made by DuBois with the Benedict calorimeter, and confirmed by others, are highly significant, and inform us that very severe cases of hyperthyroidism show an increase of as much as 75 per cent. or more above the normal average, while in severe cases the increase is 50 per cent. or more, and in moderately severe and mild cases, 25 per cent. to 30 per cent. In a few mild, and several atypical cases, or cases in which operations have been performed, the figure may be within the normal limit. In the serious cases the warmth of the skin and the sweating can be accounted for entirely by the necessity for increased elimination of heat. At least a part of the tachycardia must be due to the increased metabolism, and perhaps it might be possible to reproduce the extreme tachycardia, cardiac enlargement, emaciation, and mental irritability, if we were able to stimulate so notably the metabolism of a normal individual for twenty-four hours a day over a period of months or years.

The most comprehensive studies on basal metabolism in exophthalmic goitre are those of Means and Aub, of the Massachusetts General Hospital. Quite full bibliographies accompany these papers. Another student of this aspect of hyperthyroidism, McCaskey, of Ft. Wayne, Ind., emphasizes that there is a close quantitative parallelism between the thyroid secretion and metabolic weight, and that the estimation of the latter by means of the oxygen consumption, therefore, may be relied upon with certain reservation as an accurate index of the activity of the thyroid gland. The isolation and identification of thyroxin and its complete chemical study by Kendall, of the Mayo Clinic, together with its physiological and therapeutic study by H. S. Plummer of the same institution, have placed the entire subject upon an accurate and almost mathematical basis. McCaskey believes that we may confidently proceed on the following assumptions: (1) That the symptoms of hyperthyroidism are due to quantitative variations of thyroxin in the body cells; (2) that the present fundamental phenomenon which dominates the entire clinical picture from cretinism to "Basedowism" is a perversion of metabolic rate; (3) that this metabolic rate has an absolute equivalent in accordance with fully established physical laws in the heat production of the entire mass of body cells; (4) that this heat production is essentially a process of oxidation and is equivalent to quantity of oxygen consumed, the latter being regulated by and dependent upon the metabolic rate; (5) that it is now possible with the comparatively simple Benedict Respiration Apparatus to determine clinically the oxygen consumption over a sufficient period of time, say five to fifteen minutes, with sufficient accuracy for all clinical purposes, and finally (6) that if food metabolism is eliminated by twelve to fifteen hours' starvation (this means

the usual normal condition in the morning), and the metabolism of voluntary muscular effort is eliminated by absolute rest in a recumbent position (a half to one hour suffices), there remains only the energy output or heat production of metabolism of the circulatory and respiratory mechanism—a small and probably negligible addition for the phenomenon of secretions and entire chemical changes of the cells of the body while at rest—and this is called basal metabolism.

The basal metabolism is quite constant, not only in the same individuals, but in all individuals when calculated in proportion to the area of body surface, and the variation in health in a large majority of people probably is less than 10 per cent. from the average rate. The clinical estimation of this basal metabolism, therefore, is a very practical and reliable guide; but while comparatively easy, it requires the utmost care and accuracy.

Before making any final decision as to the functional state of the thyroid gland, clinical metabolism should be done; first having eliminated such other causal conditions, aside from variation in thyroid function, which may produce fluctuations of the basal metabolism, such as fever, severe cardiorenal disease, pernicious anemia, and, of course, age. These factors are all discussed in detail in the various papers on this subject and cannot be given more extensive consideration here.

As this method becomes less complex and the apparatus more convenient, the application of metabolism study will greatly facilitate the development of accurate knowledge in regard to the factors underlying hyperthyroidism, and eventually information will be at hand enabling us to determine the cause of certain variations in pulse, cardiac activity, and other manifestations which might be due to coincidental cardiac or renal disease, and will also serve to modify our conception of conditions as, for example, in the instance where patients suffer from auricular fibrillation with hyperthyroidism, where the low pulse-rate might give a wrong impression, whereas, the metabolism remains high, no matter what the actual cardiac condition might be. In other instances, as recently reported by Sturgis and Tompkins of Boston, emphasis is laid on this aspect of the advantage of comparing basal metabolism with the pulse-rate in cases with hyperthyroidism. They call attention to the point that in other instances low pulse might be accounted for by the fact that these patients had a normal metabolism and their pulse-rate was unusually slow, when, in reality, the metabolism was much higher than normal.

It should be clear, however, that metabolism study is but a part of the investigation of these cases, and as Hoover puts it: "The diagnosis of Graves' disease should be made quite apart from studies in basal metabolism. If the diagnosis is once made, then the study of the patient's metabolism may be of some value in criticizing his progress. It will give some indication as to whether the patient is growing worse or improving. It is, however, by no means necessary, for the size of the heart and the heart-rate are far more dependable in estimating the progress of the disease than any guidance that basal metabolism may give. It is our practice at Lakeside Hospital (Cleveland)

to study the basal metabolism in all cases of Graves' disease and all suspected cases, but the measure is not really a diagnostic aid, and is not essential for guidance and criticism of the progress of the disease. Physicians in private practice who have no such laboratory facilities available are just as well situated as are clinicians who have well-organized laboratories at their disposal.

"The writer does not wish to imply by this statement that the study of metabolism in Graves' disease has been of no value. It has been of very decided value in contributing to the study of the subject, but research and practice are very different, and I am sure the writer is justified in making the statement that the clinician who requires a study of basal metabolism to make a diagnosis of Graves' disease, or who requires the basal metabolism for guidance in the criticism of the progress of his patients, must find himself in a very weak position, both for diagnosis and for treatment of the disease."

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Laboratory Contagion of Malta Fever.—Meyer reports a case of this accident, but fails to state the point of entry. The incubation period was very long—six weeks—and the course showed six separate attacks of fever with afebrile intervals. The symptoms were notably attenuated.—*La Presse Médicale*.

DIAGNOSIS IN TUBERCULOSIS.

By OWEN PAGET, M.D.

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In previous contributions to the *MEDICAL RECORD* I have described the simplicity of the treatment of tuberculosis by insufflation. Though this has been successfully employed by medical friends as well as myself, during the last three years, it seems as if its value has not yet been sufficiently appreciated by the profession at large.

Now though a treatment which claims a large percentage of recoveries and definite improvement in practically all cases will of itself inspire a spirit of scepticism and even opposition in such a hackneyed subject as tuberculosis, I yet think that many misapprehensions are due to the general want of knowledge by our profession of this disease. And this can hardly be wondered at, for with increased study, the more numerous appear to be the variations of the disease. So much so that latterly I have come to the conclusion that if there are thirty million cases of tuberculosis in the world, there are also thirty million types of the disease. Cases of tuberculosis differ much in the same way that faces are distinct from one another.

Under such circumstances at first sight the clinical study of the disease appears hopeless, and many, even experts, are seemingly oppressed by apparent difficulties. Yet this need not be if main facts established by authorities in various countries are fully recognized.

The incidence of tuberculosis in communities with established health bureaux is estimated at 90 to 98 per cent. of the population, and hospital records show that there are definite tuberculous lesions in 80 per cent. of post-mortems.

These figures demonstrate that practically everyone is attacked with tuberculosis in the same way that most people suffer from measles. It differs, however, from measles in that an attack, if recovered from, apparently confers no immunity; and only most careful investigation enables us to speculate as to whether recovery has taken place or not. Tuberculosis, unlike measles, is chronic in character, not usually resolving by crisis or with the appearance of a rash. Further, it is usually subacute in type.

Analogy certainly assists in understanding the ill-defined; and perhaps some of the characteristics of tuberculosis can justly be compared to certain diseases of the skin. For instance, a patient may suffer from a chronic patch of eczema almost all his life with little disablement or inconvenience. He may be subject to periodical outbreaks of psoriasis with much or little discomfort. An acute attack of eczema may disappear in a few days or become chronic. Some skin lesions leave permanent scars. A minute abscess of the skin may lead to pyemia and death.

The morbid anatomy of tuberculosis discloses itself as the lightest evanescent catarrh of a day or two duration on tonsil, pharynx, or bronchial tube, down to the gravest ulceration of tissue, whether lung, bone, or skin; and can even be pyemic in character as in miliary tuberculosis.

But the greatest of all difficulties seems to be the diagnosis of this disease. Academically it is pos-

sible that 50 per cent. of the world's population is suffering from tuberculosis. The practical test, however, is the finding of the bacillus in the sputum or lesion. As this test, though possibly effective in 70 per cent. of severe cases, at best demonstrates only 30 per cent. of all cases, it is exceedingly difficult to establish a criterion of who has or who has not tuberculosis.

Treatment by insufflation is a most effective diagnostic agent, but until this is more extensively employed its value cannot be adequately appreciated. And in order to stir our profession into some enthusiasm for the treatment of tuberculosis, it is necessary to establish some definite clinical manifestation of the disease.

The preponderance of tuberculous infection is in the lungs, and I wish here to restate the formula of that great clinician Dr. Samuel Gee, who taught that "*A pulmonary lesion which does not clear up in six weeks is either tuberculosis or empyema.*" There are, of course, obvious exceptions to such a law. But such rarities as malignant disease, hydatids, pulmonary aspergillosis, the edema of Bright's and cardiac disease, and syphilis hardly influence the main proposition more than one per cent.

For my part I regard any intestinal catarrh of over six weeks' duration as likely to be tuberculous, and have successfully tested chronic dysentery with insufflation.

The main objections to Dr. Gee's proposition which may be cited are pneumokoniosis or the dust phthisis of miners and stone cutters, and the chronic bronchial catarrh of colder climates, as it occurs in the poorer districts of big cities like London and Manchester.

As to the former, writing with a fair experience, I believe that miner's phthisis of any really serious degree is in all cases a tuberculosis engrafted on an irritated lung. And though I have no real acquaintance with the treatment of chronic bronchitis in cold climates, my experience with the analogous conditions here is that it is always tuberculous, and always satisfactorily responds to treatment by insufflation.

A nasopharyngeal or pulmonary catarrh which does not clear up in six weeks should therefore be regarded as tuberculous except, of course, empyema of sinuses or lung.

The probabilities of any chronic affection in any part of the body are that it is (1) tuberculosis, (2) syphilitic, (3) malignant. As some improvement may be expected in two or three weeks in any tuberculous lesion treated by insufflation, this may be employed as a useful diagnostic agent.

A method useful in practice, namely that patients take their temperatures four times daily, shows that large numbers of people, who apparently are quite well and able to carry on their work, both manual and clerical, are suffering from tuberculosis. This is a simple plan for the physician to keep in touch with his patient and for the patient to gauge his own condition of health accurately.

The necessity for a definite diagnosis in tuberculosis is most apparent when a remedy is brought forward. I have seen a case which had been treated for tuberculous laryngitis and aphonia for over a year in a special military hospital apparently cured by psychotherapy in a couple of hours; and hemop-

tysis much benefited by many hours' immersion in the sea in consequence of a transport being torpedoed. Yet experience tells us that neither psychotherapy nor immersion is likely to be of value in every case.

The vagaries of natural improvement and recovery in tuberculosis are so multitudinous as to lead to the assumption that a remedy to be of value must be potent with the patient "in extremis." This is farcical. Antidiphtheritic serum if used only on the tenth day would not be able to prove itself the invaluable remedy we know it to be.

Assuming that pulmonary catarrh, if of more than six weeks' duration, is tuberculous, then with any remedy all cases both with bacilli in the sputum and without must show, with a proper remedy, positive and definite improvement. The rate of recovery in the first and second stages should be practically 100 per cent. A series of cases should not be less than 500 in number; my own under military conditions was rather more.

Inasmuch, however, as clinical experts lay great stress on results in third stage cases, I will quote the experience of my friend Dr. Birmingham in these cases in general practice (over a period of rather more than two years): "Of the third stage, four are dead, four have recovered, and eight are under treatment. Of these latter four have improved considerably, and are, I think, going to recover; the other four show a certain amount of improvement. By the word 'recovered' is meant that the disease had ceased to be manifest."

The incidence of tuberculosis is probably universal and the death rate is high. In its chronic disablements, however, are its devastating effects most widely shown. The number of people, especially in a country like England, who go through life with a diminished efficiency, ranging from 10 to 75 per cent., is appalling.

The early diagnosis of pulmonary catarrh as tuberculous, however distasteful it may be to the academicians, will I hope stimulate the profession to attempt its treatment by insufflations. The fact that so many recover by chance, or with the employment of empirical remedies, need not diminish the desire for the application of science in the treatment of this disease.

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34 ST. GEORGE'S TERRACE.

A CONCEPT OF X-RAY PATHOLOGY.

XIV. NEPHROPATHY.

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(Concluded.)

Renal Calculi.—The x-ray study in the question of renal calculus is, fortunately, more satisfactory than that for gall-bladder stones. It is generally agreed that an x-ray plate showing *Leonard's* criteria, clearly revealing the soft tissues in the renal region, will show the radiopacity of a urinary stone of any clinically appreciable dimension. The visualization of a kidney stone depends upon a number of factors, preeminently among which, as has been indicated, is the proper technology in the production of the plate. Another group of factors center about the composition of the stone in addition to which the density and size are also of consequence. Thus the composition of the calculus, its structure and its dimensions contribute to the probability of its x-ray demonstration. Renal calculi, for purposes of x-ray investigation, are divisible into five groups on the score of their chemical composition.

1. Uric acid stones. These are the least radiable and when small are the most difficult to demonstrate by means of the x-ray.

2. Urate stones. The composition of urate stones is variable as the basic metallic grouping may be essentially ammonium, calcium, sodium, or potassium. The radiopacity of urate stones, their size and structure being the same, is possible in direct relation to the atomic weight; so that ammonium urate stones are the least radiable, sodium urate more radiopaque, and calcium and potassium urate most radiopaque.

3. Oxalate stones. Oxalate stones are generally visible on the x-ray plate owing to their calcium content and because they frequently attain great dimension.

4. Phosphate stones. In these the base is almost entirely calcium or it may be double as calcium magnesium or ammonium and magnesium. In general, they cast definitely radiopaque shadows.

5. Carbonate stones. Here the base is calcium, or magnesium, or both. They are definitely radiopaque.

6. Miscellaneous group. Occasionally stones may form of a composition other than that just described, as for instance, cystine, xanthine, or other organic urinary constituent. Stones of these abnormal substances are uncommon, and when they do occur, it is seldom that the fundamental metabolic processes leading to their formation is so exaggeratedly perverted as to permit such stones to attain any great size.

On the topic of kidney stone structure it is only necessary to state that they may be simply homogeneous amorphous masses, or well-defined crystals,

or structures showing concentric laminations indicating their growth by successive accretion of layers.

The dimension of the stone is most variable. It may be barely visible upon naked eye inspection or it may attain the size of an egg, or even greater.

Speaking generally, a kidney stone uncomplicated by other factors and residing in the parenchyma of the organ, may present no clinical symptoms. It is only when in the pelvis of the kidney, or if in the pulp of the organ when complicated by associated infection, that the kidney stone is first suspected. So that we may speak of fixed or movable stones, meaning by the fixed those that lie embedded in the renal tissue, and by the movable those that are inclosed in an abscess cavity or lie free in the pelvis.

X-Ray Study of Renal Shadows.—In the event of a negative x-ray plate, by which is meant that an excellent x-ray visualization of the renal shadow and perirenal hard and soft structures are clearly and definitely demonstrable, it is wise to err on the side of conservatism and report the absence of any radiopacity suggesting a renal stone. Indeed, this form of report should be used by roentgenologists who venture an opinion on the interpretation of gall-bladder shadows with the view to diagnosing gallstones. An expression such as that just tendered is not one of ultraconservatism but rather a true statement of the limitation of the x-ray in its ability infallibly to detect the presence of stones.

Through the use of this expedient one will not report a negative finding without considering the possibility that there is present a stone too small to be visualized, or one composed of a radioparent matrix (uric acid cystine), both of which types, though the x-ray be negative, may give violently painful clinical symptoms.

When the x-ray negative shows a radiopaque area within the renal contours it is first necessary to exclude the possibility of foreign bodies or shadows due to other than stones. *Holmes and Ruggles* on the topic of shadows which may be confused with stones mention: (1) those due to material in the bowel, fecal masses, fruit pits, enteroliths, opaque salts, such as bismuth and barium (particularly residues in diverticulae of the colon), Bland's pills, salol capsules. The appendix often lies in close relation to the right ureter and foreign bodies or enteroliths within it may be mistaken for ureteral calculi. (2) Gallstones which can usually be differentiated by their structure and shifting position with reference to the kidney area on plates taken in the antero-posterior and postero-anterior diameters. (3) Calcified glands which have a spongy appearance usually sufficient to identify them. They occur along the course of the root of the mesentery, in a line from the left kidney to the anterior right sacroiliac, and in the neighborhood of the iliac vessels, differentiated by shifting position. (4) Tuberculous foci in the kidney may calcify and give shadows resembling those of stone. (5) Calcification in carcinomatous masses in the pancreas or glands may be a rare cause of confusion. (6) The tip of a transverse process may be so much more dense than the rest of it that it may suggest a stone. (7) Small areas of density in the spleen may overlie the upper portion of the

kidney. (8) Calcification in a blood clot or about a foreign body may simulate a stone if it overlies the kidney. (9) Mention must also be made of the shadows cast by fibromata, scars, and even dressings on the back which may be recorded on the plate as areas of increased density. (10) Artefacts in plates due to thin spots in the emulsion or small areas which are unequally developed may be a source of confusion.

Having excluded the question of artefacts one next studies the intensity of the radiopacity from which there may sometimes be gauged the composition of the stone. The number of the radiopacities is important as the stones may be multiple. The shape should be noted and the dimension, from which, if the stone is small and in the pelvis, the x -rayist may assist in producing its successful passage through the ureter. Then the location of the shadow must be ascertained and whether it is fixed or mobile. The mobility of the stone is determined by raying in several positions, using the technique similar to that employed for demonstration of a fluid level in a pulmonary abscess. The summary given by S. Gilbert Scott (*British Medical Journal*, September 11, 1920) in the study of renal shadows is excellent:

If a large dendritic calculus is present the diagnosis is easy, but at the same time the outline of the affected kidney will give additional data: (1) State of the kidney, such as the presence of hydronephrosis or pyonephrosis. (2) Its functioning powers as gauged by the thickness of the renal cortex; frequently the thinned wall functionless kidney can be seen moulded to the branches of a large calculus. (3) Fixation of the organ as shown by the absence of respiratory excursion which should be tested, as the surgeon will be grateful for any information on the subject of fixation if the kidney has to be removed.

Unless the abnormal shadow is that of a typical dendritic stone, some method should consistently be used to prove that it is in connection with the kidney. Appearances are very deceptive, and no matter how like a stone it may seem to be on the plate, guesses backed by experience should be replaced by a more scientific and accurate method. I have made it a rule for several years before giving an opinion on any abnormal shadow appearing inside the borders of the renal outline that it must be proved to be connected with or outside the kidney itself. This has saved me many a wrong conclusion.

The method may be summarized as follows: (1) The outline of the kidney must be seen. (2) An abnormal shadow lying outside this cannot be in the kidney. (3) If the shadow lies inside the limits of the outline, then it is necessary to compare the plate taken at full inspiration with one taken at full expiration.

The respiratory excursion of the kidney is first measured and the respiratory movements of the shadow under discussion are then compared. The direction of the movement of each is also noted. If the respiratory excursion and direction of the kidney and abnormal shadow are the same, the latter must be in connection with the kidney. A rule, therefore, can be formulated that if an abnormal shadow or shadows, no matter how small and insignificant they may be, lying inside the renal outline, move to the same extent and in the same direction as the kidney, they must be connected with it. This rule will apply to one or several shadows, and in this way it is quite easy to pick out from a number of shadows those that are of renal origin. In some cases the kidney may be fixed, and no respiratory excursion obtainable. If, however, it is possible to demonstrate that the shadow under discussion has moved in some direction or other, while the kidney has remained unaltered, the shadow must be outside the kidney.

Once having diagnosed the presence of a stone in the kidney, its correct position in the organ itself can be given, and a rough estimate made as to its size;

if the surgeon has confidence in his radiological colleague, he has only to make an incision into that part of the kidney in which the stone has been localized, just large enough to extract it with forceps, thus doing away with the somewhat drastic mutilation of the kidney which usually takes place when searching for stones.

This method of localization is invaluable where the shadow is extremely indefinite and doubt is felt as to its nature. These ill-defined "smudges," a term their appearances suggest, are very often the only evidence of tuberculous disease in a kidney; consequently it is of great importance that they should not be overlooked; having been detected, the diagnosis is clinched if they can be located in the kidney itself. An abnormal shadow, however insignificant, must not be ignored, but unless these shadows can be proved to be of renal origin, they are of themselves not of much value.

In order to make the method described clear, a few examples may be given:

1. A small single shadow is detected lying over the lower half of the kidney, say 20 mm., from the lower edge and 20 mm. from the outer edge. On comparing the inspiratory and expiratory plates it is found that the kidney and the shadow show the same respiratory excursion, say 30 mm., in a downward and outward direction, and the relation of the shadow to the kidney is unaltered. This proves that the opacity has moved with the kidney, both as to direction and extent, and is therefore of kidney origin.

2. The shadow is lying over the lower pole, but on comparing the inspiratory and expiratory plates it is found to have moved clear of the kidney altogether. This at once demonstrates that it is outside the kidney.

3. The same thing can be proved if the opacity is found to move downwards, say 10 mm., while the kidney shows an excursion of 20 mm.

These examples will suffice to illustrate how the method can be utilized. The comparative measurements are quickly made, and a small transparent meter rule will be found very useful for this purpose.

Ureteral Calculus.—Those factors that guide in arriving at the diagnosis of kidney stones are, of course, the ones used in arriving at a diagnosis of ureteral stones. There is only the additional question of the position. It cannot be too strongly emphasized that more frequent use of the cystoscope should be made in assisting in the diagnosis of kidney and ureteral stones. In cases of suspicious shadows that appear in the general course of the ureter, there should be passed a leaded catheter and every effort made definitely to establish that the radiopacity actually lies in the urinary tract. In a number of instances it has been personal experience to have passed a catheter and found that a shadow lay entirely without the ureter.

Bladder-stones are usually large and readily detected. It seems a very frequent error to call bladder-stones certain small sesamoids, perhaps two or three, that appear above the pubic arch on each side of the symphysis in practically every normal bladder plate. These should, of course, be cautiously avoided.

Pyelography.—In the study of the urinary tract made opaque by the use of certain injections, Braasch (*American Journal of Roentgenology*, December, 1920), presents a summary so complete and terse as to merit its quotation in full.

Voelcker and von Lichtenberg first demonstrated, in 1906, the feasibility of outlining the renal pelvis in the roentgenogram by injecting the pelvis with an opaque medium. The value of this method was not appreciated, however, until several years later, when American observers developed the method to its present scope, and subsequently it was widely adopted.

The procedure was first used to outline the pelvis, later the ureter, bladder, and urethra. With the in-

crease of the scope of the method, the original term of pyelogram became manifestly insufficient. As a term which will represent the roentgenographic demonstration of the entire urinary tract, I should like to suggest "urography." Such a term would not interfere with the retention of the accepted terms referring to the different areas, namely pyelography, ureterography, and cystography.

Urography entails unusual and highly specialized technical difficulties, and unless judiciously employed it is not without great danger to the patient. Its use should, therefore, be confined only to the experienced urologist and roentgenologist, working in close co-operation. Furthermore, it should be used only when the clinical diagnosis cannot be made without it. Urography is contraindicated (1) when the patient is in advanced age or greatly emaciated, (2) in cases of advanced bilateral renal disease, and (3) when it is apparent that surgical treatment will be of no benefit.

Extensive improvements have been made in recent years in the mediums employed in urography. The first medium suggested was a solution of colloidal silver termed "collargol." It was found, however, that the silver solutions were really not solutions, but suspensions, and that the undissolved silver particles acted as foreign bodies when injected into the kidney pelvis. Moreover, it was demonstrated that mediums injected into the renal pelvis frequently entered the tubules, the glomeruli, and the small capillaries. When the fine particles of silver became lodged in the tubules, they acted as foreign bodies and frequently caused infection. It is necessary, therefore, that mediums employed in urography should be true solutions and not suspensions. With this in view, Burns suggested a solution of thorium, which overcame many of the objections to colloidal silver and still remains an admirable medium. Unfortunately, solutions of thorium occasionally have toxic effects and are difficult and expensive to prepare. Shortly afterward solutions of the iodids were suggested by Cameron, and later Weld used the bromides. These two mediums are now the most widely employed. The ease with which the bromids and iodids are prepared and their cheapness, together with the excellence of the shadows they cast, make them desirable. They may be slightly irritating to the mucous membrane, however, particularly if they are retained in the renal pelvis. In spite of the fact that these solutions are comparatively harmless, it is necessary to employ great care in the technique of their application. The medium should usually be introduced into the pelvis by the gravity method; it may be injected with a syringe only by an experienced urologist. Every precaution should be taken not to cause pain on injection. As a rule 5 c.c. of the medium will suffice, and it is rarely necessary to employ more than 10 c.c.. After the x-ray exposure is completed, it is advisable to remove the injected medium as completely as possible, particularly if there is evidence of uretral obstruction. This may be accomplished by allowing the catheter to remain in the pelvis for some time and diluting with sterile water. Any medium, if allowed to remain in the renal pelvis, may be the cause of renal infection. It seems probable that this is the result of bacteria, which in spite of every precaution are introduced by the medium. Bromid and iodid solutions, however, may cause irritations even without infection when retained in the pelvis, and considerable reaction in the renal tissue. In case the retained medium causes renal infection, it may be advisable either to consider an immediate nephrectomy or to insert a uretral catheter into the pelvis and allow it to remain there. The formation of multiple cortical abscesses frequently noted in this condition is identical with septic nephritis and should be treated as such. Procrastination, in the hope that the acute process will subside, is of great danger to the patient, and it is seldom advisable to delay nephrectomy more than forty-eight to seventy-two hours after the first evidence of sepsis.

It is ten years since we began to employ urography in the diagnosis of disease conditions of the genito-urinary system, and it is appropriate that an inventory should be made of its practical value. The value of urography in selected cases of hydronephrosis, nephrolithiasis, pyelonephritis, neoplasm, and anomaly is unquestioned. It should be remembered also that the

demonstration of a normal pelvis may be of as much diagnostic value as the demonstration of one that is pathologic.

Hydronephrosis.—A diagnosis of dilatation of the renal pelvis as the result of marked mechanical obstruction should usually be made without the employment of pyelography. The presence of residual urine in the renal pelvis can usually be determined if more than 15 c.c. of urine can be withdrawn with a syringe through a uretral catheter or by the overdistention test; a pyelogram is then not necessary. If, however, the usual cystoscopic technique is insufficient to reveal the presence or absence of pelvic dilatation, pyelography may be an important measure. This is particularly true in cases of moderate pelvic dilatation, and in cases of impassable obstruction to the renal catheter. The interpretation of the pyelogram in cases of hydronephrosis may be very difficult, due to (1) impassable obstruction at the ureteropelvic juncture, (2) dilution of the medium by retaining fluid, and (3) insufficient medium injected to outline the dilated pelvis. It may be difficult to distinguish between hydronephrosis and neoplasm when there is unfavorable obstruction at the ureteropelvic juncture. Occasionally dilution of the injected medium by urine retained in the pelvis will cause scattered areas which suggest neoplasm.

Neoplasm.—Pyelography is recognized as a frequent valuable aid in the diagnosis of neoplasm. When a pyelogram is followed by a marked reaction, as with hydronephrosis, an immediate nephrectomy is advisable, since septic nephritis may complicate the neoplasm. Here, again, the method should not be employed as a routine procedure, but only if the diagnosis is not possible without it. The differential diagnosis of epithelioma of the renal pelvis and tumor in the renal cortex may be difficult. A hydronephrosis, together with the deformity usually seen with neoplasm, suggests pelvic epithelioma. The greatest difficulty has been to distinguish between neoplasm and polycystic kidney. The character of the deformity may be identical in both conditions. As a rule, however, they are distinguished by the fact that a neoplasm is characterized by the retraction and narrowing of the calices, while polycystic kidney frequently has an abbreviation of one or more of the calices, and seldom any narrowing. It should be remembered, however, that when polycystic kidney is apparent from the clinical examination pyelography should not be employed. Not infrequently the medium will not drain from the calices because of the obstruction caused by the dilated cysts, and cortical infection may ensue. Bilateral pyelography in cases of polycystic kidney is particularly contraindicated.

Nephrolithiasis.—The purpose of a pyelogram in cases of nephrolithiasis is to identify and localize the shadow. As a method of identification it is of considerable value, particularly in the differentiation of shadows on the right side which may easily be confused with gallstones. However, since the introduction of fluoroscopy at the time of operation localization of the stone is not of great value. Identification of shadows in the ureter by means of ureterography still remains the best method. The relation of a leaded catheter inserted in the ureter to a shadow in the ureteral area is too indefinite to be of accurate diagnostic value when the catheter is less than 1 cm. distant.

Anomaly.—Demonstration of pathologic complications, together with anomaly of the kidney and ureter by means of urography is a valuable aid in their diagnosis. It must be remembered, however, that retention of a medium in a single kidney may offer serious complications. The demonstration of an anomalous position of a kidney, or of a fused kidney, can frequently be accomplished simply by the introduction of a lead catheter.

Distinguishing simple inflammatory dilatation from dilatation of renal tuberculosis is occasionally of importance. The extent of renal destruction as a result of chronic infection may often be appraised only by the demonstration in the pyelogram of marked inflammatory dilatation and cortical necrosis.

Cystography.—The clinical value of demonstrating the outline of the bladder, which is termed cystography, as an aid to diagnosis, is not fully appreciated. It may be of considerable diagnostic aid in the presence

of vesical neoplasm, vesical diverticulum, and prostatic obstruction, particularly when a complete cystoscopic examination is impossible, because of excessive hematuria, intolerance, contraction of the vesical lumen, or impassable urethral obstruction. The existence of a vesical tumor may be inferred from the presence of a filling defect in the outline of the bladder. The extent and character of the filling defect may also determine the size and nature of the tumor. It must be remembered, however, that partial distention of the bladder, reflex spasm, presence of blood clots, and so forth, may cause error in interpretation.

Diverticulum.—The opening of a diverticulum of the bladder is very easily overlooked on cystoscopic examination, and the diagnosis may be possible only by means of a cystogram. In fact, even though the opening of a diverticulum is visible on cystoscopic examination, a cystogram is advisable because of the possibility of the presence of multiple diverticula. Since a cystogram taken at one angle may easily overlook the presence of a diverticulum, it is always advisable to make an exposure in the anteroposterior position, and at the right and left angles. This will render visible the outline of the diverticulum, which might otherwise be obscured by the overlying bladder. Further, it is advisable to have the patient empty the bladder as completely as possible, and repeat the cystogram. A lead catheter coiled in the diverticulum is sometimes of value in determining its size. Diverticula of the urethra and urethrocele may also be determined by this method.

Prostatic Obstruction.—Occasionally for technical reasons it may be difficult to make a cystoscopic examination in the presence of prostatic obstruction. A large prostatic gland, particularly with median intravesical projection, will cause a filling defect of the bladder outline at the urethral opening. Occasionally, however, such an evident filling defect may be caused by gas in the bowel, and failure to distend the bladder, and prostatic obstruction may be erroneously inferred.

Cysto-ureterogram.—A cysto-ureterogram may be of some value in certain cases, particularly if there is marked inflammatory dilatation of the renal pelvis and ureter, and if the cystoscopic examination is unsatisfactory. The cysto-ureterogram is made after the bladder is filled with an opaque medium while the patient is in extreme Trendelenburg position. If the lower ureter and meatus are patent the medium will gravitate into the dilated ureter and occasionally into the renal pelvis. The method, however, is not without danger if the medium enters both renal pelves and is then unable to drain readily.

In conclusion, it may be said that urography is one of the most valuable aids we have in the diagnosis of lesions involving the urinary tract. Its limited application, and the difficult and dangerous technique unless carefully safeguarded, will restrict its use, but the method merits a wider employment, and, I believe, in the future will receive it.

Medicolegal Notes.

Action Against Executors on Note by Patient for Physician's Fees.—In an action by a physician on a note for his fees brought against the executors of the deceased maker of the note, it was contended by the defendants that by reason of the proof that the note was executed by a patient to her physician during such relationship, the presumption arose that it was obtained by undue influence and without sufficient consideration, and that the burden then shifted to the plaintiff to prove that the transaction was voluntary and based upon an adequate consideration. It undoubtedly is the established rule that the relation of physician and patient is confidential, and the law demands the strictest good faith and fair dealing in all transactions arising from that relationship. Once this relation is shown to exist, all dealings between the parties will be closely scrutinized, to ascertain if the confidence of the trusting party has been betrayed, or his mind unduly influenced to his prejudice. But when satisfactory proof has been made that a person has freely and voluntarily disposed of his property in accordance with his wishes, and his capacity and volition are

apparent, the existence of the confidential relation will not prevent the consummation of his desires. Under the provisions of section 2235 of the California Civil Code, creating a presumption that transactions by which a trustee obtains any advantage from his beneficiary are without consideration and under undue influence, the mere fact that a confidential relationship existed between the parties is not sufficient to overcome the presumption of consideration evidenced by a writing under sections 1614 and 1615 of the Civil Code. It must be made to appear that the relationship was used to obtain an unfair advantage, or that the confidence was violated. *Dimond v. Sanderson*, 103 Cal. 97, 37 Pac. 189. The rule is less stringent where it appears that the trustee was not advising the beneficiary in the conduct of business, but assumes a hostile attitude, and is urging the payment of a debt due himself. It was pointed out by the court that the result of a drastic application of the rule invoked here would be to preclude a physician from bargaining with a patient in regard to his fees, and to deprive persons occupying confidential relations of the power of contracting with each other for compensation, which, in all cases, would of necessity be fixed by a court or jury regardless of the circumstances under which the parties arrived at an agreement between themselves. In such an action the physician's testimony as to the transaction is excluded by section 1880 of the California Code of Civil Procedure. Although it did not appear that the physician disclosed to his patient the amounts which he paid to his assistants or to other physicians, the evidence showed that the patient was in full possession of all her faculties, acting freely and voluntarily, with knowledge of all the doctor had done for her during her illness, and in appreciation of his services executed the note in payment of his account, believing it to be a reasonable charge. In the absence of undue influence the adequacy of the consideration was held to be immaterial. *Silveria v. Alexander*, 25 Cal. App. 506, 144 Pac. 303. A verdict for the plaintiff was therefore affirmed.—*Cole v. Wolfskill* (Cal. App.), 192 Pac. 549.

Physician Experienced in Treating Burns from Electricity May Give Opinion as to What Current Would Cause Death.—In an action for death from contact with electricity a physician was produced as a witness for the plaintiff. Having testified that he had had much experience in treating burns caused by electricity, and having, in answer to proper questions, detailed the peculiar character of such burns, and having further testified that as coroner he had examined the body of the deceased after death, he was permitted, over the defendant's objection, to testify that he found "electrical burns on the left breast" of the deceased, and that, in his opinion, the effect of a current of electricity sufficient to cause the said burns "would be death." It was held the trial court did not err in the admission of this evidence. The nature and character of the burns found, and the effect of an electrical current sufficient to produce them, were matters calling for expert knowledge, and the witness having qualified as an expert, his testimony as to such matters was properly admitted.—*Haskell et al., Co. v. Erickson* (Ind. App.), 128 N. E. 466.

Degree of Care Required in Treating with X-ray.—On a second appeal in an action for damages alleged to have been caused by the use of the x-ray in treating the plaintiff for a small spot of eczema about the size of a silver dollar, the Texas Court of Civil Appeals said that the rule in Texas to determine the liability of physicians or surgeons for injuries sustained from negligence in the use of x-rays is the same as in other classes of cases, in that the physician is required only to use such reasonable care and skill as is ordinarily exercised by reputable physicians in the locality. The physician is not expected to look for unexpected results from treatment of his patients, but is compelled to look for natural and probable results. He is not expected to anticipate results arising from peculiar characteristics and conditions of a patient, nor is he an insurer of unexpected results. So, while the treatment and character of the injury may be looked to as a circumstance, in the absence of testimony explaining, it may or may not be conclusive.—*Hamilton v. Harris*, Texas Court of Civil Appeals, 223 S. W. 533.

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THE "RATING SCALE" AND THE DOCTOR.

IN November, 1917, so the story goes, the attention of the Surgeon General of the United States Army was directed to the fact that the psychological examination of officers in the United States Army indicated that the intellectual status of medical officers was less satisfactory than that of officers of the several other arms of the military service. This report was based upon observation of the psychological service and data of examination at Camp Lee, Virginia. Quite naturally this arraignment met with critical interest on the part of the medical profession. If one takes seriously the entire matter of psychological tests, intelligence ratings, and kindred ability measurements, even more interesting must be the report of the follow-up work, so to speak, conducted by the Division of Psychology of the Surgeon General's Office during 1917 and 1918, and now put forth by the National Research Council.* For, whereas the first preliminary report was based on examinations in only one camp, the present report deals with examinations conducted in a large number of camps, and involves about 15,000 records, some 3,000 of which were of medical officers. And—again if one takes the work quite seriously—additional interest must attach to the present report, since it may be taken to be in the nature of correction or confirmation of the preliminary report.

Summarizing their findings in the beginning, Cobb and Yerkes prepare the reader for the worst by plainly stating that the intelligence rating of medical officers is lower than that of members of the other arms of the service with the exception of the Dental and Veterinary Corps, while it is practically the same as that of the Quartermaster Corps. Nor do they long leave the civil practitioner to harbor delusion that this applies only to Regular Army medical officers. Indeed, they tell us that officers of the Regular Army Medical Corps and of the National Guard achieved somewhat higher intelligence ratings than did those of the Medical Reserve Corps. And no extenuating circumstance in the nature of professional obscurity on the part of the officers subjected to the tests is left to soothe

*Bulletin of the National Research Council, Vol. 1, Part 8, No. 8, 1921: Intellectual and Educational Status of the Medical Profession as Represented in the United States Army, by Margaret V. Cobb and Robert M. Yerkes.

the ruffled self-esteem of those who may be tempted to make comparisons in their own favor. For lo! "The typical medical officer of this group claims membership in two or three medical societies, one of which is usually the American Medical Association." Success, measured in terms of earnings, furthermore, fails to prove a pacifier, for "surprising as it may appear, earnings in the medical profession apparently are not dependent upon intelligence."

In seeking an explanation for these and the many other interesting findings of these psychological examinations, Cobb and Yerkes suggest, as chief among the factors responsible for the relatively low standing of medical officers, age, habits of deliberateness and accuracy developed by professional training and experience, characteristics of the tests which render them easier for engineers than for medical officers, and method of military selection.

To advocates of universal military training the last of these factors must seem significant. By far the larger part of the group had been commissioned in the Medical Officers Reserve Corps. There were included, however, small groups of officers of the National Guard and of the Regular Army. These two small groups made a much better showing on "examination alpha" than did the larger group from the Medical Officers Reserve Corps. The medical officers of the Regular Army, in fact, did as well as officers of any branch of the Army except the engineers. The small size of the group, however, makes the reliability of the median score uncertain. This score, we are told, is 143 for the National Guard and Regular Army combined, as compared with 128.6 for the Medical Reserve Corps.

"Examination alpha," it may be stated for the benefit of those who have neither fallen into the hands of the psychological examiner nor given special thought to the matter of mental tests in general, consisted of eight separate tests, the time limit on which was so short that very few men could finish a given test. These several tests are enumerated as: Test 1, oral directions; test 2, arithmetic; test 3, practical judgment; test 4, opposites; test 5, disarranged sentences; test 6, number series completion; test 7, analogies; test 8, information. The examination required approximately fifty minutes.

It is not within our province to pass judgment upon the value, from a military or civilian point of view, of these or any other tests as measures of ability to execute the business in hand. It is believed, however, that many a man who would make an inglorious rating in a psychological examination would render brilliant service when occasion demanded the utilization of his reserve capability, whether in commanding armies, building bridges, or treating physical infirmities.

THE TREATMENT OF SURGICAL TUBERCULOSIS IN CHILDREN BY VENOUS HYPEREMIA.

IN children the induction of venous hyperemia is not only quite equal to any other modern method of treatment of white swelling of the knee joint, with the exception of heliotherapy, but it is distinctly

superior in many respects. The rapid sedation of pain is one of the first results when the procedure is properly employed. The bad position assumed by the involved limb improves spontaneously as soon as the pain disappears. The possibility of carrying out the treatment without the use of casts or other means of immobilizing the limb avoids the development of trophic disturbances of the skin, muscles, and bone. Finally, when other therapeutic measures—always excepting heliotherapy—usually end in more or less complete ankylosis (which is even yet regarded as an ultimate aim), venous hyperemia, preserves the joints as well as their movement, and this is not uncommon, but almost invariably the rule. Therefore, it should be given a high place in infantile surgical therapeutics in which conservative measures are all-important. Added to these advantages treatment by venous hyperemia is absolutely inoffensive when rightly carried out.

The accidents attributed to it are invariably due to a defective technique. Muscular atrophy at the point of application of the elastic band, chronic edema and, exceptionally, gangrene have been recorded, but they are always the result of a too tight application of the band. Acute suppuration in the sinuses or in tuberculous abscesses may also ensue from the ischemia caused by a too tight ligature and tuberculous lesions appear to be particularly aggravated by this ischemia or by an exaggerated edema which produces a too intense or prolonged stasis. Consequently it is of utmost importance to watch for the slightest symptoms accruing from too energetic compression and to remedy this immediately. For this reason the simultaneous application of the elastic band and cups should always be avoided as they produce an excessive stasis over the bacillary lesion itself.

As to the manner of action of venous stasis one is reduced to hypotheses, each of which probably has a certain value, but no one taken singly is sufficient to give a satisfactory explanation. It must be admitted that the true *modus operandi* of the procedure still remains to be explained, but the numerous excellent—even exceptional—results plead in its favor. Its use is indicated at the onset of white swelling of almost any joint when the lesions are especially in the periarticular soft parts, and in osteitis with or without sinuses, when the bone lesion is superficial. Venous hyperemia can also be used to complete the results of a surgical interference on the bones. Like all other conservative measures this one is contraindicated in very advanced tuberculous lesions of the bones and in rapidly developing osteoarthritis, when it is urgent to prevent the occurrence of visceral degeneration by resorting at once to a radical operation.

FATAL HEMORRHAGE IN CANCER.

It is safe to state as a rule that cancer bleeding is not lethal and indeed seldom serious, but rarely it has been sufficient to cause a fatal issue. Such an accident is most apt to occur in gastric, rectal,

or uterine cancer. In an article on the subject in the *Revue médicale de la Suisse romande* for February, 1921, xli, 2, Koehlin does not mention the severe hemorrhages often seen in chorioepithelioma which is essentially hemorrhagic in character, but appears to refer to pure accident such as hemorrhage from ulceration into a large blood vessel. Cancer as such is almost always accompanied by microscopic hemorrhage believed to be due to defective formation of the capillaries. These minute hemorrhages are in fact responsible for the central necroses seen in cancer. Severe hemorrhage appears never to have been the consequence of an exaggeration of this phenomenon. Ribbert, Borst, Askanasy, and other authorities in fact deny or ignore the existence of severe primary hemorrhage in cancer. There only remain then secondary hemorrhages due to ulceration of arterial walls.

The cumulative incidence of rare accidents is well shown by the recent experience of the Geneva Surgical Clinic. The first case occurred in a man of 50, presumably healthy although bothered a little with constipation alternating with diarrhea. On one occasion he had a sudden call to stool and passed much pure blood. The hemorrhage recurred several times until he must have lost a gallon. Despite all aid he succumbed to progressive loss of blood and at autopsy the source was found to have been a non-stenosing cancer of the rectum which had ulcerated into the lumen of an artery. The diagnosis had already been made by the proctoscope.

The second case occurred in a patient with cancer of the lesser curvature in whom gastroenterostomy had already been performed. Death followed a fatal hemorrhage from erosion of an artery by the extension of the ulcer. The third case occurred in a man who had submitted to a resection of the pylorus for cancer. Death resulted from ulceration of the great curvature opening into the splenic artery, the cancer having recurred in that locality. The fourth patient succumbed to hemorrhage of the jejunal artery in connection with the invasion by a scirrhus of the pancreas of the duodenojejunal angle. In the fifth case the artery ulcerated was one of the coronaries of the stomach. A sixth case occurred in the clinic of Professor Buettner, the gynecologist. The neoplasm was seated in the cervix and had been improving under radium and the x-ray when death suddenly took place. The ulceration into the uterine artery might not have occurred had not the vessel been the seat of a small aneurysmal dilatation. The six cases all occurred during 1919-20.

INOCULATION OF MEASLES.

NUMEROUS attempts to inoculate monkeys with human measles have been made, but only recently has success followed the many negative early experiences. The disease has been conveyed from man to monkey, monkey to monkey, and on one occasion from man to man. Yet it must not be understood that through experience and improved technique the problem of inoculation has been finally solved. On

the contrary some of the positive experiments are old and some of the negative comparatively recent. In a review of the subject contributed by Bonnin to the *Gazette hebdomadaire des sciences médicales de Bordeaux*, for April 17, 1921, xlii, 16, it is stated that some experiments reported from Johns Hopkins in 1919 were negative, while Nicolle reported success as far back as 1911. But the positive results of Nicolle and Conseil in 1920 and of Blake and Trask in 1921 tend to show that investigators in different parts of the world are obtaining standardized results. Nicolle and Conseil injected into the veins of a healthy infant 8 c.c. of citrated blood from an infant ill of measles and nine days later classical measles appeared in the former. In the monkey the incubation period after intravenous injection was four days, and after intratracheal injection seven days. In the latter experiment the substance injected was obtained by lavage of the nasopharynx of measles subjects before and after the eruption had appeared. Hemoculture in these experimental cases has always proved negative. The laboratory disease was transmitted from animal to animal through six passages. From these experiments we have learned that a measles subject is pretty well saturated with the contagious principle which appears to exist in the mucous secretions of the upper air and food passages, the skin, blood, and tissues in general. Negative results of inoculation are evidently in part due to taking the inoculable material at too early a date after inoculation or natural contraction of the disease. This may not be used until the seventh or tenth day after the natural or artificial infection.

DOES NEOSALVARSAN SPLIT OFF THERAPEUTICALLY ACTIVE FORMALDEHYDE IN THE BODY?

AS far back as 1917 Grosz claimed that a cleavage of neosalvarsan took place in the kidneys, and he began to inject this substance intravenously in cases of pyelitis and pyelocystitis, claiming 80 per cent. of cures. The doses were unusually small—three only of 0.15 gm. each. Cases of catheter-cystitis also were specially suited for this treatment. The drug seemed, however, to be inert in colon bacillus infections. Sachs has recently tested both neosalvarsan and urotropin intravenously in this class of cases, but obtained more negative than positive results. (*Wiener klinische Wochenschrift*, April 14, 1921, xxxiv, 15.). He believed that urotropin splits off more formaldehyde than neosalvarsan, even dose for dose, to say nothing of the unlikelihood that such small doses of neosalvarsan could deliver enough of this substance to obtain its characteristic action. Yet Grosz asserts that he has repeatedly cured catheter-cystitis with a single injection of neosalvarsan. But when large doses of urotropin itself cannot attain this result, Sachs says, how can Grosz explain such successes by the meager amount of formaldehyde split off from neosalvarsan? The author then investigated the formaldehyde content of several drugs known to contain it. He ascertained that urotropin might split off as high as six molecules of formaldehyde. Paradoxically, but owing to regrouping of the water in the molecule, the formaldehyde derived from urotropin may weigh more than the dose of the latter given. But 0.15 gm. of neosalvarsan cannot split off more

than 0.006 gm. of formaldehyde. Grosz admits that old salvarsan is inert in pyelitis and does not split off formaldehyde. It can only be urged that whatever benefit there may be in neosalvarsan in these urinary affections it cannot be due to formaldehyde, or at most can be only partly due to that substance.

News of the Week.

OFFICERS OF THE AMERICAN MEDICAL ASSOCIATION.

(By Telegraph to the MEDICAL RECORD)

At the meeting of the House of Delegates on Thursday afternoon, the following officers were elected:

President, George E. de Schweinitz, Philadelphia, Pa.

Vice-President, Frank B. Wynn, Indianapolis, Ind.

Secretary, Alexander R. Craig, Chicago, Ill.

Treasurer, William Allen Pusey, Chicago, Ill.

Speaker of the House of Delegates, F. C. Warnhues, Grand Rapids, Mich.

Trustees, Frank Billings, Chicago; Wendell C. Phillips, New York; Thomas McDavitt, St. Paul, Minn.

The next annual session, in 1922, will be held in St. Louis.

Opposition to the Sheppard-Towner Bill.—The American Gynecological Society, at its Forty-sixth annual meeting held June 2-4, 1921, took the following action opposing the Bill for the Protection of Mothers and Infants, commonly known as the Sheppard-Towner Bill. This action of the Society was taken, almost unanimously, after careful consideration of a report of its Committee on Maternal Welfare, acting jointly with a similar Committee of the American Child Hygiene Association:

This Society wishes definitely to state its position for the information of the medical profession and others who are interested in this legislative program.

1. The committee is in thorough accord with the ends which this bill seeks to attain, namely, the protection of the health of mothers and infants.

2. We indorse the coordination of all health activities under one head. We consider the protection of mothers and infants to be a *health measure* of paramount importance to the individual and the State.

3. We oppose in principle the control of health measures by non-medical individuals or boards.

4. We believe in the local control of health activities as distinguished from federal. We approve and indorse the idea of propaganda and investigation emanating from the Federal Government.

5. We do not indorse the Sheppard-Towner Bill in its present form because it does not conform to the above principles and because it embodies the questionable plan of subsidizing State health activities.

6. We endorse the project of establishing a National Department of Health.

President, George Gray Ward, Jr.; *Secretary*, Arthur H. Curtis; *Committee*, George W. Kosmak, Fred J. Taussig, Fred L. Adair (Chairman).

New Public Health Service Hospitals.—Nine new hospitals of the U. S. Public Health Service which will accommodate more than 3,000 patients, are now being put into shape for early occupancy. The Colfax hotel, at Colfax, Iowa, a leased building with 130 acres of grounds, is being fitted to receive 200 patients. The Army hospital at Fort William Henry Harrison, near Helena, Mont., will be opened with 100 general patients, but may later be greatly expanded. The buildings at Dawson Springs, near Hopkinsville, Ky., call for extensive repairs, but the

hospital will probably be opened with 500 tuberculosis patients within five months. The Hahnemann hospital at Portland, Ore., should be ready for 164 general patients by July 1, and the Speedway hospital at Chicago for 1000 general patients by August 1. Of the three army posts specifically turned over by Congress, that at Fort Walla Walla has been abandoned for a year and, except for two brick barracks, its buildings are in bad condition and must be rebuilt. It will shelter 284 tuberculosis patients. Fort McKenzie, one mile northwest of Sheridan, Wyo., is pleasantly situated against a northern shield of mountains. The red brick buildings of Fort Logan H. Roots, near Little Rock, Ark., stand on a bluff overlooking the Arkansas River. Forts McKenzie and Roots are each planned to accommodate more than 600 nervous and mental cases. Each of the three posts is likely to be ready in less than six months. A naval station at Gulfport, Miss., has just been taken over from the navy by the Public Health Service and will be utilized as a hospital or home either by the service or by some other branch of the government.

Male Immunity to Typhoid Fever.—The curious observation has been made in Paris that the typhoid fever cases are confined almost exclusively to girls and women, the only male cases being in young lads and a few quite old men. The explanation of this is that most of the men in the city have been in the army, where they were vaccinated against the disease.

Quarantine Appropriation Cut.—The Appropriation Committee of the House of Representatives has cut out the item in the deficiency bill setting aside \$287,620 for the improvement of the Quarantine Station at Baltimore. The committee also disallowed an appropriation for needed improvements at the Quarantine Station in New York.

Increase in State Aid to Hospitals.—In the Budget Bill before the Connecticut State Legislature increase is recommended aggregating \$177,800 in State grants to hospitals over the amounts allowed two years ago.

An Externship in Radiology.—There has been established at the Mount Sinai Hospital, New York City, a system of externship in the x-ray department. There are to be externes, each serving one year, one beginning February 1 and the other August 1. The next appointment will date from August 1, 1921.

Eugenics Law in Wyoming.—Under the terms of a law now in force in Wyoming every male person securing a marriage license must produce a certificate, dated within ten days and signed by a licensed Wyoming physician, showing the applicant to be free from venereal disease in a communicable stage.

Lackawanna County Medical Society to Build a Home.—A plan is under consideration by a committee of the Lackawanna County (Penn.) Medical Society to purchase or construct a building to accommodate its growing library and to provide a meeting place. The society numbers 200 members and the attendance at its weekly meetings is always large.

Protests Against Dr. Schley's Removal.—Dr. William C. Schley, a war veteran, wounded in action with the 102d Infantry, has been removed from

the staff of the U. S. Public Health Service Hospital in Boston, and the action has called forth vigorous protests from officers and members of the Massachusetts State Legion which asserts that Dr. Schley has accomplished more for disabled veterans asking medical aid and compensation than any other doctor in government service in the State.

Diphtheria Immunity in North Carolina.—The State Board of Health of North Carolina announces that diphtheria toxin-antitoxin will be supplied to all physicians in the State at the nominal charge of ten cents for the series of three doses.

Antirabic Virus in Maryland.—The Department of Health of Maryland has arranged for a more simple method of administering the virus used in cases of rabies. The department has advised physicians throughout the State that antirabic vaccine, in convenient form, is now purchasable at several drug establishments and that it can be employed by the local physicians—a method which is recommended.

Flying to Render Medical Aid.—Word was received by telephone one day recently at the Norfolk naval base that a coast guardsman at Manteo was ill and the only physician along the shore between Virginia Beach and Cape Hatteras could not be reached. Lieutenant C. L. Haines, M. C., U. S. N., was therefore sent in a seaplane to the place designated and rendered the necessary assistance.

An Army Medical Field Service School has been opened at Carlisle, Pa., under the command of Colonel P. M. Ashburn, M. C., U. S. A. It is expected that medical reserve officers and also medical officers in the various State militia services, as well as students in the Army Medical School at Washington will receive instruction at the field service school.

Graduation Exercises at the Army Medical School.—Diplomas were presented to 64 army officers at the closing exercises of the Army Medical School in Washington on May 26. The diplomas were awarded by Secretary of War Weeks. Music was furnished by the Marine Band. Surgeon General Merritte W. Ireland presented the Hoff Memorial medal to Major Albro L. Parsons. The Slee medal was presented to Captain Phillip P. Green by Colonel Richard Slee, and the Sternberg medal was awarded to Captain Virgil H. Cornell, the presentation being by Brigadier General Walter D. McCaw.

A Testimonial to Medical Veterans.—Commissioned medical officers of Harrisburg, Penn., and vicinity who served during the World War were entertained at a testimonial and dinner given on May 30 jointly by the Harrisburg Academy of Medicine and the Dauphin County Medical Society. Plans are being made to compile a history of the services of these medical men in the war. There were 43 men in active service, 17 served on draft boards and 14 on the medical advisory board.

Women Graduates at the Columbia P. and S.—In the graduation class of the College of Physicians and Surgeons of Columbia University, New York, last week were six women, the first of their sex to receive medical degrees from the university.

Dr. David Bovaird of New York City announces his withdrawal from practice here to become physician in chief of the Clifton Springs Sanitarium

at Clifton Springs, N. Y.

Dr. R. T. Miller has resigned from the medical faculty of the University of Pittsburgh. He was for twelve years connected with the department of surgery and since 1915 has been the head of that department.

Dr. E. E. Montgomery has resigned from the chair of gynecology at the Jefferson Medical College, Philadelphia, and Dr. Brooke M. Anspach has been elected his successor.

Dr. A. S. Pinto has been appointed health commissioner of Omaha in succession to Dr. J. F. Edwards, resigned.

Miss Anna C. Maxwell, since 1891 supervisor of nurses and director of the nursing school of the Presbyterian Hospital in New York City, will retire on June 30. Miss Maxwell has been in active nursing service since 1876.

Restriction on Medical Practice by the New Volstead Law.—The House Judiciary Committee has reported favorably on the new Volstead bill. The section of this bill affecting medical practice reads as follows: "No physician shall prescribe nor shall any person sell or furnish on any prescription any vinous liquor that contains more than 24 per centum of alcohol by volume, nor shall any one prescribe or sell or furnish on any prescription more than one-fourth of one gallon of vinous or any liquor that contains more than one-half pint of alcohol for use by any person within any period of ten days. No physician shall be furnished with more than one hundred prescription blanks for use in any period of ninety days, nor shall any physician issue more than that number of prescriptions within any such period unless on application therefor he shall make it clearly apparent to the commissioner that for some extraordinary reason a larger number is necessary, whereupon the necessary additional blanks may be furnished him."

Protests Against the Volstead Act.—At the annual meeting of the American Therapeutic Society in Washington last week resolutions were passed protesting against the restrictions of the Volstead Act on the prescription of alcohol by the medical profession. At the same time appeared a letter in the *Journal of the American Medical Association* signed by eight physicians of high standing in New York City calling attention to the intolerable restrictions placed upon the practice of medicine by the Volstead Act. The signers of this letter were Drs. Charles L. Dana, Samuel Lambert, Robert A. Hatcher, Hermann M. Biggs, Harlow Brooks, George B. Wallace, Walter N. James, and Warren Coleman.

Wireless for Doctors.—A portable wireless telephone set, costing only about \$50, which can be attached to any closed automobile, is said to have been invented recently in Cincinnati. It has a radius of five miles. Power is supplied by the regular storage batteries in the car, and the set is grounded to the engine. A physician in a car equipped with this apparatus can be notified of urgent calls while on his rounds, and can answer them promptly before returning to his office.

The Late Dr. Pisek.—The following resolutions were passed at a meeting of the Alumni Association of the University and Bellevue Hospital Medical College, held June 3, 1921: *Whereas*, In the death

of Godfrey Roger Pisek, the New York University and Bellevue Hospital Medical College Alumni Association has suffered the loss of its first treasurer, and the American medical profession and the New York medical fraternity in particular have lost a most distinguished physician, teacher, and specialist in the diseases of children; and *Whereas*, This Association is indebted to the late Dr. Pisek for having been one of the prime movers in its formation and in no small measure responsible for its success from the very beginning, and for his unabated interest until his untimely death; and *Whereas*, By his devotion to high ideals, his love for humanity and especially for the sick children of the poor, his skill as a teacher and diagnostician, he had endeared himself to his pupils and patients alike; and *Whereas*, Dr. Pisek, by his loveable personality, genial spirit, friendship for his colleagues and comrades, had endeared himself to all of us; be it

Resolved, That the Association records these tributes with the full consciousness of the profound debt it owes to the memory of Godfrey Roger Pisek and with a deep appreciation of his interest in our Alumni Association. And be it further *Resolved*, That these resolutions be spread on the minutes of this meeting, and be engrossed and transmitted to Mrs. Pisek and her daughters with the expression of profound sympathy in the great sorrow which has befallen them in the passing away of their distinguished husband and father; and be it further *Resolved*, That copies of these resolutions be sent to the medical press.

President of the Association: R. J. Carlisle. On behalf of the Committee on Resolutions: W. J. Pulley, Chairman; S. Adolphus Knopf, Secretary.

Obituary Notes.—Dr. FRANK AUGUSTUS BRYANT of White Plains, N. Y., a graduate of the Bellevue Hospital Medical College in 1895, died of pneumonia at the age of 69 years in the White Plains Hospital. Dr. Bryant was for many years conducting the Bryant School for Stammering, and was also engaged in active practice in New York City. For the past two years he was resident physician to the Burke Foundation at White Plains, N. Y. He was a member of the Westchester County Medical Society, of the Medical Society of the State of New York, of the American Medical Association, and of the New York Academy of Medicine.

Dr. FRANK H. EVERETT of Bradford, Pa., a graduate of Hahnemann Medical College, Philadelphia, in 1900, died on May 5, at the age of 70 years.

Dr. JOHN T. ALLEN of Brownsville, Tenn., a graduate of Bellevue Hospital Medical College in 1880, died of diabetes on May 9, at the age of sixty-four years.

Dr. STEPHEN THOMAS ROBINSON of Edwardsville, Ill., a graduate of Vanderbilt University, Louisville, Ky., in 1881, died of diabetes on May 4, at the age of sixty-two years.

Dr. JOHN N. LOVELL of Bradford, Ark., a graduate of the Memphis Hospital Medical College in 1895, died on May 12, at the age of fifty-three years.

Dr. DANIEL EDWARD ESTERLY of Topeka, Kan., a graduate of the University of Pennsylvania, Philadelphia, in 1893, died on May 8, at the age of fifty-four years. He was a member of the American

Academy of Ophthalmology and Oto-Laryngology and of the American Medical Association.

Dr. RICHARD BURGESS GILBERT of Louisville, Ky., died at his home on May 8, at the age of seventy-eight years. He was graduated from the University of Louisville in 1868, and for twenty-five years was a member of the faculty of his alma mater.

Dr. DANIEL GREENLEE CALDWELL of Concord, N. C., a graduate of the University of Maryland School of Medicine in 1885, died after a lingering illness on May 13, at the age of fifty-nine years.

Obituary.

SIMON BARUCH, M.D., PH.D., LL.D.

NEW YORK.

Dr. SIMON BARUCH, for forty years one of New York's best known physicians, died at his home in this city on June 3, after an illness of some weeks. He was born in Germany July 29, 1840, and came to this country to study medicine, taking his degree from the Medical College of Virginia in 1862. He entered the medical department of the Confederate Army, serving under General Robert E. Lee from 1862 to 1865. He was captured by the Union troops but was promptly exchanged as both the opposing armies were short of medical officers. After the war he settled in Camden, S. C., where he practised until 1881, when he moved to New York. He was elected president of the South Carolina Medical Society in 1874 and served as chairman of the South Carolina State Board of Health in 1880.

Upon coming to New York Dr. Baruch first engaged in general practice, being on the staff of the Northeastern Dispensary, and later became chief of the medical staff of the Montefiore Home. While there he became interested in the treatment of chronic disease by mechanical and non-medicinal means, and especially by hydrotherapy, a branch of the healing art which he was mainly instrumental in developing to a high degree. For years he urged upon the authorities the establishment of free public baths, but his voice was as of one crying in the wilderness. Nevertheless, in spite of opposition and ridicule, he persevered and finally succeeded in persuading the State Legislature to pass a law making obligatory upon all cities of 50,000 or more population the establishment and maintenance of free baths. The first free public bath was opened in Rivington Street in 1901, and in 1917, by order of the Board of Aldermen this bath was officially named "The Dr. Simon Baruch Public Bath." Chicago anticipated New York by naming one of her public baths after Dr. Baruch in 1910. In 1913 a hospital was built in his honor in Camden, S. C.

Dr. Baruch was professor of hydrotherapy in the medical department of Columbia University, New York, and was the author of "The Principles and Practice of Hydrotherapy," a work which passed through several editions and was translated into French and German. He was a member of the New York Academy of Medicine. He was president of the American Association for Promoting Hygiene and Public Baths, which held its annual meeting in Brookline, Mass., on May 10 and 11. This was at the time of the beginning of Dr. Baruch's final illness, but he wrote an address on his sick-bed and sent it to the meeting.

Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, May 24, 1921.

The Beating of the Heart.—Dr. E. H. Starling, professor of physiology at the University of London, gave a lecture on the evening of May 20, last, on the beating of the heart, or rather the title was "The Law of the Heart," and the action of the heart was revealed by the cinematograph. In the course of his lecture Professor Starling said there was no doubt that the heart was under the control of the nervous system, so that its action could be altered, increased, or diminished by the brain in accordance with the needs of economy. But in the heart they found a wonderful power of adaptation to the varying needs of the organism, a power which was quite independent of the nervous system. It had long been known that the heart of the mammal would beat for some minutes after being cut out of the body, and if they took pains to insure that the muscles constituting the walls of the heart continued to receive their supply of oxygenated blood, it could be made to beat for eight or twelve hours after the death of the animal from which it had been taken. However, the lecturer reminded his audience that what had been described and shown by means of the cinema was the action of the isolated heart. In the natural body the mechanisms were fenced round, protected and aided by the complex activity of the central nervous system, which was always acting on the heart, on its rate, and on its strength of contraction, and balancing its activity against that of the blood vessels, and co-ordinating it with the events which were occurring in every other part of the body.

Blood Tests for Workers.—Industrial medicine is coming to the front more and more, and this branch of medicine is largely preventive. To safeguard as far as possible the lives of the workers by protecting them against the perils of their various callings is a main object of preventive medicine. For instance, those engaged in industrial pursuits in which they are liable to contract poisoning may, according to Sir Kenneth Goadley, be subjected to blood tests which will show the degree of susceptibility to particular poisons to which they are prone. Sir Kenneth has for many years been making experiments in this direction and has also had a long experience as specialist medical referee in cases of industrial poisoning. Consequently, he has arrived at certain very definite conclusions which may be of the greatest value to industry, and these he has embodied in a lecture he will give soon before the Royal Society of Arts, when Mr. J. R. Clynes, the well-known labor M. P., will preside. Sir Kenneth, as a result of the experience he has gathered, holds the view that, whereas some workers are especially liable to poisoning, others are almost immune. By excluding the former class from employment in certain industries and employing the latter, combined with the strict observance of the rules in force for dangerous trades, it may be possible to effect drastic reductions in industrial sickness. Moreover, the worker should also be

tested for blood pressure. In the case of painters this procedure is particularly necessary as a body, these workers being liable to over-pressure of blood as a result of the use of turpentine in their trade. It may be pointed out that poisoning can be effected in more occupations and industries by far than is generally realized. It seems to have been shown that those engaged in the peat industry, for example, are liable to an irritation of the skin, which in predisposed individuals may be the exciting cause of cancer. Those who handle tar and pitch run a similar risk. Chimney sweeps are prone, it is said, to cancer of the scrotum. Makers of felt hats are liable to poisoning from the mercury employed in the manufacture. In the confectionery trade the workers suffer from an irritation of the hands owing to dabbling in sugar. During the war the shell workers who were employed on the capstan lathes came out in boils from contact with the lubricating fluid used to cool the tools. There are many other trades which are dangerous from a similar point of view and which, Sir Kenneth Goadley thinks, can be rendered very much less harmful. He argues that it is no hardship that a man should be told that he cannot work in a certain factory for which blood tests prove him to be unsuited. Selections are made of people who are mentally fitted for certain posts. An engine-driver is tested for color-blindness before he is allowed to drive an engine. Why, then, should not the industrial worker, in occupations liable to cause poisoning, be first tested to find out if he belongs to the class who are peculiarly susceptible to poisons?

Economy in the Administration of the Ministry of Health.—The manner in which the Ministry of Health has been adversely criticized in certain of the daily journals has resulted in the issue of an "economy" circular. This circular has undoubtedly been sent out by the Ministry under the most severe political pressure, mainly brought about by the molding of public opinion by journals which have made a target of the Ministry of Health in order to discredit the government. The claim that the Ministry of Health was one of the most extravagant of the governmental departments is not by any means borne out by facts. The amount expended on public health is but a small fraction of the total public expenditure, and, on the whole, satisfactory results are being obtained. Good health, after all, is the greatest asset of a country, and so much reform is needed in Great Britain to effect improvement in this direction that such efforts must necessarily cost a good deal of money. The direct outcome of the "economy" circular will be to impede, or rather to arrest, progress so far as projects for the betterment of health are concerned and will in many cases be the direct cause of decreasing the amount of health work done by many councils all over the country.

Endowment by the Rockefeller Foundation of Training College for Nurses in Brussels.—It has been announced recently that the Rockefeller Foundation has endowed a training college for nurses in Brussels in memory of Nurse Edith Cavell and Madame Depage. It will be remem-

bered that Nurse Cavell was shot by the Germans in Brussels on Oct. 12, 1915. Madame Depage was well known in New York, where she came with her husband, Professor Depage, for the meeting of the International Surgical Society, which was held in New York in 1913. Madame Depage was drowned when the Germans torpedoed the *Lusitania* on May 7, 1915.

Statistics of Leeds General Infirmary.—Leeds Infirmary is one of the most celebrated in the Kingdom and has always had the good fortune to have on its staff exceptionally able men, especially, perhaps, surgeons. Among those who have shed lustre on the name of Leeds are Sir Clifford Allbutt, who, by the way, is a physician; Sir Mayo Robson, and Sir Berkeley Moynihan, of course, both surgeons. According to the *British Medical Journal*, May 21 last, in anticipation of the annual meeting of the infirmary, which is usually held in March, but which this year has been postponed to May 25, the usual statistical tables of the numbers of patients attended to in the various departments during the year 1920 have been issued. The total number of patients treated within the walls of the infirmary as inpatients was 9480, practically the same as during 1919. Of the new patients admitted 3914 were men, 3347 were women, and 1500 children. The average number of patients at the infirmary was 363, and at the two semiconvalescent hospitals 113. The number of new outpatients was 20,109, and of casualties 15,969. In addition, there were 3128 new cases in the venereal department. Operations were performed on 5378 inpatients and on 3929 outpatients.

Congress of the History of Medicine.—The Congress of the History of Medicine, the second one held, will take place in Paris in the first week of June, and on the first five days of the week. The presidents will be Professors Jeanselme and Menetrier. The place of meeting will be the Faculté de Médecine and the opening ceremony will be undertaken by the Minister of Public Instruction on July 1. The subjects chosen for discussion, which will be held in the afternoons, are the history of hospitals and of public provision for the sick in all countries; the diet scales of man and the diet of animals in antiquity and in the middle ages; the history and nature of the great historical epidemics; the part played by pharmacists in the development of biology, and the history of epizootics. During the congress an exhibition will be open containing manuscripts, books, engravings, paintings, medals, and instruments of historical interest.

Cost of Rats.—Mr. A. Moore, director of the Vermin Repression Society, lecturing on May 23 last, at the College of Ambulance, London, said that the rat, which was the greatest enemy of man, cost at least one penny (two cents) a day to keep, and it had been proved that the rat was numerically as strong as the human race. Therefore, taking the population of Great Britain at 50,000,000, the cost of keeping rats was £75,000,000 (\$375,000,000) a year.

Vital Statistics.—According to the Registrar-General's return for the week ending May 14, 1921, the births registered in London and 95 other great

towns numbered 8996, corresponding to an annual rate of 25.2 per 1000. The deaths numbered 4434, equal to a death rate of 12.5 per 1000, as against 12.5, 12.5, and 12.4 in the 96 great towns in the three weeks preceding. In London 2068 births were registered, corresponding to a rate of 23.7 per 1000, and 1012 deaths, equal to a rate of 11.6, as against 12.6, 12.1, and 11.5 in the three weeks preceding.

Dental Treatment for Mothers.—At a recent meeting of the Surrey County Council the maternity and child welfare committee presented a scheme for providing dental treatment for mothers and children under five. The estimate was as follows: Twenty dental chairs, £1,000; dentures and fillings, £3,000; dentist salaries and traveling expenses, £700; total, £4,700. It is proposed at the outset to provide treatment at twenty of the school clinics already established by the education committee. The item of £3,000 estimated for dentures and fillings is based on the assumption that 360 women, being an average of six from each of sixty welfare centers, will need complete sets of new dentures. Toward the cost thereof mothers will be expected to contribute according to their means, and the committee will use every endeavor to secure the realization of this expectation. One-half of the net expenditure incurred by the council in connection with the scheme will be repaid by the Ministry of Health out of monies provided by Parliament.

This announcement is quoted here to show that local authorities, spurred on by the Ministry of Health, are making belated efforts to improve the condition of the teeth of the nation. The inhabitants of no country, perhaps, in the world possess such defective and diseased teeth as those of Great Britain. Examination of prospective soldiers during the war emphasized this fact. It is realized that sound teeth or, at any rate, a clean mouth are essential to a really good state of health. It is also recognized that in order that good teeth shall be general children's teeth and mouths must be properly treated. This is an important branch of preventive medicine. It may be further pointed out that child welfare centers have already fully justified their creation and are, indeed, the most necessary weapon in a campaign to prevent disease. But while the care of the teeth is obviously of the first importance, it must not be forgotten that such care does not consist wholly in mechanical means. Diet, after all, has much to do with the state of the teeth and mouth, and it is eminently desirable that the children of all classes in Great Britain should be trained as to diet. Knowledge of dietetics is sadly lacking in this country, and although, of course, it is absolutely impossible to lay down hard-and-fast rules with regard to food, general knowledge in this direction may be disseminated with hopeful expectations of satisfactory results. For example, a great deal too much saccharine material and pappy food are eaten by the young, to the lasting injury of the teeth, gums, and digestion. There is no doubt that an immense amount of good can be done by educational propaganda both by word of mouth and by the written word, with the object of preventing disease, by recommending diets,

nourishing and digestible, and which improve the teeth rather than hurt them. Proper diet in conjunction with skillful dentistry should go far toward insuring that the rising generation of Great Britain shall have teeth which will masticate efficiently and mouths which are not a constant menace to health on account of their septic condition.

TWO POSSIBLY DANGEROUS PRACTICES.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—Somebody has recently been advocating the exposure of hypertrophied tonsils and adenoids to the influence of x-rays through the mouth in order to diminish their size. This treatment may cure the hypertrophy, as the roentgenologist claims, but x-rays are always two-edged swords, as many have learned to their sorrow. It must be remembered that the pituitary fossa lies just above the pharyngeal wall, this structure and the upper wall of the sphenoid, both thin structures, are all the bony tissue between the pituitary gland and the rays. Radiation of healthy pituitaries must be harmful, especially in young children, just as radiation of healthy thyroids is harmful. Thoughtless and prolonged radiation, therefore, could produce a very serious hypopituitarism and this treatment it would seem is nothing but pernicious.

No doubt sausage and scrapple makers put into their product parts or all of ductless glands from motives of economy. Some of these tissues are not destroyed by heat, notably pituitary extract. But even though they may be rendered inert by heat, sausage is often eaten raw or partly cooked. A large dose of thyroid might thus be eaten by some one with hyperthyroidism with uncomfortable and deleterious results. The thyroid is sold as sweetbreads in many butcher shops. It seems wise, therefore, to forbid such indiscriminate and heterogeneous products as sausage in nervous and endocrinopathic people. Such food may explain unaccountable symptoms in them.

R. L. PITFIELD, M. D.

5211 WAYNE AVENUE.
GERMANTOWN, PHILADELPHIA.

PODIATRY.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—The April 30th issue of the MEDICAL RECORD contains a letter from Dr. Armitage Whitman, commenting upon an editorial on "Podiatry" which appeared in the January 22 number of your publication. Those who have given attention to the care of the human foot will heartily agree with Dr. Whitman in his conclusion that it would be well for the medical profession to educate itself so as to meet the requirements for the intelligent care of the foot sufferers. "To-day," as Dr. Whitman states, "the medical schools do not impart adequate instruction along these lines," and "good courses in orthopedic surgery are even now rare." However, it is difficult to follow the Doctor's line of reasoning in connection with some other phases of his letter. The MEDICAL RECORD does not need assistance in supporting any opinion it may express, but I would venture to call Dr. Whitman's attention to the fact

that the editorial upon which he comments does not advocate "the giving of courses in medical schools to otherwise unqualified students who wish to gain a living by practising such a specialty," as he avers. Per contra, it urges the wisdom of having podiatry taught in undergraduate and in postgraduate schools which in turn means that legalized practitioners of medicine would acquire knowledge on this subject for the benefit of the public and for their own economic behoof.

Again, the Doctor refers to the term "podiatrist" as "self-styled." "Chiropody" is surely not etymologically or constructively correct. Hand and foot is not a proper designation for a foot practitioner. The word is probably a euphemism which developed from "chirug-podist." Why not "podiatry" instead?

Then, too, why should he group podiatry with cults, fads, isms, and pathies in medicine? Were he to visit the First Institute of Podiatry he would learn that the various branches of medicine basically necessary to comprehend the essentials of podiatry practice, are taught there by a staff of competent medical teachers, all of whom are licensed practitioners of medicine whose instruction is in perfect accord with the accepted medical truths of the day, and that the theoretic and the practical work, largely imparted by podiatrists, is in harmony with all that is most advanced in this field. I venture to state, without fear of justifiable contradiction, that there is no center in the country where more thorough instruction in foot orthopedics is given and where Whitman's theories of treatment and of practice are better and more scientifically exploited than in the clinics connected with the Institute, where as many as one hundred foot patients are nightly treated.

The highway to the road of health has many rough spots and some gaps. By educating a group of practitioners to do the increasing amount of foot work which the public requires because the general practitioner of medicine does not assume or attempt to assume this task, the pathway is made somewhat more smooth. Such is the mission of podiatry, and its usefulness will continue until the educational and professional standards for podiatry practice advance to the point where they run on all fours with the requirements for intending medical students; thereupon podiatry will become a legalized branch of medical practice and not an entity as it has been for all of the centuries.

Some of the leading practitioners of medicine are aiding the faculty of the Institute in imparting knowledge to their students. Their investigations have satisfied them of the good faith of those who are at the helm and of the need for this character of practice and practitioners. The State, through its Education Department and through its Legislature, has legalized the teaching and the practice of podiatry. "If the mountain will not come to Mahomet, Mahomet must go to the mountain." If medicine does not include the teaching and the intelligent practice of minor foot lesions, the podiatrist must lead the way to the proper care of this branch of medicine with the thought in mind that before long every licensed doctor of medicine must have acquired, in course, the knowledge essential to this character of work. M. J. LEWIS, M.D.

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Progress of Medical Science.

Boston Medical and Surgical Journal.

May 26, 1921, clxxxiv, 21.

1. Infraction of the Second Metatarsal Head. Charles F. Painter.
2. Importance of the Public Health Nurse in the Tuberculosis Campaign. Joseph H. Pratt.
3. Cerebral Hemorrhage of the New-Born. Frederick C. Irving.
4. The Essential Factors of Cancer Causation. James W. Shannon.
3. Cerebral Hemorrhage of the New-Born.—Frederick C. Irving states that in over 12,000 consecutive births at the Boston Lying-In Hospital, the diagnosis of cerebral hemorrhage was made in forty-one cases, which is about once in 300 deliveries. This figure gives no proper idea of its frequency, as only those cases have been considered which were proved by autopsy or in which, during life, the signs of intracranial bleeding were unmistakable. Still-births and deaths from asphyxia, or from unexplained causes, were not included. Cerebral hemorrhage of the new-born may originate in at least three ways, according to the newer views: (1) from intrauterine asphyxia, (2) as one of the many manifestations of hemorrhagic disease of the new-born, and (3) from the trauma of either operative or spontaneous delivery. Since these children, should they survive the first few days of life, are very apt to become victims of cerebral paralyses or degenerate into hopeless idiots, it is absolutely necessary that the condition should be recognized immediately and every attempt made to prevent such a disastrous outcome. These babies, in the early hours or days of life, exhibit certain peculiarities which should not fail to attract the attention of the physician. They may have recurrent attacks of cyanosis and apnea, often without any other visible abnormality. This is especially apt to be the case in the subtentorial hemorrhage, where the extravasated blood causes an increase of pressure on the medulla and results in respiratory symptoms. Lumbar puncture, in these cases, will reveal bloody spinal fluid, and often the child will improve strikingly, for a time at least, upon the relief of pressure by this procedure. In other cases there is little to be noted at first, except that the child does not seem quite right. It refuses to nurse, and often has a characteristic, continuous and monotonous cry. Sometimes, on the contrary, it lies quietly and is difficult to arouse. As time goes on, nystagmus, inequality of the pupils, twitching, convulsions and spasticity of the extremities develop, and there may be retraction of the neck or opisthotonos. The anterior fontanelle is apt to show a varying degree of bulging, depending upon the degree of intracranial pressure. Edema of the face rarely occurred in the series studied. There may be protrusion of one or both eyeballs. The temperature may be markedly elevated, or it may be subnormal, or show no change whatever. The heart-beat is usually slow and forceful. If there is any question of intracranial hemorrhage, a lumbar puncture should be done. Prophylaxis is all important in this condition. Inertia, or lack of progress in labor, should be viewed with apprehension, and measures taken to hasten dilatation.

Journal of the American Medical Association.

May 28, 1921, lxxvi, 22.

1. High Blood Pressure Stasis. Arthur R. Elliott.
2. The Constituents of Chaulmoogra Oil Effective in Leprosy. J. T. McDonald and A. L. Dean.
3. Roentgen Ray and Tuberculosis in Infants and Children. A Study of Forty-Four Cases. Frederick W. O'Brien and Forrest B. Ames.
4. The Social Responsibilities of Modern Medicine. Frederick R. Green.
5. Injection of the Bile Ducts with Barium. Frank C. Beall and Samuel Jagoda.
6. Pancreatic Cyst Following Cholecystectomy. Max Ballin and Harry C. Saltzstein.
7. Dislocation of the Sacro-Iliac Joint. Alexander Gibson.
8. The Sphenoidal Sinus and the Temporal Lobe. J. Parsons Schaeffer.
9. Effect of Intravenous Administration of Arphenamin. Neo-Arphenamin and Mercury on the Wassermann Test in Normal Serums. Robert A. Kilduffe.
10. Contamination of the Hands and Other Objects in the Spread of Contagious Diseases: Further Observations on Secondary Infections in Hospitals for Contagious Diseases. William J. Matousek.

11. Congenital Atresia of the Esophagus: Report of Two Cases. I. Seth Hirsch.
12. An Unusual Pain Syndrome Associated with the Present Wave of Influenza. Thomas F. Reilly.

1. **High Blood Pressure Stasis.**—Arthur R. Elliott gives consideration to the clinical aspects of high blood pressure stasis, a term applied to a definite and clean-cut circulatory syndrome. Chief among the characteristic features are rapid pulse, gallop rhythm, and pulsus alternans. The pulse rate in his experience has been invariably rapid, although rhythm is usually regular or at most broken by irregularly recurring premature contractions. Auricular fibrillation rarely if ever occurs; it was not noted in any one of the fifteen cases which form the basis of this study. Some decline in pulse rate follows rest and recumbency, but the pulse rarely returns to normal frequency even after digitalization. It is a fair assumption that this rapid rhythm is an effort on the part of the ventricle to compensate by rapidity of stroke for reduced volume output. The serious significance of persistent increase in pulse rate in high pressure stasis has not been sufficiently emphasized. Other things being equal, a change from the deliberate, slow, and measured heart rate ordinarily present in high blood pressure to one more rapid than normal signifies the beginning of myocardial insufficiency. Pulsus alternans is a frequent development in these cases, and once present, is usually permanent. Of the fifteen cases studied eight displayed the alternating pulse. The serious significance of this development is indicated by the death of five of these patients after an average period of observation of seven and a half months. In four, deaths occurred from asystole; in one, from uremia. One of the most interesting and constant physical signs observed in high pressure stasis is the presystolic gallop rhythm. It was present some time during the course of all the cases studied. When the heart takes on this rhythm (not to be confused with the diastolic double sound so often heard in mitral stenosis) in high pressure stasis, it denotes grave muscle embarrassment. Once established, it never wholly disappears; and it has proved a sign of great significance. In high pressure stasis occurring as one of the phenomena of the terminal stage of chronic nephritis, blood nitrogen accumulation may attain high figures; whereas in non-nephritic cases but little waste nitrogen has been observed. The most striking characteristic of the blood pressure formula is marked and persistent elevation of diastolic pressure. Diastolic pressures as high as 180 mm. have been observed in the present series. Diastolic values attain their maximum in nephritic circulatory stasis. The nature of the causes which contribute to bring about this form of circulatory failure renders the prognosis a serious one, increasing in gravity according to the degree with which the vicious circle as between heart and arteries becomes more firmly established. Once edema appears, the end is not far off; and the presence of gallop rhythm, pulsus alternans, or Cheyne-Stokes breathing closes the door to any but temporary improvement. A more extended outlook on life may exist in the absence of nephritis. There are but three measures of treatment that appear to exercise any control in this condition, namely, rest, venesection, and digitalis.

3. **Röntgen Ray and Tuberculosis in Infants and Children.**—Frederick W. O'Brien and Forrest B. Ames give the following conclusions as the result of a statistical study of forty-four infants and children at the Boston Consumptives' Hospital. 1. (a) The von Pirquet and intracutaneous skin reactions are reliable guides to infection with tubercle bacilli, and the number of positive reactions increases from infancy up through childhood, over ten years of age, all patients reacting. (b) In twenty-six of thirty-six positive skin reactions, the roentgen ray disclosed the site of infection to be intrathoracic. 2. D'Espine's sign as a clinical index of tuberculosis of the bronchial lymph nodes is of relatively little value, being elicited only eleven times, as against roentgen-ray evidence of glandular enlargement in twenty-eight cases. 3. Three cases of positive sputum were found in fourteen diagnoses of chronic pulmonary tuberculosis. 4. Fourteen cases of chronic pulmonary tuberculosis of the adult type were found. This suggests that the so-called phthisis is

more common in children than has been stated by writers of textbooks. 5. Fifteen cases, negative clinically, showed definite roentgen-ray signs of marked structural changes consistent with tuberculous infection. This raises the question as to whether these children are to be regarded as more likely to develop clinical tuberculosis and should thus be watched carefully and roentgenographed at fairly frequent intervals.

10. **Contamination of the Hands and Other Objects in the Spread of Contagious Diseases.**—William J. Matousek holds that the pathogenic bacteria present in the secretions of diphtheria and scarlet fever may be cultivated from the surroundings of the patients, but in the former disease less often than in the latter. Improperly sterilized eating utensils may readily serve as carriers of infectious material. The thorough washing of the hands with soap and warm running water efficiently removes the secretions with which the hands may become contaminated. To facilitate this, the skin of the hands and nails requires special care in order to insure a smooth, healthy surface and freedom from any local condition which may render thorough cleaning difficult or impossible. Gauze masks protect the faces of the nurses from gross contamination with particles of air-borne secretions. Cultures from the hands of attendants are a useful check on the individual technique of those caring for contagious diseases. Cultural studies of the surroundings of patients with contagious diseases may serve to indicate the efficiency of the technique employed, and if applied at intervals they seem to stimulate attendants to greater efforts toward perfection.

The Lancet.

May 7, 1921, cc, 19.

1. The Goulstonian Lectures on Glycemia and Glycosuria. Lecture I. George Graham.
 2. A Simple Quantitative Serum-Reaction for the Diagnosis of Syphilis and the Expression of Results in Standard Units. George Dreyer and Hugh Kingsley Ward.
 3. A Report of the First Year's Work of a Clinic for Syphilitic Children. Reginald C. Jewesbury.
 4. Similarity of Effects Produced by Absence of Vitamines and by Exposure to X-Rays and Radium. W. Cramer, A. H. Drew, and J. C. Mottram.
3. **Report of the First Year's Work of a Clinic for Syphilitic Children.**—Reginald C. Jewesbury gives the findings of this clinic, held one morning a week in the Children's Department of St. Thomas' Hospital, London. During the first twelve months of its existence a total of 145 children were seen whose mothers were known to be syphilitic. Of these, nine mothers became infected after the births of their children, hence the disease in these children was acquired. Of the remaining 136 mothers, infected before the birth of the child, forty-seven had treatment before or during pregnancy. In 89 cases the mothers had received no treatment previous to the birth of the child. The following signs in the child are noted: (1) A few children of syphilitic mothers who had received no treatment were quite free from any sign, and have given negative Wassermann reactions even up to the age of ten to fourteen years. (2) Many children showed the usual signs seen in typical congenital syphilis, in whom rash and snuffles appeared two to eight weeks after birth. (3) In a certain number of children seen, in whom there was no history of previous symptoms, symptoms developed late, after the fifth or sixth year, i.e. "lues tarda." This group amounted to 10 per cent. of all cases examined. Lesions of the following structures were present: bones, periostitis; joints, synovitis; eyes, interstitial keratitis; brain, particularly affecting mental condition; ears, deafness; teeth.

4. **Similarity of Effects Produced by Absence of Vitamines and by Exposure to X-Rays and Radium.**—Cramer, Drew and Mottram do not agree that vitamins are necessary for the life of the individual cell. There is one tissue, however, which is specifically and profoundly affected by the absence of vitamins from the diet, namely, the lymphoid tissue. In mice and rats kept on a diet completely free from vitamins there is great atrophy of the lymphoid tissue, which is obvious even to the naked eye. The spleen is shrunk to a narrow ribbon; the thymus, which even in adult rats and mice remains relatively a large organ filling

the upper part of the thorax and covering the base of the heart, becomes so small as to be hardly visible. Microscopically these organs, especially the spleen, are found to contain very few leucocytes. The ordinary lymph glands may not be microscopically smaller than normal, but under the microscope are found to be almost bare of lymphocytes. The blood picture, as shown by a differential count, shows a reduction in the number of lymphocytes and an increase in the number of polymorphonuclear leucocytes. This condition of the lymphoid tissue is practically identical with that produced by exposure to x-rays and radium. These agents, if given in appropriate dosage, not only have the same effect as regards the lymphoid tissue, but they also produce the same general effect on the animals—they lose weight and die in a state of emaciation. The writers propose to investigate further the explanation of the problem of the production of the same effects by two apparently such dissimilar causes.

British Medical Journal.

May 7, 1921, i, 3149.

1. The Early Diagnosis of Acute Abdominal Affections. W. McAdam Eccles.
2. A Note on Injuries to the Female Ureter. A. Leyland Robinson.
3. A Lecture on the Axis of Astigmatism. N. Bishop Harman.
4. A Note on Lymphadenoma. George J. Langley.
5. The Physiological Cost of Muscular Work Measured by the Exhalation of Carbon Dioxide. A. D. Waller and Miss G. De Decker.
6. Intermittent Albuminuria in Children. F. Moor.

5. The Physiological Cost of Muscular Work Measured by the Exhalation of Carbon Dioxide.—A. D. Waller and Miss G. De Decker report observations which form part of a survey upon which they have been engaged during the last three years, of the physiological cost of muscular work measured by the expiratory discharge of carbon dioxide. This communication deals with the energy output (a) of colliers during their work at the coal face, (b) of shoemakers during their work at the factory. The relative energy output of colliers and of shoemakers comes out from these observations as three times greater for the former than for the latter, namely, 96 calories per hour per square meter of body surface in the case of colliers, and 32 calories in the case of shoemakers. The relation of their energy output to that of other workers whom the writers have measured during the last two years is exhibited in tables and graphs. For purposes of strict comparison it is necessary to state cost of work by individuals of different bulk in units per kilo of body weight, or preferably in units per square meter of body surface. But for practical purposes during investigation it was found useful to think in terms of CO₂ (gross) per second, which was translated at once into calories per hour by using the factor X 20. Their data are presented under both these forms in the graphs given.

6. Intermittent Albuminuria in Children.—F. Moor presents the following conclusions from the examination of the urine of 397 boys between eight and fourteen years of age at the Vauxhall Street Elementary School, finding albumin in 91 of the specimens (23 per cent.): (1) Intermittent albuminuria is a common condition among children. (2) It is not a form of kidney disease. (3) It is called by so many different names, and there are so many theories about it, that it is probably not a specific morbid entity but a symptom of several diseases.

Bulletin of Johns Hopkins Hospital.

March, 1921, xxxii, 361.

1. The Cause of So-Called Idiopathic Hydrocephalus. Walter E. Dandy.
2. X-Ray Picture of the Bones in the Diagnosis of Syphilis in the Fetus and in Young Infants. F. G. Shipley, J. W. Pearson, A. A. Weech, and C. H. Greene.
3. Internal Migration of the Ovum. George W. Corner.
4. Serious Reactions to Repeated Transfusion in Pernicious Anemia. H. M. Bowcock.
5. The Fate of True Solutions (Phenolsulphonephthalein) and Colloids (Trypan Blue) Injected into the Mammalian Embryo. George B. Wislocki.
4. Serious Reactions to Repeated Transfusions in Pernicious Anemia.—Harold M. Bowcock presents three

cases in which, after a large number of transfusions, there occurred extremely severe reactions following the transfusion of apparently compatible blood. These cases show the inadequacy of the present method of determining the compatibility of blood for transfusion, particularly in those cases in which the recipient has been the subject of a large number of earlier transfusions. The first patient had three admissions to the hospital during a period of 11 months, and received a little more than 10½ liters of blood in 17 transfusions. Eight times during this series she experienced reactions of varying degrees of severity, showing a marked hemoglobinuria on three occasions. Transfusion v gave one of the most severe reactions accompanied by hemoglobinuria, although only 20 c.c. of blood were injected. The same donor seems to have been used for the eighth transfusion, which was followed by no reaction except pruritis and discomfort about the eyelids. The patient's husband acted as donor six times, giving a total of 3,620 c.c. of blood, with one mild reaction, after Transfusion I, shown by urticaria and pruritis, and with one severe reaction, after Transfusion xv, shown by a severe shaking chill and an elevation of temperature to 106° F., but no hemoglobinuria; on four occasions his blood produced no reaction of any sort. Splenectomy gave no permanent benefit. After the reactions to Transfusion xv and xvi macroscopic matchings of the recipient's serum against the donor's cells were carried out with varying dilutions of serum and cell suspension; they were all negative for agglutination or hemolysis. The second patient had three admissions to the hospital in a period of two years, and received a total of a little more than eight and one-half liters of blood in 20 transfusions. He suffered nine reactions of varying degrees of severity. On no occasion was hemoglobinuria demonstrable. During the third admission the patient's son acted as the donor for small transfusions on two occasions; from the first transfusion there was practically no reaction, while after the second reaction the recipient's condition was critical. One donor was used three times; the use of his blood was followed once by chilly sensations and a slight elevation of temperature, and twice it produced absolutely no reaction. Splenectomy produced no permanent improvement in the patient's condition. The third patient had six admissions to the hospital in a little less than three years, and during this period received about eight and one-half liters of blood in 15 transfusions, and 235 c.c. of blood serum in one transfusion. She suffered six reactions of varying degrees of severity, showing hemoglobinuria on two occasions. From the time at which she first came under observation until the development of a marked cystitis, and later, the transfusion of serum, the blood picture showed very little regenerative activity. Whether the evidences of bone-marrow stimulation, shown by the blood picture, resulted from the cystitis and hypodermic injections, or from the transfusion of Group I serum, it is impossible to say. However, the picture shows greater bone-marrow activity following the administration of blood serum. The hemoglobin and R.B.C. determinations showed a progressive improvement until the time of death. The reactions in these cases must have been due to either: (1) imperfect technique; (2) unavoidable factors in the procedure of transfusion; (3) or some undemonstrable incompatibility of the blood used. The severe reaction is probably due to an anaphylactic manifestation and not to hemolysis *per se*.

5. The Fate of True Solutions (Phenolsulphonephthalein) and Colloids (Trypan Blue) Injected into the Mammalian Embryo.—George B. Wislocki investigated the fate of phenolsulphonephthalein and trypan blue injected into fetuses. Phenolsulphonephthalein was selected because it is a crystalloid, diffuses readily and is nontoxic. Trypan blue was used because it forms a colloidal solution, is relatively nontoxic and its behavior in the adult is well understood. The following are his findings from these observations: (1) Phenolsulphonephthalein, which represents an easily diffusible, non-toxic dye, is absorbed from the peritoneal cavity of the fetus. It passes slowly from the fetal blood stream through the placenta into the maternal blood stream and is excreted by the maternal

kidneys. It is also excreted by the fetal kidneys, since it is found in the fetal urine. This observation demonstrates that the fetal kidneys are capable of excretion, but sheds no light on the extent to which they act as a pathway of excretion before birth. No difference was noted between the cat and the guinea pig as to the time of transmission of the dye by the placenta, but a marked difference in the time required was observed in individuals of the same species. (2) Trypan blue, a less diffusible, nontoxic colloidal dye, is also absorbed from the peritoneal cavity of the fetus. It is not excreted in the maternal urine, and microscopic examination shows that it is not transmitted by the placenta to the maternal organism. It is excreted by the fetal kidneys. The observations with trypan blue show that the placenta is incapable of transmitting an inert foreign colloid from fetus to mother, and hence it is probable that the placenta does not transmit the colloidal products of fetal excretion unless they are first converted into simpler, readily diffusible, substances. (3) The fetus becomes vitally stained after injections of trypan blue into the fetal peritoneal cavity. The dye is stored in the endothelial cells of the liver, and also accumulates in the epithelial cells of the renal convoluted tubules. The dye is absorbed by clasmatoocytes which occur throughout the fetus and in the placenta and fetal membranes.

New Orleans Medical and Surgical Journal.

April, 1921. lxxiii, 10.

1. Subacute Infective Endocarditis. J. I. Lemann.
2. Acute Nephritis in Syphilis. D. N. Silverman.
3. Hemorrhagic Osteomyelitis of the Femur. P. G. Lacroix.
4. A Case of Rethitis Proliferans. Jules Dupuy.
5. Vaccine Therapy the Most Rational and Effective Method of Preventing Whooping Cough in Public Institutions. C. J. Bloom.
6. Demonstration of Plates Made with the Bucky Potter Diaphragm. E. C. Samuel and E. R. Bowie.
2. Acute Nephritis in Syphilis.—D. N. Silverman reports two cases of acute nephritis in which no arsenic or mercury had been given prior to the patients' coming under his observation. Being unable to account for any other etiological factor in either of them, the presence of syphilis prompted investigation to establish a possible relationship between the nephritis and the treponema.

Annals of Surgery.

April, 1921. lxxiii, 4.

1. Pericardiotomy for Suppurative Pericarditis. Eugene H. Pool.
2. Diaphragmatic Hernia. Samuel Gitlow and Benjamin Breakstone.
3. The Present Status of Gastric and Duodenal Ulcer. Abraham O. Wilensky.
4. Marginal Gastrojejunal or Peptic Ulcer Subsequent to Gastroenterostomy. John F. Erdmann.
5. Gastroenterostomy in Acute Perforated Ulcer of the Stomach and Duodenum. John B. Deaver and Damon B. Pfeiffer.
6. Comparative Results of Pyloroplasty and of Gastroenterostomy in Stomach Surgery. Byron B. Davis.
7. Drainage of the Common Bile Duct Through the Cystic Duct: Cystico-Cholecholestomy. Mont R. Reid.
8. The Rubber Dam Mikulicz Tampon. Charles L. Gibson.
9. The Gibson-Mikulicz Tampon in Acute Appendicitis. Charles E. Farr.
10. Congenital Valves of the Posterior Urethra. Alexander Randall.
11. Krukenberg Tumor of the Ovary. Philip J. Reel.
12. The Treatment of Ununited Fractures. Melvin S. Henderson.
13. An Integral Traction Providing Splint for Vicious Fractures of the Femur. Harvey C. Masland.
14. Three Frequent Causes of Weak and of Flat Feet. J. Torrance Rugh.
1. Pericardiotomy for Suppurative Pericarditis.—Eugene H. Pool holds that the method described in this communication (resection of portions of the seventh, sixth, and fifth cartilages) meets the most important indications, namely, it opens the pericardium at its lowest part; involves little risk of injury to the pleura; provides ample drainage and allows such exploration as is necessary both at the time of operation and during postoperative course. If the condition of the patient warrants it this method is advisable, especially if a brief general anesthetic can be tolerated. In some cases a less extensive exposure may seem imperative. Under these circumstances resection of the sixth and

seventh cartilages seems best. The procedure was employed in a case reported by the writer, giving quite satisfactory exposure and providing efficient drainage. In conjunction with the Carrel-Dakin method it probably would prove adequate for many cases. Resection of the sixth cartilage alone may be done readily under local anesthesia and is tempting by reason of its simplicity, but the drainage is not satisfactory. The Carrel-Dakin method appears well adapted to the post-operative treatment of suppurative pericarditis.

11. Krukenberg Tumor of the Ovary.—Philip J. Reel recalls the fact that Krukenberg, in 1896, described a bilateral ovarian tumor to which he gave the name "fibrosarcoma ovarii mucocellulare (carcinomatodes)." He reports a case in which the tumor is similar to that described by Krukenberg, but presents very strong evidence of being metastatic in origin. This bears out the more recent investigations which tend to prove that, in the vast majority of instances, solid tumors of the ovary are secondary to a primary tumor situated elsewhere in the body. It is possible for these growths to attain enormous proportions in the absence of clinical manifestations. A review of the literature reveals that they occur most frequently before the age of forty, and that they are more malignant in character than is sometimes stated.

Le Progrès Médical.

February 12, 1921. xlix, 7.

Coincidence of Uremia and Pulsus Alternans.—Heitz refers to articles on this subject by himself and Esmein and by Chaler and Contamin. The latter arrive at conclusions somewhat different from those of the author. They report 10 cases, but the two conditions do not vary directly with each other in intensity. In but 7 of the 10 cases were both conditions in evidence at the time of examination. Of the other 3 cases examined 2 showed uremia with normal pulse and the third pulsus alternans with blood urea normal. Evidently the Lyons authors believe that the coincidence is more a matter of chance than necessity, while the author is inclined more to the latter hypothesis. He believes that, to say the least, the blood state in question is an important factor in the production of the pulse in question. The alternative involves the mechanical theory of the production of the latter. In his own material there was one case of alternating pulse in which azotemia was absent. He therefore is not committed to the view of a necessary sequence of the two symptoms. He believes, however, that the association should be studied persistently until it is cleared up. This must involve a long following up of patients, for the member of the association which is absent may appear in time. The presence or absence of a mechanical component—weakening of the ventricle from hypertension—must also be carefully sought. The author lays stress on the treatment-test, for by nitrogen poor diet the character of the pulse has often been favorably influenced. Naturally in these cases cardiac tonics are also given, but there is no warrant for stating that the two conditions indicate different plans of treatment.

Acquired Sexual Inversion.—Roubinovitch and Paul report the following unusual case: The man had been absolutely normal sexually up to the age of 20, when tuberculosis of the epididymis developed, for which both gonads were extirpated. From that period the subject was no longer attracted by women and developed an obsessive desire for the society of men. At the same time the psyche began to take on feminine characteristics. The authors have been unable to find any record of a parallel case, and if this case should prove to be what they claim, our knowledge of inversion and homosexuality will have to be revised. There is mention of opotherapy but it does not seem to have been used. Sonatically the man remained a perfect male, for unlike most castrates this one showed no development of female secondary sexual characters. It may be that this change will eventually develop, although some years have now elapsed since the alteration of personality.—*Le Bulletin Médical*.

Book Reviews.

THE SOCIAL DISEASES—TUBERCULOSIS, SYPHILIS, ALCOHOLISM, STERILITY. By Dr. J. HERICOURT, translated, and with a final chapter by BERNARD MIALL. London: George Routledge & Sons, Ltd.; New York: E. P. Dutton & Company; 1920.

UNDER the title of "Social Diseases," Doctor Hericourt discusses the public health situation with reference to tuberculosis, syphilis, alcoholism and sterility.

For tuberculosis, a semi-popular exposition of the etiology and pathogenesis of the disease is first discussed. This is followed by a presentation of the methods of attack against this scourge, including an outline of a campaign, the basis of which recommends the isolation of contagious sufferers. As for tuberculosis, so with syphilis, the etiology and pathology are presented, to which is appended a discussion of heredito-syphilis.

The next section is devoted to the study of alcoholism. It does not appear why alcoholism should be classed in a category with scourges of a purely infectious nature such as tuberculosis and syphilis, unless the connection be from the viewpoint of moral aberrancy. Doctor Hericourt's discussion of alcoholism is at this time more interesting to the French people than to the inhabitants of our country.

The final section is devoted to a discussion of the problem of sterility. It is obvious how important the problem of sterility may be to a country like France, where depopulation is extant. As a cause of falling birth-rate, natural sterility is considered less cogent than voluntary sterility or purposeful restriction of birth-rate. The proposed remedies are three-fold: moral, economic, and penal. Morally, the author recommends stemming the tide of feminism; economically, the imposition of tax upon celibates and unduly small families. These measures might prevent French depopulation, but they are such unusual innovations as to preclude serious immediate consideration for the conditions of many countries other than France.

The book is interestingly written and expounds the theme that civilized races are a prey to complex degeneracy arising from the hereditary taints of syphilis, tuberculosis, and alcoholism; and that all these morbid inheritances mutually act upon one another so as to produce a vicious cycle, of which sterility, voluntary or otherwise, is one of the results. In this light, sterility is viewed as a natural defense against the degradation of the race.

PULMONARY TUBERCULOSIS—A Handbook for Students and Practitioners. By EDWARD O. OTIS, A.B., M.D. Second Edition. Boston: W. M. Leonard; 1920.

WHAT was said in the MEDICAL RECORD by the reviewer of the first edition of this work may well be said of the second edition: "It is refreshing to get a moderate-sized volume on the vast subject of Pulmonary Tuberculosis in which essentially all that is known of it today is given in a precise, simple, and comprehensive form." To this may be added today that the enlarged and revised volume which the author modestly calls a manual and not a treatise, intended for students, practitioners, and patients, may be profitably read by the specialist. The addition to this second edition of the diagnostic standards of the National Tuberculosis Association and suggestive aphorisms from other authors has increased its value. A most interesting feature of the book lies in the arrangement, in that every chapter has an appropriate heading borrowed from general literature. The chapter on Hamlet is very aptly headed by the quotation from Hamlet:

"Find out the cause of this effect.

"Or rather say the cause of this defect.

"For this effect defective comes by cause."

The motto by Pryor is equally well chosen for the final chapter in which the author recalls interesting cases:

"Examples draw when precept fails,

As sermons are less read than tales."

The book is well printed and well bound. The chapters on anatomy, physiology, and pathology are illustrated by good drawings. Excellent portraits of Koch, Laennec, and Auenbrugger adorn the pages. If there is any criticism, one might perhaps say that in the

paragraph dealing with the arrangements for treatment outside of the sanatorium there is a lack of reference to simple fresh air devices. The author only gives illustrations of sleeping balconies, porches, and tents, and although these devices may be easily installed in country houses and small towns and in rare instances on the roof of a city house, the vast majority of the consumptive poor in large cities could certainly not avail themselves of such constructions. The only outdoor sleeping devices of which the tenement dweller in large cities can avail himself are the aerarium devised by Bull, the window-tent devised by Knopf, or some of the modifications of these which have since been put on the market. A short description of such devices would materially add to the usefulness of the book.

PRACTICAL BACTERIOLOGY, BLOOD WORK AND ANIMAL PARASITOLOGY, including Bacteriological Keys, Zoological Tables, and Explanatory Clinical Notes. By E. R. STITT, A.B., Ph.D., M.D., Sc.D., LL.D., Rear Admiral, Medical Corps, U. S. Navy; Commanding Officer and Head of Department of Tropical Medicine, U. S. Naval Medical School; Graduate, London School of Tropical Medicine; Professor of Tropical Medicine, Georgetown University; Professor of Tropical Medicine, George Washington University; Lecturer in Tropical Medicine, Jefferson Medical College; Member, National Board of Medical Examiners; Member, Advisory Board Hygienic Laboratory; Formerly Associate Professor of Medical Zoology, University of Philippines. Sixth Edition, Revised and Enlarged, with 1 Plate and 177 Other Illustrations, Containing 637 Figures. Philadelphia: P. Blakiston's Sons & Co., 1920.

SEVERAL features, aside from the body of the text, render this small volume a veritable "first aid kit" for the student, for the beginning practitioner and practical laboratory worker, and for the one who does laboratory work only occasionally. The table of common communicable diseases, which occupies the inside of and first page of fly-leaf, is a ready reference concerning cerebrospinal meningitis, chicken-pox, diphtheria, German measles, measles, mumps, poliomyelitis, scarlet fever, smallpox and whooping cough, with respect to cause and source; incubation period; mode of transmission; period of communicability; laboratory diagnosis; salient clinical features; and methods of control. The ruling of the Turk disc and the explanation of the squares given on the reverse side of the fly-leaf, is another of these utilitarian features. The occasional laboratory worker will find abundant help in the sixty-nine pages which constitute the appendix, and which include the preparation of tissues for examination in microscopic sections, and various other laboratory procedures. The body of the text conforms to the original plan, but is enlarged by seventy-two pages and a number of new illustrations. A new chapter, giving in tabular form the various protozoal, helminthic, and arthropod diseases, is added, and the sections on streptococci, blood flukes, and the influenza bacillus have been rewritten. The section on diseases of the hemopoietic system has been revised and classified under the headings of polycythemias, the primary anemias, the secondary anemias, the leucemias, the pseudo-leucemias, and the splenomegalies. Other additions and changes, notably the enlargement of the table of anatomical normals to include every important organ, and the modification of the section on blood chemistry to include the more recent methods, bring the work up to date.

KOMPENDIUM DER AUGENHEILKUNDE für Studierende und Aerzte. Von Prof. Dr. PAUL SILEX. Geh. Medizinrath in Berlin. Elfte und zwölfte verbesserte Auflage. Berlin: S. Karger, 1920.

THIS little manual first appeared in 1891. In the present edition the author has incorporated everything from the special literature which might add to the value of the book and notably new methods of treatment and new medicaments. Some of the purely theoretical sections have been condensed. Numerous colleagues have assured him of the practical worth of the volume, and he trusts that the new edition—this being the combined eleventh and twelfth—will maintain this favorable judgment.

THE COURSE OF OPERATIVE SURGERY: A HANDBOOK FOR PRACTITIONERS AND STUDENTS. By Prof. Dr. VICTOR SCHMIEDEN, Lately Assistant in the Royal Surgical Clinic in the University of Berlin; Professor of Surgery in the University of Halle; and ARTHUR TURNBULL, M.B., Ch.B. (Glasg.), Lately Demonstrator of Anatomy in the University of Glasgow. With a Foreword by Prof. Dr. A. BIER. Second Enlarged English Edition. New York: William Wood & Company, 1920.

So far as topographical anatomy and technique are concerned, we find operative surgery presented in a most palatable form in this book. This is not merely a composite edition, or rehash, of the text of scores of other authors, but there is an individuality about it that is almost immediately impressed upon the reader and stamps it as far different from the average textbook on this subject. In fact, the reader almost feels that he is to perform operations under the personal supervision and guidance of Professor Schmieden; for not only is the bare technique of individual operations given, but also there are almost constant comments such as might be given at an operative clinic with a live patient on the table. The book is written more in conversational than in ordinary textbook style, which again tends to make it a live work rather than a dry epitome of operative directions.

As Turnbull says in the Introduction, "The work will assist the student to bridge the gap that exists between anatomy and surgery by affording him a connected and scientific survey of modern operations." This book, of which six editions have appeared in the original, is an anatomical reconstruction in English of the main facts of the operative course when Schmieden was assistant to Professor Bier. The English edition was revised after a trip to Berlin for the express purpose of revision in the light of a series of operations conducted under Schmieden's personal direction.

Beginning with the section giving typical ligations of arteries, and so on throughout the book, concise directions are given as to the methods of performing the more common operations. When there are a number of methods in vogue the author has selected one or more of those which he believes best. His choice of methods is, in our opinion, generally good; but there are some serious omissions and occasional instances where much better methods are now commonly employed in this country. For example, the methods described for kidney fixation were long ago superseded here; the incision for breast removal is placed too low in the axilla, so that scar tissue is apt to restrict abduction and elevation of the arm; there is no description or reference to the Polya or Balfour methods of stomach resection; in the operations for cholecystostomy first place is accorded to that in which the fundus of the gall-bladder is stitched to the parietal peritoneum—a procedure which was almost universally abandoned here many years ago.

However, in spite of these faults and rather numerous typographical errors, this is an excellent textbook and one from which the student will learn much more than the bare technique of operations.

MENTAL SELF-HELP. By EDWIN L. ASH, M.D., B.S., M.R.C.S. Author of "The Problem of Nervous Breakdown." New York: The Macmillan Company, 1920.

To those who are weary of spirit and downcast in mind from various causes, which there is no need to enumerate here, this little book is generously offered. Modestly, yet with a firm conviction, the author gently leads the reader from the darkness and dreariness of a "blue outlook" to the sunshine and hope of a perfected faith in the balance of life, if we but use the means at hand to obtain it.

The book treats of mind and health, self-control (how to obtain and hold it), self-suggestion in theory, self-suggestion in practice, right and wrong thinking, and conclusions, in which he says: "We are all students of Life and Health: let us meet on common ground whenever possible and devote our strength and time to bringing together the facts of our experience gathered in many places. Physician and psychologist; mind-healer and psychoanalyst; suggestionist and healer through prayer; priest and layman—let us contribute

our findings to the common store of knowledge, endeavoring to harmonize those things which we have proved and hold fast to, without ever encouraging those differences of opinion which grow so soon into antagonisms. Let us seek each his neighbor's good." "The object of this book is not to lead people to desert their doctors for self-treatment, but to help them obtain a means of support which shall be of great assistance in times of sickness and mental distress."

A particularly interesting chapter is the one on self-control in which there is pointed out the many ways through which our energies are wasted and the means whereby we can conserve the same energies to use for greater efficiency, happiness, and general poise and health.

BLOOD PICTURES: An Introduction to Clinical Hematology. By CECIL PRICE-JONES, M.B. (Lond.). With 5 Colored Plates and 3 Illustrations in the Text. Second Edition. New York: William Wood & Company, 1921.

THOSE who are acquainted with this excellent little guide to blood examination will be glad to learn of the appearance of a new edition. The changes in this one are not many. A report on some recent work by the author on the sizes of red cells has been added, and the new Bürker-Hawksley counting chamber, which is an improvement on the old Bürker apparatus, is described and pictured. The plates, which are beautifully executed, depict normal and abnormal red cells, lymphoid cells, leucoid cells, abnormal white cells, and marrow cells. The work is divided into two parts, the first dealing with the technique of blood examination, a description of the blood cells, and the normal blood picture; the second containing chapters on the blood pictures in bacterial infections, protozoal infections, blood diseases, and malignant diseases.

VITAMINES, ESSENTIAL FOOD FACTORS. By BENJAMIN HARROW, Ph.D., Associate in Physiological Chemistry, College of Physicians and Surgeons, Columbia University. New York: E. P. Dutton & Co., 1921.

DR. HARROW has aimed at writing a popular presentation of a subject which has engaged the attention not only of the scientific world, but also of the general public. It is natural that public interest should be aroused as to the essential factors of food; it is important that such interest should not be deceived. Dr. Harrow has succeeded in presenting a view which gives all information, which has the merits of common-sense application and is not written in the fashion of a quick advertisement. The theories and the facts of vitamin research are clearly and ably presented, with their presence in foods and the relation to caloric food-factors. Hence anyone with any power of mental application can choose a pleasant and efficient diet; and a book so well and sanely balanced as this should be in the hands of all teachers of domestic economy and hygiene for the promotion of the health of the growing families and the confusion of the food profiteers with their dried and canned fruits and vegetables, as opposed to the fresh foods of the garden.

A MANUAL OF SURGERY for Students and Practitioners. By Francis T. Stewart, M.D. formerly Professor of Clinical Surgery, Jefferson Medical College; Surgeon to the Pennsylvania Hospital. Fifth edition, with 590 illustrations. Philadelphia: P. Blakiston's Son & Co., 1921.

THE characteristic of this work in its several editions has always been its simplicity and the clarity of its descriptions. It was written, not for the experienced surgeon, but for the student and the recent graduate, and for the general practitioner in rural practice on whom the necessity falls of caring for surgical cases and even of operating occasionally. Such a man could not have a better guide than this book. The regrettable death of Dr. Stewart has thrown a portion of the revision for this fifth edition (though the greater part had already been done by the author), and also seeing the book through the press on Dr. Walter E. Lee. A careful inspection shows that this work has been excellently done, and in such competent hands the book so solidly established by Dr. Stewart should live through many editions yet.

Society Reports.

AMERICAN MEDICAL ASSOCIATION.

*Seventy-Second Annual Session, Held in Boston,
June 6-10, 1921.*

(Special Report to the MEDICAL RECORD.)

HOUSE OF DELEGATES.

First Day—Monday, June 6.

DR. DWIGHT H. MURRAY OF SYRACUSE, N. Y., SPEAKER
OF THE HOUSE, IN THE CHAIR.

Address of the Speaker of the House.—Dr. DWIGHT H. MURRAY of Syracuse, N. Y., delivered this address in which he dwelt upon the profession's new conception of publicity. Ethical exclusiveness which had characterized the deliberations of professional men in the past appeared to be vanishing, and the new idea was that the general public should be given more information about preventive medicine. The physicians should take the public into their confidence in larger measure than they have done in the past. Dr. Murray proposed the establishment of a Lay Health Journal through which the medical profession would undertake to give an authoritative link between the profession and laity, printing medical news for the layman to enlighten him on matters of medicine, dealing particularly with preventive medicine, social hygiene, medical survey of industries, medical legislation, sanitation, communicable diseases and the like. He suggested that this matter might be taken up with the Surgeon General of the Public Health Service in Washington, partly with a view toward financing the proposition.

Protection was the one and only thing that we get from our Government, he said. Surely this kind of protection was the very best and if properly presented would do away with much if not all thought of so-called Health Insurance and other maternalistic plans that were continually being brought forward by some misguided philanthropists. Education in all fundamentals of hygiene and health matters was the greatest protective measure and why should we not through Congress give this protection to the people at large? Let Congress be memorialized if necessary and follow it up actively to obtain a full department of public health as had been recommended by others which if granted would solve the Public Health journal question. Dr. Murray said that the influence of more than 85,000 members of this association should have weight enough with their individual legislators to put such a law through without question.

The answer of the medical profession to the nation's need in time of war, when two out of every three medical men in this country offered their services in some capacity, ought to vouchsafe the much-needed Department of Health; they did a service worth while, at great personal sacrifice. Surely these men could be trusted with the management of such department. Another plan that might be followed in case of the non-feasibility of the one mentioned, that would not need a journal, would be to appoint editors and create a demand for a medical feature section of the 900 great Sunday papers in this country, taking a different subject or different phases of a popular subject for each issue. These were child welfare, tuberculosis, cancer, personal hygiene, communicable diseases, and like topics. Let one associate editor be responsible for one feature section each three months. It should be ready and in the hands of the publisher at least two weeks before, and released to only one paper in a given section of the country. When this had been made popular, a demand would have been created that could not be satisfied except by giving more, and our Public Health Journal would be an established fact without large expense and would be read by millions. It might be made so popular that it would finance itself. Another matter that was being thoughtfully considered was the employment of one or more field secretaries, who might be of great assistance in building up our association by putting all medical men in closer touch with it and letting the different branches know more of the important details of the working of our very efficient

home office in Chicago. In order to learn what the attitude of our constituent members was on the two questions above mentioned, he had consulted by letter the various State societies through their secretaries and had received many answers, and with one exception both these projects were unanimously indorsed, to be made effective when our resources warranted. The activities of the American Medical Association were many and the members of this House were here for serious business; it should be cared for with even greater diligence than our own private affairs. He therefore urged that each member of this House not only attend every session but that he pay such strict attention that he could explain to his home society the reasons for each action taken by the House.

Address of the President-Elect.—Dr. HUBERT WORK of Pueblo, Col., made a brief address in which he emphasized the duty of the medical profession to educate the public in the prevention of disease. He declared that the achievements in medicine had been hidden from the public in the past because there had been no means for displaying them, so that the people for whom the medical researches and medical discoveries were made heard nothing about it. Medicine should be advertised, said Dr. Work. It should be popularized. Much more work should be done by the health authorities along these lines. State societies should have paid secretaries who could give their full time to the work, and the A. M. A. should have a staff of paid secretaries to do organization work. Dr. Work then made a strong plea for the establishment of a department of health and public welfare in the Federal Government as provided in Senate Bill 1039 or Senate Bill 1607.

Report of the Secretary.—Dr. ALEXANDER R. CRAIG submitted this report, in which it was stated that the membership of the several constituent associations which constituted the membership of the American Medical Association, in May 1, 1921, was 84,971. The fellowship of the Association on May 1, 1921, was 50,870, a net increase for the thirteen months covered by this report of 3,925. The report recorded that Dr. Isadore Dwyer, Vice-President of the Association, died in New Orleans on October 12, 1920. At its meeting in November the Board of Trustees elected Dr. Rudolph Matas, New Orleans, to fill the unexpired term. Dr. Dwyer at the time of his death was also member of the Council on Medical Education and Hospitals. Surgeon General Merritte W. Ireland was appointed, *ad interim*, to fill the vacancy. The report then called attention to the fact that conditions which had developed subsequent to the world war had affected the Association in very much the same manner as they had affected other organizations. The reaction from the altruistic and patriotic motives which controlled actions during the war had had its influence upon the esteem in which some physicians held the principles which had always been the basis of the policies of this Association. One of the dangers which merited the consideration of the House of Delegates was the apparent tendency on the part of certain physicians and a few component county societies to be dominated by commercial ideals rather than by the standard which the Association had adopted in formulating its principles of Medical Ethics. The opening statement of these principles was: "A profession has for its prime object the service it can render to humanity. Reward or financial gain should be a subordinate consideration." This subject was presented to the House of Delegates because, as representatives of the organized medical profession, the members of the House were in a position to carry back to the component societies influences which should correct these destructive tendencies. Attention was called to inactivity on the part of some component societies and to the fact that in certain localities, there had been evidence of a lack of coordinated action and failure to appreciate the essential unity of all branches of the organization.

While it was recognized that each component society was an entity and competent to act for itself, it was essential that the component societies in each state should actually be federated and should cooperate with each other in carrying on the work of the organized profession, first within the county

and then within the State. The same principle must hold in the relationship which exists between the constituent association and the national body. The best work could be accomplished only when an undivided, loyal cooperation existed between all branches of the organization. One of the most effective measures for carrying out the purposes of the organized medical profession was the education both of its members and the lay public regarding questions relating to the health and physical welfare of the community. When action was taken without gaining the support of public opinion in the community, it was not unusual for failure to result. If the members of the House of Delegates would urge the organizations which they represented to be active in informing the influential citizens of their several communities regarding matters which affected the preservation of health and the treatment of disease, the results undoubtedly would be that the people themselves would appreciate more fully the value of laws regulating health conditions and controlling the practice of the healing art so that the public rather than the medical profession alone would demand these laws and would require their enforcement. The report contained the suggestion that inasmuch as it was a serious matter to commit the Association on certain questions in the short time of an annual session, that if the House deemed it wise provision might be made so as to make it the function of one of the existing Councils to investigate scientific questions that might be brought before the House and to report back recommendations for action.

Report of the Board of Trustees.—Dr. A. R. MITCHELL of Lincoln, Neb., submitted this report which showed that their publication department was affected in the same way as were other printing establishments. While operating at a loss during the first part of the fiscal year, they were able to show a net gain of \$30,000 since last August. The records of the subscription department showed that during the year 1920 4,110,112 copies were printed—349,761 more than in 1919. The weekly average was 79,040, an increase in the weekly average of 6,726 over 1919. The circulation of the Spanish Edition was increasing, being 3,611 for 1920, as against 2,908 a year ago. There was no doubt that the publication of this journal was doing much good; it was bringing the Association as well as American Medicine, prominently and most favorably to the attention of the best physicians in the Pan-American countries, was developing a friendly spirit and was bringing to this country as students and for post-graduate work many who otherwise would be going to European countries. All the special journals were doing well, so far as circulation was concerned though all were being conducted at a loss with the exception of the Archives of Internal Medicine. Under the conditions that were prevailing the Board felt that it was wise to discontinue the combination rates on the special journals, and in some cases to increase the price. One of the great opportunities for the advancement of scientific medicine in the United States was the encouragement of these special journals. While they should not publish such journals at a loss, they should be issued at as near cost as possible. The Cooperative Medical Advertising Bureau had closed its seventh year in December, 1920, and its reports showed that it was becoming increasingly helpful to the State journals each year. All the State-owned medical journals, except Illinois, were now represented by the Bureau. The Board of Trustees had decided to postpone the erection of a new building which was badly needed because of the overcrowding of the Association headquarters, owing to the present high cost of building projects.

The Committee on Rehabilitation of Ex-service Men, appointed by the Board of Trustees, reported that early in March the Committee on Hospitalization of ex-service men of the American Legion, through Dr. Billings, requested a conference with the American Medical Association attending the Congress on Medical Education and Hospitals, Licensure and Public Health, then being held in Chicago, with the object of securing the co-operation of the American Medical Association looking to the improvement of the unsatisfactory condition of affairs in the hospitalization and care of disabled ex-service men. A committee was appointed and proceeded to Washington where conferences were held with

the Surgeon General of the Public Health Service, the officers of the Bureau of War Risk Insurance and with others, making a preliminary and general survey of the whole subject. Meantime Dr. Billings had been selected by the Secretary of the Treasury as a member of the Board of Consultation on hospitalization of ex-service men. It was decided that as Dr. Billings was a member of an official government committee he could represent the Committee of the American Medical Association unofficially but effectively. Hence the Association's committee had ceased work awaiting further developments.

The Propaganda Department continued to be a clearing house for information relative to the nostrum evil and quackery. Letters running into the thousands were annually received and answered by the department, in addition to the reports that appeared in the pages of the *Journal*. There was an increasing number of inquiries coming from schools and colleges owing to the fact that this propaganda work had come to be recognized to such an extent that it was referred to in school and college textbooks. The influence that the department was exerting in the interest of truthfulness and honesty in medical matters as they affected the public directly would never be generally known; but to those who were familiar with the facts, this feature of the department's work was especially encouraging and impressive. An active demand continued for the pamphlets, books, educational posters and stereopticon slides prepared and issued by the department. The same was true of the educational posters on the nostrum evil; these were reprinted from time to time with modifications and additions that brought them down to date. The new edition of "Nostrums and Quackery" which had been delayed was not practically ready for distribution.

The Council on Pharmacy and Chemistry was continuing the work which had put the profession of this country far ahead of that of any other, in that it was protected against misrepresentation and commercialism inherent in the exploitation of proprietary medicines. The fact that this country was better off in this regard than others was obvious to those who would compare the advertisements of medical products in even the high class medical journals of Europe with those of this country. That much had been accomplished would be evident if one compared conditions of twenty years ago and now. The problems of the Council to-day were radically different from those which existed when it was first organized. In the early day they were to a large extent concerned with secret and semisecret complex mixtures of simple drugs exploited to the profession under fanciful names and with extravagant claims. These had been forced into obscurity, and the physicians who still prescribed them were reticent about it. In the place of these nostrums we now had biologic products, and biologic therapy was tending toward conditions just as serious as those which resulted from the exploitation of shotgun mixtures; and they were more dangerous. One must be on guard against the present commercial exploitation of this form of therapy. Another development in therapeutics somewhat related to the field of biologic therapy was the intravenous use not only of biologic products, but also of drugs and chemicals—a method of treatment which had numerous dangers. These newer problems which were engaging the attention of the Council should also concern every physician. New and Non official Remedies was the official publication of the Council issued annually. This book contained a list of proprietary products accepted by the Council, and physicians might protect themselves by having this book available for reference. The Council also published the *Useful Drugs Epitome of the Pharmacopœia*. It also had a Committee on Therapeutic Research, to which the trustees make an appropriation each year. This appropriation was used for investigation and laboratory research into the action of drugs and pharmaceutical products.

The Committee on Scientific Research, which was constituted in 1900 and continued until 1914, when it was found necessary to discontinue the appropriation, was reestablished in 1918 and given an appropriation of \$1,200; a similar appropriation was made in 1919; an appropriation of \$1,500 was made in 1920 and 1921. The board of trustees was still of the opinion that this expenditure was well worth while.

Report of Judicial Council.—Dr. M. L. HARRIS of Chicago submitted this report, which recalled that at the New Orleans session of the House of Delegates a resolution was adopted requesting the Judicial Council, at the next annual session, to report a "concrete proposition" or plan for reducing the number of trustees of this association from nine to seven and to subdivide the United States into seven trustee districts. The plan now submitted was that in 1923, when the term of office of three trustees expired, one trustee be selected for a term of seven years. In 1923, when the term of three more trustees expired, one trustee be elected for seven years, one for five years, and one for four years. In 1924 there would be four holdover trustees for terms of six, five, four, and three years respectively, with three to be elected, one for a term of seven years, one for two years, and one for one year. In 1925 there would be six holdover trustees for terms of six, five, four, three, two, and one year respectively, with one trustee to be elected for a period of seven years. Thereafter there would be one trustee to be elected each year for a term of seven years. Before this could be done changes would have to be made in the articles of incorporation. The House of Delegates could direct the Board of Trustees to have these changes made any time during the coming year, but the change in the constitution would have to be made this year and lie over until next year before it could be adopted and become active. A plan was also submitted for the division of the United States into seven trustee districts, in such a way that no one State would have the majority of delegates in the district in which the State was included. These plans were presented to the House, not as a recommendation from the Judicial Council, but in response to the action of the House of Delegates requesting the Judicial Council to propose a plan. During the past year a case had been submitted to the Judicial Council for adjudication. This was an appeal from the Spokane County Medical Society from an action of the Washington State Medical Association. The question raised did not seem to warrant the calling of a special meeting of the Council, especially in view of the short time intervening between the next regular meeting at the annual session. A supplementary report was therefore presented on the case, stating that the Spokane County Medical Society had passed resolutions changing its by-laws to prohibit contract practice, defining contract practice, and making provision for the expulsion from the society of any man guilty of contract practice. Two members appealed to the State Society and the State Society ordered the County Society to rescind the by-laws affecting this matter. The Spokane County Medical Society then appealed to the American Medical Association. The Judicial Council had decided that the Spokane County Medical Society was within its rights when it passed these by-laws. That a local society was within its rights in passing bylaws governing the qualifications of its members, provided such bylaws did not conflict with the bylaws of the State Society and the bylaws of the American Medical Association. The doctors who appealed to the State Society were also within their rights on the well recognized principle of declarative law and medical justice. The Judicial Council believed the Washington State Medical Society exceeded its powers.

Report of Council on Health and Public Instruction.—Dr. VICTOR C. VAUGHAN presented this report, which stated that the Council had continued to develop its program adopted in 1914, namely: (1) Investigation of existing health conditions with a view to securing accurate information on all phases of the public health situation. (2) Education of the public and the profession by every means within the resource of the Council, in order that the public might understand the advance of scientific medical knowledge and the possibility of utilizing such medical knowledge in the prevention of disease, the reduction of the death rate, and the preservation of human lives. (3) The crystallization of public sentiment into such practical health laws, regulations, and ordinances as might be necessary for the conservation of human life. The report dealt with the reorganization of Federal Public Health activities and stated that efforts were being made to secure information regarding the plans of the committee appointed to consider the reorganization of the executive

departments of the Federal Government, and whether they were taking up public health as one of the first subjects to be considered; whether it would consider this subject in committee of the whole or would appoint a subcommittee thereon. During the Presidential campaign of 1920 Senator Harding repeatedly stated in his speeches that he regarded public health and human welfare as two of the most important subjects for governmental activity and that, if elected President, he would favor the creation of a Department of Health and Welfare with a secretary in the Cabinet. Following his inauguration he commissioned his personal physician, Dr. Charles E. Sawyer of Marion, Ohio, as Brigadier General in the Medical Reserve Corps and assigned to him the special duty of collecting evidence and preparing plans for the development of the health and welfare work of the Federal Government. With the termination of the Sixty-sixth Congress on March 4, 1920, all measures before both houses at that time were wiped off the calendar. Since the reassembling of Congress some nineteen House bills and nine Senate bills affecting public health had been introduced. In the co-ordination of voluntary health activities definite progress had been made in the course of the year. During the summer of 1920 a survey of existing organizations was made by Dr. Donald B. Armstrong of the National Tuberculosis Association under the direction of the American Red Cross and the National Tuberculosis Association. Data were collected and plans for co-ordination were discussed at conferences and by correspondence, with the result that an informal congress was called at Washington on October 18, 1920, at the Red Cross headquarters, which was attended by representatives of a number of organizations. At the December conference the National Health Council was organized, officers were elected, and an appropriation of \$30,000 for two years made by the American Red Cross. It had taken offices in the Terminal Building in New York and all the organizations composing the National Health Council had headquarters under the same roof, with the exception of the American Medical Association, the American Red Cross, and the State Health Officers' Association. The National Health Council was proceeding slowly and was developing a marked spirit of co-operation, which, it was hoped, would result eventually in working out a common plan of procedure. Applications from a large number of organizations were now being considered and plans were being developed for securing financial support for a constructive program. This Council reported definite progress during the past year in the matter of vital statistics legislation. In 1906 when its work was undertaken only ten states in the Union had effective laws for the registration of deaths and only eight states had any laws requiring the registration of births. From 1906 to 1920 the Model Bill, developed by the Council in cooperation with the Division of Vital Statistics of the United States Census Bureau and other contributing organizations had been adopted by forty-five states. With only three states still to adopt this measure, the end of this work to which the Council and the Association had materially contributed in the last eighteen years was clearly in sight. During the past winter bills for the prevention of animal experimentation were introduced in four states, namely, Massachusetts, New York, Indiana and Maine. These bills all failed of passage. For the first time in the history of efforts to abolish animal experimentation an appeal was made last November in California to popular vote through the use of the initiative. The proposed legislation provided for the strict abolition of all animals for experimental purposes within the State of California. The campaign was conducted intensively by both proponents and the opponents of the measure. At the final vote it was defeated by a majority of approximately 250,000. The report announced that plans for the work of the Eye-Conservation Council were now being formulated. The Committee on Cooperation of the National Education Association of the Council submitted a separate report, setting forth the work done at their conferences.

The *Sub-Committee on Amendments to the Harrison Act*, of which Dr. HAVEN EMERSON was chairman, submitted a separate report, in which the opinion was expressed that in view of the information at

hand, it was deemed wise to defer to a later date attempts to arrive at any quantitative estimation of the need of habit-forming narcotic drugs in the United States. The purpose and scope of the Harrison Law were such that it was in effect an excellent and desirable means of control by the Government of the abuses incident to trade in the habit-forming narcotic drugs. There should be no ambiguity in the interpretation of its requirements by the medical profession, though under the cover of the words, "in the course of his professional practice only," some had maintained that exemption was granted to physicians to prescribe or dispense habit-forming narcotic drugs to addicts. Decisions of the courts thus far rendered had uniformly served to strengthen the obvious conclusion that such use of the professional privilege did not constitute proper professional service. There should be made an important modification of the law by Congress, to remove the tax burden on the medical profession which is imposed upon physicians without compensatory return. Since the Harrison Law was in the interest of the public generally, and not taxation of physicians as a class, such class legislation was unfair to the medical profession as well as an unsound economic policy. The amount of money collected under the Harrison Law in 1920, was \$1,513,919.15, a sum far in excess of the amount appropriated by Congress for its enforcement. In view of the fact that the same unit of the Internal Revenue Bureau was charged with the enforcement of the Narcotic Drug Law and prohibition, and inasmuch as the latter required a much larger appropriation and occupied a larger share of the public attention, it was feared that the important duty of efficient enforcement of narcotic drug laws might be neglected. Therefore the committee recommended that the American Medical Association urge the appointment by the Commissioner of Internal Revenue of a special deputy commissioner in charge of a separate unit for the enforcement of the narcotic law, and that due prominence be given to that service in the accomplishment of its effective functioning. The committee further recommended that the Harrison Law be supplemented in the several states by uniform state laws, in harmony with and supplemental to the Harrison Law, should base their control of any medical abuse of narcotic drugs on those powers possessed by the states to punish crime as well as to revoke licenses to practice medicine, dentistry, pharmacy or veterinary medicine. An outline of a modern state law was presented. Such a law need not be a tax law; in fact the taxing feature should be abolished. The regulations and details of administration under the two laws should be parallel in order to avoid confusion, and the machinery of enforcement of a state law should be as simple as possible consistent with effective operation. Unnecessary duplication of records under the Federal and State Law should be eliminated, the state accepting the records kept under the Harrison Law. Power to make and enforce special regulations of any sort, except those absolutely necessary in administrative application of the law, should not be entrusted to state officials. Those regulations considered necessary should be submitted for approval, before being promulgated, to the State Medical Board or other professional body of competent jurisdiction and to the Attorney General of the State. The institutional care and treatment of addicts unable to pay for such care and treatment should be provided for by a state law. The committee recommended that the American Medical Association urge both Federal and state governments to exert their full powers and authority to put an end to all manner of so-called ambulatory methods of treatment of narcotic drug addiction, whether practiced by the private physician or by so-called narcotic clinic or dispensary. In view of the fact that habit-forming narcotic drugs had definite valuable and indispensable uses in the practice of medicine, there should be permitted no encroachment on the right and duty of the physician to exercise his judgment unhampered in the legitimate use of such narcotic drugs. Therefore, the committee recommended that the bills now before Congress which proposed to limit the total amount of narcotic drugs which might be imported into the United States be disapproved, and their passage opposed by

the American Medical Association, for the reason that such legislation at the present time would inevitably make these drugs more expensive and difficult to obtain for proper medical purposes; and that such limitation of the total supply would certainly encourage smuggling of habit-forming drugs into the United States. The committee also recommended that the several state and county medical societies be urged to obtain on their own initiative and through their own officers, such information as might be necessary to bring about the effective prosecution by local, state and federal authorities, of that small number of members of the medical profession who were now acting in violation of the federal or state narcotic laws. Reviewing its work on venereal disease control, the Council recommended the adoption of the following resolution submitted by Surgeon General Hugh H. Cummings: "Resolved, That the venereal disease control movement cannot reach full effectiveness without the intelligent and sympathetic cooperation of the medical profession, and that this cooperation should include the rapid extension of teaching facilities for the use of medical students whereby the knowledge of the medical, social and public health aspects of these diseases may be taught by actual clinical contact with patients in the clinic, under the direction of qualified teachers." At the New Orleans meeting the Council on Health and Public Instruction was instructed to investigate the relative adequacy of the medical service and the relation of the public to the profession and to report at the next annual meeting. Several conferences had been held on which authorities on this subject were in attendance. After considerable discussion they formulated the statement published in the *Journal* of December 4, 1920, stating that they believed it desirable that the nature and transmission of communicable diseases be taught in the public schools, and that the teachers in the public schools should know something about communicable diseases. The Council was also of the opinion that there should be closer cooperation between the medical profession and laymen who were interested in public health, and the Council recommended that sections of public health and sanitation be organized in state and local medical societies, and that laymen be admitted to these sections as associate members. It was the opinion of the Council that the American Medical Association should, as soon as possible, begin the publication of a popular up-to-date journal on sanitation and epidemiology. It was the wish of the Council that this matter be referred to the trustees. The Council believed the American Medical Association should take steps to secure the following results: (1) To assist local medical practitioners by supplying them with proper diagnostic facilities. (2) To provide for residents of rural districts and all others who could not otherwise secure such benefits adequate, scientific medical treatment, hospital facilities and nursing care. (3) To provide more efficiently for the maintenance of health in rural districts. (4) To provide for young physicians who wish to go to rural districts, opportunities for laboratory aid in diagnosis. (5) The Council believed that this could best be secured by providing in each rural community a hospital with roentgen ray and laboratory facilities to be used by legally qualified physicians of the community. The attitude of the profession toward sectarianism was discussed in the report and the recommendation was made that the Council be instructed to appoint a committee to study the entire question of sects in medicine and the attitude which the American Medical Association should adopt regarding them and to report at a future session. The Council also requested that it be authorized to appoint a committee to survey the entire subject of vaccination against smallpox and to prepare suitable material for educating the public on this question. The Council also requested the House of Delegates to authorize it to call a conference in Chicago, probably in July to which should be invited the general officers of the American Medical Association, the presidents and secretaries of the state, county and local medical societies, the presidents and secretaries of various state and national public health organizations, and the health officers of the various States for the discussion of the present

state of public health work and for the organization of a plan for public health work. This report also included a review of state laws authorizing county and city hospitals and the text of the Iowa law for county public hospitals, as well as the text of the Michigan law for teaching disease prevention in the public schools.

Report of the Council on Medical Education and Hospitals.—Dr. ARTHUR DEAN BEVAN of Chicago presented this report, which stated that the task begun in 1905 of securing uniform and acceptable standards of medical education had in large part been completed. The accepted American standard was two years pre-medical work in an approved college university, a four years' medical curriculum and a year's internship in a hospital, forming as high a standard of medical requirements as that adopted by any other country. The work of the Council had grown to include a study of the problems of preliminary education; the undergraduate medical curriculum; the hospital in its relation to clinical teaching and the interne year; a graduate medical education and provision for the training of specialists; the development of the so-called group practice and the extent to which medical practice was done in hospitals. It was clear that the purpose of all this work was to provide for the public the best possible facilities offered by modern scientific medicine for the diagnosis, cure and prevention of disease. The people of our country, rich and poor alike, were entitled to the great benefits of modern medicine and some plan should be devised to secure these for them. There had been much discussion concerning compulsory health insurance and state medicine. As their knowledge of the situation had grown it had become more and more evident that these medical problems must be solved and the medical work done by the medical profession itself. In our democratic form of government the medical functions of the city, of the state and of the nation must be carried on by those best qualified to do it—the medical profession themselves. The medical profession must be awake to its greater opportunities and responsibilities, which meant the organization of the profession for further developing the practice of modern medicine. To accomplish this it was not necessary to build up a huge political machine. It was not necessary to alter in any way our present laws or our present organization. The organized profession should simply recognize the fact that its most important function was to secure for the public the benefits of modern medical practice and to develop intelligent practical plans to furnish the best medical service possible in each community. This plan means a cooperation of the profession with the municipal, state and national authorities. It meant an intelligent and energetic propaganda for the education of the people and the profession. It meant the creation of public opinion which would demand an efficient, sound universal medical practice and it meant providing the essential equipment. To-day it required an extensive public health organization to secure the benefits of preventive medicine. The development of this complex scheme had brought out the necessity of educating two classes of medical men, the general practitioner and the specialist. The general practitioner would always remain the most important single factor in the practice of medicine. The profession should recognize this and realize that the most important function of our medical schools was to train well qualified general practitioners and that the undergraduate medical course should be planned with that in mind. The time had come when we must reorganize our course of medical study so as to give a broader and less specializing training to the men who graduated in medicine, and who were to become general practitioners. The training of specialists should come later, such special preparation to be given to a limited number of men—10 per cent. or more of the practitioners of the community—who were to provide expert medical service in limited fields of practice. Too often the medical faculties do not include teachers broadly trained in general medicine and general surgery. The undergraduate medical course should be reorganized in several ways. The students should begin clinical work much earlier in his course. The anat-

omy and physiology and pathology and pharmacology taught should be the portions of these sciences which will be of service to the student in his clinical work. Anatomy and physiology should not be completed at the end of the second year but should be carried into the hospital and clinic. The clinical work of ten or more special departments should be simplified and given by the three departments, general medicine, general surgery and obstetrics. Whatever work was given in the medical and surgical specialties should be limited to the work required by the student as a general practitioner. The place for the specialist in medical education was in a graduate medical course and his function was the training of specialists. Dr. Bevan then spoke more at length of the advantages of general practice and of the dangers of a too narrow specialization. He said there were two safe plans for the practice of a specialist, first, by one who had obtained a broad view of medicine as well as the special training required in his limited field; second, by a specialist who, though he lacked the broad training of the general practitioner, acted as a member of a group well organized for group practice, so that patients referred to him had first been examined by one broadly trained in general medicine, who acted as the captain of the group, made a diagnosis of the general condition of the patients; decided what patients required the service of this or that particular specialist, and who controlled in a general way the diagnosis and therapy of the case. Some such general control was necessary in the safer practice of any specialty. The Council on Medical Education recommended that the American Medical Association undertake the further organization of the medical profession in this country so as to provide the benefits of modern medicine for all our people. The Council on Medical Education presented a statistical report showing the successes and failures of graduates of medical colleges at state board examinations.

The chairman then presented a comprehensive statistical report showing the results of state board examinations. He said that the table showed the results for all candidates who took examinations in 1920, regardless of the years in which they graduated. This showed that altogether 4787 candidates were examined last year, as compared with 4736 in 1919, 3637 in 1918, 4730 in 1917, and 4850 in 1916. This year shows an increase of 51 since last year and 1150 since 1918. Previous to 1919 there had been a steady decrease since 1906 owing chiefly to (a) the larger registration through reciprocity, and (b) the general diminution in the number of medical colleges, students and graduates. The marked decrease in 1918 was due to the enlistment of many physicians for military medical service. Of those examined in 1920, 15.3 per cent. failed, as compared with 13.3 in 1918, 14.1 per cent. in 1917 and 15 per cent. in 1916. There were 78 medical colleges in the United States granting degrees in 1920, which had graduates examined as compared with 79 in 1919, 80 in 1918 and 89 in 1917. There has been a decrease of 75 since 1905, when graduates from 153 medical colleges were examined. The statistics covering schools which have ceased to exist are included in the line for "miscellaneous colleges." Graduates of Canadian schools were examined in 21 states. The largest number, 31, were examined in New York, the next largest number being 10 examined in Massachusetts. Foreign graduates were examined in 24 states, the total examined being 86, and of this number 33, or 38.4 per cent., failed. In 1918, 45, and in 1919, 67 foreign graduates were examined. The largest number of foreigners examined in any state in 1920 was 19 in California, where 8, or 42.1 per cent., failed. Holders of certificates from the National Board of Medical Examiners will be registered without further examination in the following twenty states: Alabama, Colorado, Delaware, Florida, Georgia, Idaho, Iowa, Kentucky, Maryland, Minnesota, Nebraska, New Hampshire, New Jersey, North Carolina, North Dakota, Pennsylvania, Rhode Island, South Carolina, Vermont, Virginia. A holder of the National Board certificate is eligible for the regular medical corps of the United States Army or the United States Navy without further professional ex-

amination if a review of his examination papers by the board of examiners of those services is satisfactory. During the summer of 1920 several English and French physicians, as guests of the National Board, visited a number of the medical schools and attended the examination held by the board in Philadelphia in May, 1920. Since that time a recommendation had been adopted by the Triple Qualification Board of Scotland providing that holders of the National Board certificate be admitted to the final examination of that board. In January, 1921, action was taken by the Conjoint Examining Board of England. From the point of view of the prospective student who might be selecting a medical college, the facts regarding the standing of medical colleges were of extreme importance. There were 63 medical colleges now having complete recognition in all States. There were 7 others for which the few instances of nonrecognition were due to certain technicalities in State Board requirements. If the student got his medical training in one of the remaining 18 colleges, he would find on graduation that his diploma was not recognized in from 5 to 44 States!

The Council on Health and Public Instruction also submitted statistics regarding 6,152 hospitals, sanatoriums and related institutions in the United States. The figures were based on the reports of superintendents, directors, or other executives of the hospitals, or of the government hospitals, from the officers who are in a position to give the facts. Altogether there were 2,926 hospitals having more than twenty-five beds each, with a total of 293,825 beds, of which 196,535 on the average were occupied each day. There were 1,087 hospitals having less than twenty-five beds each, with a total capacity of 17,334 beds, of which 9,489 on the average were occupied each day. This made a grand total of 4,013 hospitals, the total capacity of which was 311,159 beds, and of these it was estimated that 206,024 were occupied each day on the average. Of the 4,013 hospitals, 3,219 reported a daily average of 166,060 beds occupied, and from the percentage of beds occupied in each State the total daily average of beds in the other hospitals of the State was calculated. On this basis, therefore, in the 4,013 hospitals, 206,024, or 67 per cent., of the beds on the average were occupied. The largest proportion of beds occupied was 76 per cent. in California, followed by 73 per cent. each in Connecticut and in the District of Columbia; 72 per cent. in Colorado, and 71 per cent. in Maryland. The smallest proportion of beds occupied on the average was 48 per cent. each in Arkansas and Nevada, and 49 per cent. in Alabama. A study of the proportion of beds to population in the various states was interesting. For the entire country the proportion was one bed to every 340 people. The State having the largest supply of hospital beds was Nevada, where there was one bed for every 139 people, followed by the District of Columbia, one bed for every 165 people; New York, one to 185; Arizona, one to 196, and Colorado, with one to every 198. The State having the lowest supply of hospital beds was Mississippi, where there was only one bed for every 1,054 people, followed by Oklahoma with one bed for every 980 people; Georgia, one to every 897, and South Carolina, with one to every 881 people. Although New York had 371 hospitals, it had a smaller bed supply in proportion to population than Nevada, which had only nineteen. Of the 3,027 counties in the forty-eight States, 1,695, or 56 per cent., had no hospitals. If it were not for hospitals of less than twenty-five beds there would be 330 more counties without hospitals. The ratio of hospitals to square miles ranged from 1 hospital to every 42 square miles in Massachusetts to 1 to every 5,780 square miles in Nevada. The ratio of beds to population ranges from one bed to every 139 people in Nevada to one to every 1,054 people in Mississippi; the average percentage of beds in constant use varies from 48 per cent. in Arkansas to 76 per cent. in California. As to counties which have no hospitals, Connecticut and New Hampshire were the only States in which every county had one or more hospitals, while at the other extreme comes Georgia, where 81.6 per cent. of its counties are without hospitals. It was noteworthy, however, that Georgia had 152 counties with an average of 386 square miles each as compared, for example, with 86 counties

in Minnesota with an average of 940 square miles each. A district most lacking in hospital supply was that represented by the South-Central group of States, which had only one bed to every 705 people, and 73.8 per cent. of the counties in the district were without hospitals. Only 61 per cent. of the beds in existing hospitals were occupied on the average. The fact that so large a proportion of the counties were without hospitals indicated that the hospitals were not well distributed. Mississippi stood out most prominently as the State most lacking in hospital facilities, there being only one bed to every 1,054 people; and 73.8 per cent. of its counties were without hospitals. The district which seemed to have the most adequate hospital supply was represented by the Western States, where there was one bed for every 211 people. This supply, however, was more apparent than real, since, on the average, 69 per cent. of its counties were without hospitals. The district which in reality had the most adequate hospital supply was that represented by the North Atlantic group, which had one bed for every 242 people; only 67 per cent. of all beds were occupied on the average, and only 15 per cent. of the counties were without hospitals. The States which had a well distributed hospital service were Connecticut and New Hampshire. In New Hampshire only 60 per cent. of the hospital beds on the average were occupied. Statistics were also given for tuberculosis hospitals, hospitals for nervous and mental diseases, Government hospitals, Public Health Service hospitals, Indian hospitals and Military hospitals. Altogether there were in the United States 6,152 hospitals, sanatoriums and homes, having a total of 817,000 beds, with the population of the United States according to the 1920 census as 105,683,108; there was, therefore counting all institutions, one bed for every 129 people. Dr. Bevan said there was one matter he hesitated to speak of, but which he had been studying for the past ten years. This was the matter of outside interference with medical education which he felt should be frankly resented and some definite action taken as it was becoming a menace to medical progress. He said he referred to the scheme of organization of medical faculties introduced by great foundations, and which had also been adopted by some of the State universities—the all-time clinical instructor. The plan did not originate in the medical profession but outside and had been forced upon them; it was a subsidized plan. It had been presented to the universities and they had been given one or two million dollars provided they would adopt a full time clinical plan. The originators claimed that this was an experiment, but if it was an experiment it needed a control. That was if three medical universities were conducted on the full time clinical plan and three others on the plan that was the product of the experience of medical educators, and a comparison of results made, it would be a better experiment. The full time plan had been introduced into Johns Hopkins, Yale, St. Louis, and a few other universities and into some of the State universities. It had not been a success. He did not hesitate to say it had been a failure. It did not have the support of the medical profession and he had not found that it had the support of the great teachers of medicine and surgery or of the great teachers of the medical and surgical specialties. It was a very expensive plan, out of all proportion to the results obtained in medical education. He thought the time had come when they should analyze the plans for teaching clinical medicine with the idea of trying to find the best one and adopting that. According to the full time plan, if a professor did consultation work the fees went not to the individual who did the work but to the institution. Thus the institution went into the practice of medicine. When a university did this it went into competition with the medical men of the State in the practice of medicine. The plan was not sound; it was not logical. It was time that the medical profession took the stand that it was not sound and not logical. While he had nothing against those who had introduced the innovation he believed the time had come to analyze the situation.

New Business.—The following resolutions were offered:

Dr. EDEN V. DELPHEY of New York introduced a resolution which read as follows:

"Resolved, That the American Medical Association is emphatically opposed to "State medicine," and to any scheme for "health centers," "group medicine," and to "diagnostic clinics," either wholly or partly controlled, operated or subsidized by the State or National Government."

Delegates from Illinois and Michigan introduced similar resolutions. That from Illinois also included public health insurance in the general condemnation.

A resolution was introduced requesting the American Medical Association to establish a Section on Anesthesia.

Dr. W. W. KEEN introduced a resolution, which was read by a Pennsylvania delegate, stating that he had visited the devastated areas of France and that the only work being done was that of the Committee for the Devastated Area of France and the tuberculosis work of the Rockefeller Foundation. Dr. Keen expressed his conviction of the value of the work and requested the American Medical Association to go on record as encouraging this work.

Another resolution urged the adoption of the metric system and the Centigrade scale by the medical profession in this country.

Dr. A. T. McCORMACK introduced a resolution in behalf of the Conference of State and Provincial Health Authorities of North America—urging that "the organized medical profession shall accept its responsibility for progress in the prevention of ill health and its causes, and shall support, through county and municipal medical societies, such diagnostic teaching and other clinics as will bring to all the people, whether living in the cities or in the country, all of the knowledge and means necessary to enable the members of every community, however remote from medical centers, to live through the years of their natural expectation with the utmost possible freedom from preventable and remediable disease and defects."

A resolution was introduced protesting against the high tax on alcoholic liquors used for medicinal purposes as an unjust burden imposed on the sick and mostly on the sick poor. The resolutions urged that the American Medical Association ask Congress to abolish the special tax on ethyl alcohol for use for medicinal purposes.

Dr. Frederic E. Sondern of New York introduced resolutions asking the Association to endorse a plan providing for the indemnity insurance in connection with malpractice defense. He explained that when under the compensation laws a decision was made against a physician there was nothing that could repair the damage to his reputation even though the financial claim was settled. There were no insurance companies carrying this form of indemnity. This plan would be operative under the malpractice defense. It would be optional and would be under the control and direction of the legal counsel of the various county and State societies.

The Cadduceus Post of the American Legion submitted a resolution calling attention to the advantages of universal military training for the young men of America and requesting the Association to go on record as favoring a plan for such training. A number of resolutions were introduced embodying the recommendations made in the various reports.

Second Day—Tuesday, June 7, 1921.

THE SPEAKER, DR. DWIGHT H. MURRAY OF SYRACUSE, IN THE CHAIR.

Memorial to President Harding.—Dr. HUBERT WORK offered a memorial to President Harding, which will be acted upon later. It expressed the American Medical Association's appreciation of President Harding's attitude toward the public welfare, through the educational advancement of public health administration, social security, soldier rehabilitation, child protection, and Americanization, and it assured the President of the loyal support of his policy for the correlation of the activities mentioned.

Fund for Graduate Teaching.—Dr. WORK also offered a resolution authorizing the trustees of the American Medical Association to set apart \$100,000 for graduate teaching and asking that "Foundations" interested in medical progress be requested to supplement this fund with \$100,000 for the same purpose. State societies

were asked to contribute \$50,000 toward the same fund. This fund is to be employed, directed, and administered by the trustees of the American Medical Association in conjunction with representatives of the foundations joining it, through a full time paid secretary.

Resolutions Opposing State Medicine.—Additional resolutions opposing State medicine were submitted by the Medical Society of the State of New Hampshire. These resolutions were as follows: "Resolved, that the Medical Society of the State of New Hampshire is emphatically opposed to 'State medicine' and to any scheme for 'health centers,' 'group medicine,' and to 'diagnostic clinics,' either wholly or partly controlled, operated, or subsidized by the State or national government; and that the delegates from this society to the American Medical Association be and hereby are instructed to present this resolution to the House of Delegates of the American Medical Association at its coming meeting in June and to use every possible means to secure its adoption." While a great many approved of this and the similar resolutions which had been submitted to the House, as they lay along the line of general opposition to such measures as health insurance and other forms of State medical paternalism, some were uncertain as just how much might be included in this rejection of group medicine, or how much was to be included in the term "State medicine." Several resolutions were submitted and were pending in the House attempting to define State medicine.

Dr. W. S. RANKIN of Raleigh, N. C., offered a resolution which included under the name "State medicine" everything that the Government at present did for the preservation of public health. It was said that "State medicine" was "any practice or policy provided for in the Legislative act of a State which had to do with the prevention or treatment of diseases, so that, if the association adopted this definition and then adopted the definition against State medicine, it would practically take the State out of the field of health work."

Dr. EDEN V. DELPHEY of New York thought the term "State medicine" should be defined by this Association as "the practice of medicine in the State by physicians on a salary to the exclusion of all other and individual practice of medicine."

These resolutions were all referred to a committee to be reported upon at a session of the House of Delegates to be held on June 9.

Want a Dentist on Hospital Staff.—The National Dental Association sent a communication to the House of Delegates in the form of a resolution urging the support of the American Medical Association of the suggestion that standard hospitals should have a dentist on their staff, and that they should use the x-ray to determine whether there were any pus pockets in the teeth. This matter was referred to the Council on Medical Education and Hospitals.

Popularization of Preventive Medicine Approved.—Dr. FREDERIC E. SONDERN, Chairman of the reference committee to which the recommendations looking to the popularization of preventive medicine and cooperation with the United States Public Health Service were referred approved these resolutions. The committee made the proposition that inasmuch as the Public Health Service was unable and some of the newspapers were unwilling to exploit subjects of controversy in the medical field, a Public Health Journal should be established that would be salable on the newsstands, holding its own in popularity with other periodicals. This matter was referred to the Board of Trustees.

A resolution recommending that all former presidents of the Association be seated in the House of Delegates was given favorable consideration.

The resolution requesting the establishment of a section on anesthesia did not meet with the approval of the House. A communication was received by the House asking for the appointment of a committee to study and determine the value of new appliances that were advertised. A resolution which was introduced favoring the closer cooperation between medicine and pharmacy to the enhancement of the dignity of the latter was approved and referred to the Council on Pharmacy and Chemistry for action.

OPENING MEETING.

June 7, 1921.

THE PRESIDENT, EX-SURGEON GENERAL WILLIAM C. BRAISTED, U. S. N., OF PHILADELPHIA, IN THE CHAIR.

THE Seventy-second meeting of the American Medical Association was called to order by the President, Rear Admiral William C. Braisted.

Invocation.—The Reverend GEORGE A. GORDON of Boston opened the meeting with prayer.

Address of Welcome.—HON. CHANNING H. COX, Governor of Massachusetts, delivered this address of welcome in which he said that among the worthiest citizens of Massachusetts were the 6,000 men and women licensed to practise medicine in the State. For the layman it would seem impossible to bring real success unless such a man were of rugged honesty, sterling character, and the highest ideals. Massachusetts had enjoyed having thousands of physicians who had been successful and who had contributed in generous measure to the welfare of mankind. If the services of the physician were tinged by selfishness his usefulness would be impaired. Governor Cox said he had asked a physician some time since to tell him the largest income that a physician was making in Boston. He was sure the figure given him was exceeded by the income of many lawyers, engineers and men of other professions, and by that of many business men. The physician did not count his reward in dollars and cents even in this day when so great stress was placed on material recompense. He stood ready to render service without hope of reward and to give his skill for suffering humanity. Massachusetts appreciated her physicians, and was justly proud of those who had lived and worked here and made tremendous contributions to the science of medicine. She encouraged her young men who wished to study medicine and she gloried in her splendid medical schools and hospitals. She felt indebted for the contributions physicians had made to the history of Massachusetts and because of what they were doing today. She was proud to welcome their brother physicians. She realized that progress in medicine and surgery redounded to the good of mankind. She felt every confidence that the deliberations of the scientific meeting would be a benefit to the people. There was a tendency of people to congregate in cities and this was becoming a serious problem. They had come to recognize that this overcrowding was a problem which concerned physicians. The medical schools today were increasing their standards and in larger numbers were graduating specialists and these young men were not willing to locate in the country where they lacked hospital and nursing facilities with which to do their work. Quite recently a beautiful Massachusetts town advertised that it would pay a subsidy to a doctor if he would locate in it. How this problem was to be solved remained to be seen, whether medical schools should lower their standards and send out admittedly inferior men, whether we should have State medicine, or whether we should have county hospitals in rural districts which would provide proper facilities for the young men to practise modern medicine remained to be seen. Whatever the solution would ultimately be the public looked to the medical profession for leadership. Massachusetts welcomed members of the American Medical Association not only as physicians but as representative citizens from other States and as men who were thinkers and capable of shaping the views of the public. Governor Cox said the Association had come on the three hundredth anniversary of the landing of the Pilgrim fathers and he hoped they had the same faith in themselves and their fellow men as the Pilgrim fathers had, and believed that it was better for the individual to do the thing he was fitted to do rather than to have the State do it for him. He hoped that after the work here they might return to their homes convinced that they had kept the faith of their fathers and believed that there was as great an opportunity for everyone now as at any time in the past and that they would stand ready at any time to defend the free institutions of America.

Address of Welcome.—HON. ANDREW PETERS, Mayor of Boston, delivered this address. He said it was indeed a pleasure to welcome the American Medical Association to Boston in the name of its citizens. He was here to speak for 800,000 patients, the whole population of Boston bid them welcome and godspeed and appreciated all that the physicians had done for them. They had helped bring them into the world; they had helped to make life a pleasure and they were here to acknowledge their indebtedness and to express their appreciation and deep gratitude. From the memorable day when Dr. Joseph Warren refused the command of the troops and chose to serve and meet death in a private capacity for his country, from that day down to today the physician had brought with him that high ideal of service to the community. The medical profession had stood in Boston in a position unequalled in any other city in our country. They had in Boston many institutions which helped to further their health but these he would not describe as there were better guides than he at hand who would point with pride and particular knowledge to these institutions. There were Dr. Woodward, Dr. Dowling and Dr. Minor who would be ready to point to their municipal hospitals and public health hospitals and show how they had spent \$4,000,000 in the health of the city. There was one subject which even a layman might touch upon. Their health department was busy preparing to keep out the bubonic plague. He was interested in stopping another danger which had just swept away 10,000,000 people in Europe. It took diabolically the young and the strong and it ruined the best stock of future generations. We were told we must prepare for a like scourge in the future by those teachers of discord who were urging it. The old code of chivalry was being pushed aside and we were told that the object of the next war would be total extermination with no regard to the weak or the helpless. What was to be done to forestall this catastrophe? He suggested that the Association protest against it as their work was directly opposed to such a destruction of life. Ninety-nine men out of every one hundred were opposed to it and every woman would support such a protest. Boston would be proud if she could add to that other great medical event, the discovery of the use of ether as an anesthetic, the fact that the medical profession had taken here the first step to bring mankind back to sanity, good will and common sense. They had a monument to Dr. Morton, he wished they could have a peace monument to the American Medical Association. They would be welcomed by special hosts the pick of that chosen profession of which they were members. They would show them the opportunities that were here for increasing the medical service of the people who were giving up their lives to medicine, and were being inspired to high ideals and progress.

Dr. WILLIAM C. BRAISTED, in introducing the president-elect, said that the next speaker needed no introduction before this Association from him. He was a man who had done as much as any and few had had as much experience in the work of the Association. His opinion was looked up to with respect and his advice was generally taken. He confronted a year which was one of the most important years in the history of the Association. There were many problems before the Association to be solved today both for itself and for the welfare of the people. He needed all the support and all the help that the Association could give him. He took pleasure in introducing President-elect Hubert Work.

President's Address.—Dr. HUBERT WORK of Pueblo, Colo., delivered this address, taking as his title "Some Medical Problems." He said that the watchword of the American medical profession should be "service." There was no point of view from which we might together look out on the future except that of a united interest. Community necessities, touched by a spiritual vision fused the beacon light of the Pilgrims who founded this nation. Community interest had developed every pioneer town since they landed on this historic site. It had built our public schools, preserved the unity of our States, and, recently, saved our nation to us. It was this primitive spirit, inherited from those heroes of want, easy to coordinate and effective beyond resistance, that was still the moving motive of this nation. These

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people perfected the higher human attributes through physical hardships to which we are strangers. Under spiritual guidance they were refined. They made us what we are by transmitting to us the spirit of hope and the imagery of conquest. They, and their kinsmen coming after them, were the hereditary legates of independent thought and high aspiration. Self-governed by their religious traditions, they lived from within outward: worshiped the spiritman, and anchored themselves to eternal principles. They fought for peace; thrived on privation; triumphed over self and lived for each other, until each for himself set out on the lost trail alone and unafraid.

The American Medical Association, Dr. Work said, was a body representing more than 80,000 trained medical men. It was the Plymouth Rock of American medicine, and we might look back through its history, and therein trace the evolution of the healing art. It was our national health service, and the common meeting ground of its members. The governing purpose of this association was to collect and disseminate the truth in medicine, to perfect the science, to expose pretense, and to elevate medical men, to encourage and associate individual efforts, and to bind medicine to the government, its armies and its municipalities. And it hoped that the church and public charities, through the common tie of human sympathy—the hall mark of a Christian civilization—might also join with it for the greatest good to the greatest number.

The physician had a duty to those who called him. As a citizen he had a community obligation, and, through organization, an opportunity to serve, second only to that of the national government. But he must first identify himself with the interests of his community, living with his people rather than on them, that he might know their minds and sense their necessities. Only recently, when civilization's superstructure was being rocked by war, the world had its first opportunity to evaluate, in a crisis, the quality of physicians. One half of the medical men of the United States were promptly in uniform, in community war service or pledged to war's exigencies. The other half staggered, but stood up, under multiplied burdens at home. Our nation will not again follow its prewar social, professional or business customs exactly. New opportunities have presented themselves, requiring different methods of approach. Thoughtful men believe that now a crisis threatens established principles, and that physicians must earnestly address themselves to the cause and the prevention of disease and disability as the primary concept of medicine, safeguarding its principles, lest the profession lose its esprit de corps, and its place in public esteem.

Our people regard medicine in a new light, as a virile, organized force, quite independent of the sick chamber or hospital environment. They now urge that it must include the larger field of civic service for those who are well. When pestilence invades our ports from abroad, the first appeal of a terrified people is to the United States Public Health Service. When an army is to be mobilized "over night," the Medical Corps of that army must reject the unfit, isolate those infected before induction, and vaccinate against diseases of contact, while the Medical Corps of the Navy protects those at sea. No one now believes that medical practice is limited to prescribing drugs. The art and science of medicine is comprehensive and rational. It can never be dogmatized or restricted, for it comprehends a knowledge of every art and science which may contribute to it, for the single purpose of obviating the tendency to death. No one now believes that the physician should husband his special knowledge and sell it to individuals only; medicine is recognized as a public service, and we must contribute our quota to the public welfare because we are citizens set apart as servants of health.

There is uncertainty in the minds of thoughtless people as to the difference between physicians and pretenders, a confusion due to the fact that many diseases are self-limited regardless of treatment applied. Many that are sick recover quite independently of the kind of treatment, or in the absence of medical advice.

When recovery occurs under the ministrations of those ignorant of anatomy, physiology or pathology, it is regarded as a phenomenon. If under the care of a

trained physician, it is regarded as the logical result. The attitude of a physician toward disease is to prevent it if possible; or, failing this, to aid Nature in the contest against it, by simple measures if he can, or by radical means if he must. The most intelligent, educated effort is necessary to either. The attitude of the quack is not to prevent disease but to invent it; to entertain the patient with promises of a cure he cannot give for a disease he cannot diagnose. Physicians are indifferent to quackery as a competitor in all its phases. Their only interest in medical licensure is to prevent appropriation of the title Doctor of Medicine for the purposes of deception. The organized medical profession does not attempt to control, nor does it care what a practitioner prescribes, provided he has learned what the human body is, through his knowledge of anatomy; what it does right in health, through his study of physiology; and what it does wrong in disease, through his training in pathology.

The Young Man in Medicine.—Our young men are being graduated, standardized, and classified scientifically, much as the finest steel is fashioned. What may be done to develop their interest in the province of medicine, and to insure their identification with the demands of their respective communities, is an immediate responsibility of the organized profession. The young man in medicine may be assured that its future offers to him something no other vocation has to give; the always open door to recurring opportunity. But he must not enter the domain of medicine with the commercial instinct, or he will not learn to interpret it. He may master its words and quote its forms of speech, but the language of medicine is the signal of the human heart for help, which only the true physician can interpret. Years ago the general practitioner conceived his duty to be that of a healer only. He regarded disease as inevitable, if not indeed providential. Later he advised his clientele how to avoid it. Both of these functions he continues to exercise; but a new field presents itself; medical men must now combat disease in the mass; and disease includes wear as well as infection and its sequelae. Neither individual preventive nor curative service is minimized by this new perspective, but rather each is intensified. Those trained as bacteriologists, protozoologists, biochemists and physicists are rapidly increasing in numbers. They are men who may never see the patient, but whose services are necessary for the timely recognition of a disease before it gets out of hand.

The public has demanded that medical education be extended, until it now requires for its intelligent application scientists who are familiar with its most abstruse problems, having the vision of statesmen, the tact of politicians, a mastery of the sciences, and technical training. These qualities are obtainable only through the collaboration of many minds. All this means greatly diversified duties, and calls for more specially trained men, meanwhile amplifying opportunities for younger men in medicine and compelling their dependence on one another. This situation has developed the need among medical men for a type of practitioner who can group and weigh all symptoms essential to a diagnosis: only a new description, perhaps, of the family physician, but one tremendously broader which we fondly hope the internist may fill.

The Future.—The needs of mankind have created and developed the physician, but we now have progressed in the curative art as applied to the relief of a single organ as far as we may safely go without advancing a philosophy of medicine applicable to a nation. Medicine has not become too technical; but its application to the material man is absorbing, and has of late been tremendously stimulated by the postwar slogan of vocational training for productive education.

There is so much more to a human being than a test tube or a cadaver or an animal can disclose that we dare not neglect his distinctive attributes. If food and clothing were the only human needs, our young men might well be taught to obtain these in the most direct and primitive way. If the things of the spirit, which the cultivated crave, are to be nurtured, we cannot separate or subdivide medical education into segments, restrict its limits, ignore the refinements of science, detach a specialty from the body of its parent, or divorce medicine from other sciences and arts, and ex-

pect it to stand in its proper place. The practice of medicine dominates some men to the exclusion of many things that broaden and sweeten life. To boast of no knowledge outside a specialty, to smother interest in cultural arts or collateral sciences, to ignore the spiritual distinction between men and animals, is to invite professional deterioration and exclusion from the highest concepts of the profession.

There is no science, art or material substance which cannot be made to touch, contribute to, or blend into the substructure of this vital science of human life. Medicine may be likened to a tree. The sciences are its roots, organization is its trunk, its practitioners are its branches, and the people are its leaves. The leaves must fall when their season wanes, but the roots are indestructible. The trunk is sturdy, but the branches must be pruned to insure maturity for the human foliage. There is a tendency among medical men to limit themselves to diagnosis, to the neglect of preventive and therapeutic measures. Nothing gives so much reassurance in sickness as a prompt diagnosis, for it is the first essential to treatment; but immediately a prognosis, adequate therapeutics and protection against recurrence of the ailment are sought.

Graduate Teaching.—Continuance of the present high plane of medicine is contingent upon the development of graduate work. The profession has been delayed for want of it, and it is being hindered by some proprietary graduate schools, precisely as the profession was depreciated by inferior, faculty-owned, undergraduate schools, now practically past. Graduate training of physicians should mean more than the teaching of methods of diagnosis or operative maneuver by a specialist, however eminent. It should include the problems of living; the physician's relations to his environment; his duty to it and responsibilities for it; his contact with practitioners of similar attainments and common interest—a medical exchange or a professional clearing house; for nothing dulls the edge of competitive suspicion as does association for a common purpose, and nothing of importance can be accomplished by us comparable to the teaching of the practitioner in order that the public may be taught.

The first and last hope of scientific medicine lies in the medical colleges, and with the local medical societies. Nothing needs to be done for teaching centers by this association other than has already been done, except to encourage the highest standard possible to each one. If each component county medical society would strive to learn how much it could give to the profession rather than how much it could extract through it, with the unwholesome competition that this attitude compels, then the agitation for compulsory health insurance would pass, common centers for community service would arrive, charlatans perish, incomes be augmented, and professional security be advanced.

Colleges have learned to look longingly to the great foundations organized for higher medical education and for research in establishing scientific facts heretofore elusive, or at most conjectural. No one should criticize such appropriation and expenditure in itself; but, having in mind the medical discoveries and inventions of the last century made by physicians in villages, working alone, we may well wonder whether the ends in view would not be better served by application of the great incomes from these endowments to the encouragement of physicians in little villages, working from below upward for the relief of what is known, rather than in a search for what may not exist or possibly will prove of negligible value, if found. Suggestions that the standard of medical qualifications be lowered to men willing to practise in the country are unworthy. Offer a chance for professional advancement to the physician already there. Take to him the graduate opportunities he craves, and he will remain and serve well. Let the great foundations, the schools, and the American Medical Association unite to send teachers to physicians at their work, which they cannot leave. Ask the county medical societies to co-operate; then the public will recognize organized medicine as a going concern and will support its attempted philanthropies.

Health Centers.—There is need in every locality for health assurance, through improved health service. Health centers are in operation, for which communities

tax themselves, in order that their indigent sick may be treated. Other communities propose to institute like service, asking the State to share the expense. They may aid the physician tremendously in caring for the sick, by conserving his time, and supplying laboratories and aids not otherwise available. Such centers should lessen expenses to the ailing and stimulate medical accuracy, because under the supervision of several medical men. There is an opportunity through them for physicians to assume their rightful place as an organized influence for health betterment in every locality. This will be rather simple of accomplishment. We have constructed, and in place, the machinery to develop these things—the county medical society, under our national center. The plan of organization is perfect. All that is needed is to re-vivify the county medical society, to stimulate it through the State societies, and to enlist the public in our efforts to prevent disease and shorten sickness. Clearly the State, or some unit of government, should contribute to install at convenient points the housing and apparatus necessary to medical precision, making it available to the poorest; but beyond that an organized government should not go. The intimate relation between physician and patient must be preserved where it exists, and restored where lost, if we would give our best aid, and avoid a whole time State service, with its attendant commercializing of the profession of medicine, and the stressing of trade features. State governments, through their teaching universities, may not justly, for a fee, attract patients for medical treatment. It is the function of a teaching college to train physicians, and scatter them for public use, and to instruct, develop, and protect them as alumni in their several places. The duty of a medical college to its graduates does not end with commencement day; and certainly it is no part of that duty to divert patients from the graduates whom it has sent out with its seal, approving their qualifications for similar service. Instead, its duty is to assist them further in qualifying for their work. It cannot draw the sick to a common center for pay, in order to augment the salaries of its teachers, without breeding distrust, relieving citizens of their proper sense of responsibility to their neighbors, and incurring just antagonism of its alumni. The State must administer its assistance in public health matters, if at all, locally, through the taxpayers immediately interested. Physicians want neither personal help nor interference; but they do want the different units of government, under which they live, to do their plain duty in the contest the medical profession has waged against disease since the time of Galen.

Hospitalization is now the first thought of the sick, partly for professional, chiefly for economic reasons. The public regards the hospital as a public beneficence. The surgeon demands that the hospital shall be a suitable place in which to operate. The physician regards it as a necessary adjunct to the whole scheme of health. We would have the laity taught to see the hospital as a sociologic institution, a place of refuge accessible to the well for prophylactic advice, and to the sick for their unrestricted use instead of a retreat accessible only to those able to pay, operated primarily for profit and not available to all. By the same token, public hospitals must arise for those without accumulated means, who are not paupers, and the church should assume aftercare, in the effective dispensation of coordinated charities as sociologic institutions, with medicine as their adjunct. Modernized hospitals can no longer be maintained by fees alone, nor can a university, and for the same reasons. If the State may properly support universities for training the student, and maintain hospitals for the custodial care of its insane poor, or a county may levy a tax for the maintenance of its county farms, logically the State or county may assess itself in order to treat its ambulatory sick, and to provide equipment to keep in earning health its essential human economic factors.

Standardization.—The standardization of medical colleges upward has been accomplished largely by stimulating pride of occupation among physicians. The elevation of hospital service, to which the impossible term "standardization" has also been applied, is engaging the best minds in medicine. Both of these movements have been actuated by a desire to protect

the life of those made helpless by sickness. The one begins with qualifying physicians; the other undertakes to obtain for them a safe environment in which to do their work. Neither one, however, has assumed to protect the patient from the unqualified or the commercially graduated surgeon, the dishonest internist, or the criminal who operates for a fee, or who brings his victim to a hospital to die as a result of their joint unlawful act. In the standardization of medical colleges, our association dealt with educated professional men. Attempts at standardization of hospitals instantly were countered with the necessity for daily income, with lay vision, without medical prescience; having in mind the financial liabilities of their institutions, and the fear of losing the patronage of even the most unworthy practitioner. Ideal hospital standardization is far from realization because it is impossible. Minimum requirements only can be fixed before a hospital may be approved by some committee representing organized medicine. The elevation of the standard of surgeons who work in hospitals should have been coincident with these attempted betterments of facilities, for any hospital service is the shadow of those who work in it. Standardization of hospital staffs is simpler than that of either medical colleges or hospitals, and would in itself insure the latter. Permission to enter patients in a hospital should be notice to the world that physicians admitted there are qualified and trustworthy men. The courage of conviction, weighing human life in the balance with the qualifications of those seeking to be trusted with it, is the simple requirement for hospital staff standardization, and should control all hospital managers. Hospital service should mean to the world that those admitted to it have been approved by an impersonal, national licensing board, similar to our national examining board, whose disapproval might not legally interdict access to hospitals, but whose approval would become an unqualified assurance of uprightness of purpose, at least, with a modicum of medical qualifications.

Group Practice.—The grouping of physicians for the private practice of medicine is an expression of community need, but it is easily directed to primarily selfish interests. It is a medical ideal for immediate intelligent service, protecting the interests of those served. Eventually, where financial features are involved the division of earnings and the distribution of patients, with the hiring of fellow physicians as assistants, may suggest that these services have been commercialized and the way be opened for criticism. Group practice means association of personnel, with segregated service. It conserves time and cultivates special skill. Apparently it is of scientific advantage to those engaged in it. It gives a broader service for a fixed fee than is possible from isolated practitioners. It does not insure great incomes to the members composing it; and it limits the development of initiative and the personal independence of the younger men attached to it. Group division of practice, which does not preclude the patient's option of selecting a consultant to members of the group, but recognizes equal skill in physicians not attached, and approves their employment, is ideal both from a professional and from a public point of view. Associated group practice, without a pooling of earnings, should receive public sanction; otherwise a danger pend, for money should come through medicine only from devotion to the vocation first, and from concern for its earnings afterward.

The Occult.—A curious cult which treats all illness as imaginary has arisen in this cultured city. It soothes the sick by denials, while nature effects a cure or the sufferer passes out, much as a mother assures her frightened child at night that its terrors are dreams and without substance, until realities readjust its disordered fancies. Although this theory of the "three Graces" is not applied to food or clothing or housing, admits birth but denies death, denies disease and ignores its causes, it has been a lasting comfort to those who are well and finds prepared soil in distress, for "in the shadow of a great affliction the soul is dumb." The Christian religion has been taught 2,000 years without recognizing in practice the basic principle of its founder, read in the challenge, "Show me your faith without your works, and I will show you my faith by my works." The human touch of a spiritual man

was the professional equipment of a physician the world has worshiped for twenty centuries. Yet His spiritual teachings have been passed to ministers of His gospel, and His miracles of healing have been emulated by doctors of medicine. As a people, our faith in help through prayer has preserved the tottering reason of millions, until nature has benumbed bereavement or relieved racking pain.

Lay Healing.—This is a legitimate field for lay practice, directly within the province of the Christian church and its ordained ministry, but not to be intrusted for a fee, to the ignorant, who sit stolidly by a passing life repeating false assurances by rote. We must learn to minister to a mind diseased: not alone to alienated faculties, but also to sensitized emotions and outraged affections. Ministers of religion and ministers of health must jointly associate the beneficence of faith with the beatitudes of work, that the whole man may be conserved, and their professions saved also. The joining of interest, through common channels, by those who would guard public morals, assure public health, and rehabilitate the poor, is the most inviting question of the moment and logically falls to medical men, who should enlist with them the ordained ministry for this world's work.

The Common Conscience.—Those having minds sensitized to impressions from without believe that the public conscience is undergoing an agitation that is new to our generation; that this is indirectly due to reaction in our code of social ethics and that we must now recognize the struggle between the forces of normal, stabilized mentality and those of the wavering deterioration of the subnormal. In this favored State the names and addresses of 12,000 feeble-minded people are known. A great authority on this subject estimates the number to be ten times that. The city is said to have seventy-seven rooms in its public schools devoted exclusively to backward children. From such as these come the criminal, the prostitute, and the insane—the socially impossible group of to-morrow. Their reproduction is unrestricted, and they are purveyors of disease; while in contrast, those higher in the social scale limit births, and struggle for health. Meanwhile the burden of the unfit grows heavier, and the moral plane of the nation is lowered. The sex appeal to arrested mentality is out of all proportion to the wholesome balance of a normal mind. The moving picture featuring sex instincts appeals to increasing numbers, resulting in multiplied illegitimate production. Each State has the same problem, and it is our problem. The legal profession cannot cope with it. True to training, it will be found arrayed, one half prosecuting, one half defending. The church cannot meet it, because only those choosing uprightness go there. The schools have already despaired, because the child is "not all there." Only the physician is in touch with this thing, and he knows the simple remedy needed to restore, by elimination, the higher intellectual balance necessary to national integrity. He recognizes these contending forces in race development and decay. He has many times voiced warnings of a parting of the social fabric, but the decline of a nation's mentality goes on, unheeded and unrestricted. Theoretically, we should expect our enfranchised women to rise against the moron rapist, or the possible introduction of the taint of feeble-mindedness into their lines of descent. Practically, the sentimentality of women secretly protests against limiting the so-called privileges of parentage. There are no rights of parenthood which should, through any process of reasoning, take precedence over the right of the child to be well born. Certain religious sects, believing that the soul is independent of its physical abode, are unwilling to interfere with its transmission, even through tainted, vicious, weak or criminal channels. It is not future wars between virile fighting men which we have to fear: it is the deterioration of the mind, and the inevitable loss of respect for our individual rights, our traditions, and our highest ideals, through a submerging mass-mentality.

In closing, the speaker said that American medicine had its greatest achievements before it. It must go to the crossroads and villages for its vision of service, call in its troopers, and train from the outskirts, toward common centers. It must prevent disease where possible, relieve it where it occurs, aid in the upkeep of

earning power, and contribute its influence to maintaining the integrity of a nation's physical and moral fabric. He would plead for the spirit of service which governed practitioners of the last century, who, knowing less of medicine, depended more on personal attention than we now do; for the spirit of William McClure, of fiction, confined for a life time to the highland limits of a day's ride; of our own General Gorgas, who converted a slough of death into a resort for health, and turned the traffic of a world; for that which prompted the self-sacrifice of Walter Reed, who invited death that others might safely pass; the spirit of thousands of men who have preceded us, whose names were unknown or have long been forgotten, but of each of whom the recording angel wrote, "He went about doing good."

SECTION ON MEDICINE.

First Day—Wednesday, June 8, 1921.

DR. HENRY S. PLUMMER OF ROCHESTER, MINN., IN THE CHAIR.

Tropical Sprue.—Dr. DAVID BOVAIRD of New York presented this paper in which he stated that tropical sprue in New York was an imported disease. Of 13 patients studied at the Presbyterian Hospital 12 had come from different parts of the Orient and one from Porto Rico. In the countries from which the disease came it occurred not only among occidentals but among the natives of those countries as well. The theories as to the causation of the disease were numerous, it being variously attributed to dietary errors, infections of different kinds and to yeasts. However, the definite etiology of the condition was still an open question. It was shown that the disease could be definitely differentiated from infantile sprue. In the cases coming under his observation no definite organism could be found. In one case only had the *Manilius albicans* been found. An exhaustive study of the intestinal bacteriology had been made in two cases by Dr. Hans Zinsser and Dr. Russell L. Cecil, but no important deviation was shown from the normal bacteriology of the intestinal tract. They had had but one autopsy with a bacteriological study of the tissues. In this instance a mucous enteritis was present involving practically the entire intestinal tract, and nothing more. The pathological study likewise gave no clear understanding of the disease. The symptoms of the disease were well known, consisting of a combination of sore mouth, diarrhea with one to four bulky, pale gray stools with much gas, secondary anemia and exhaustion. In the present state of our knowledge one had to recognize the disease on physical grounds alone. The abdomen was usually tympanitic. Protoscopic examination was made in nine of their thirteen cases and gave no characteristic picture, the appearance of the mucous membrane running all the way from a bright red in one case to a pale anemic appearance in others. A study of the gastric contents was made in twelve cases. Six of the twelve cases showed a total lack of free hydrochloric acid, while five gave practically normal findings. One case that gave normal findings in 1912, showed an absence of free hydrochloric acid, in 1919, at first but a gradual increase to 36 at the end of a three hour period. There were variations in the stools from time to time depending to a considerable degree upon the diet, exercise, and habits of the patient. It had been thought that the pale color of the stools might be due to an absence of bile pigments. The bile pigments, however, were not absent but were present in the form of colorless compounds. There seemed to be present an impairment of the power to absorb fat. Although there was excessive gas distention the ferment tests had given but indifferent results, probably due to imperfections in technique. In eight cases the hemoglobin was very low, in one instance being as low as 21 per cent, and suggested a hemolytic process but dissimilar to that of pernicious anemia. Various studies on the chemistry of the blood showed normal results. Study of the pancreatic ferments showed that trypsin was not regularly present without amylase nor vice versa. The urine presented nothing of importance in routine examinations. The calcium

in the blood was found to be somewhat below normal in some of the cases. The administration of calcium lactate, however, failed to make any change in the calcium content of the blood, and tetany developed in several instances. The Wassermann reaction was negative in all the cases. In the absence of any characteristic laboratory finding the diagnosis at the present time, therefore, rested upon the clinical picture. The treatment was dietetic, but the diets upon which patients had recovered presented a bewildering variety; in most instances they consisted largely of fruits. Of the fruits the strawberry seemed to be one of the most important but the benefit derived from it seemed to rest upon the fact that it restricted the food intake. To him the dietetic problem presented by a case of sprue was much like that presented by a case of difficult feeding in infancy. It was of particular importance that starches in the form of potato and bread be kept low. By regulating the diet in this way these patients had been enabled to carry on and most of them had recovered. The administration of pancreatic extracts had appeared to be beneficial in some cases and useless in others. Patients who had once suffered from the disease should not be permitted to return to the conditions under which the disease had developed.

Dr. JOSEPH PRATT of Boston said that the disease sprue was worthy of the attention of every practitioner in the country. Of course it was a very rare disease, but it was absolutely important and essential that if called upon to treat a case of sprue the physician should have some knowledge of the diagnosis and proper treatment of the disease. He recalled the first case referred to him accompanied with a letter from a physician in Porto Rico stating that the patient had sprue and asking that his diagnosis be confirmed. At that time he had no idea what sprue was. This was his first chemical as well as clinical study that gave him an insight as to what the disease was. There seemed to be disturbance in the metabolism affecting the absorption of fats and starches. He knew of cases of sprue which had come back from the Orient and the physicians who had treated them were quite ignorant both of a proper knowledge of the disease and the proper method of treatment. He felt that the heads of mission boards should organize a campaign of instruction for patients returned from the Orient with sprue telling them to whom they should go for treatment. Dr. Pratt called attention to the fact that some persons returned from the Orient who thought they were suffering from sprue simply had sprue phobia, or fear of the disease. Manson's original treatment of milk diet was an effective form of treatment. Santonin was used by some and particularly by the physicians in China. Manson's milk treatment was frequently not used in cases in which it would be of help.

Dr. THOMAS BROWN of Baltimore said he had been interested in this group of cases for some years. His experience, however, was limited to six cases, three from Porto Rico and three from the Philippines. He had been particularly interested in studying the pancreatic findings. In his cases there was an absence of pancreatic ferments both from the stools and the duodenal contents. In several cases a gastric achylia was present which with improvement returned to normal. There was acidosis in three of five cases. One showed no change as regarded acidity. Few studies had been made of the pancreas at autopsy probably because it degenerated so quickly after death. Castellani had come to the conclusion that grossly nothing was to be seen except the usual picture of chronic pancreatitis which statement was of very doubtful value without microscopical corroboration. He had had the same experience as Dr. Bovaird in failing to find the *Manilius albicans*. He knew of two or three patients from Manila who thought they were getting good results from the use of neosalvarsan; none were cured but they felt that they were benefited. The condition might be due to a variety of infections or it might be due to a lack of vitamins as suggested by some observers. In the treatment of very difficult cases it was well to consider all the factors dietetic, absence of ferments and other factors that might possibly be involved. In that way one might bring about an improvement though a perfect cure was rarely to be expected.

Dr. FREDERICK DE LUE of Boston believed we were getting rather unduly alarmed as regarded the admission of these cases into this country. He believed they occurred quite frequently here and were overlooked or regarded as cases of disturbed digestion which could cure themselves by going on a mild diet. It seemed to him rather suggestive that the disease was a tropical disease and that the greatest food of the tropical countries was fruit. He related an instance of a patient who had partaken of canned and preserved fruits that had been stored for a long period and developed a quite typical case of tropical sprue. He believed it was not a germ disease, but an acidosis and a reflex from irritation of the gastrointestinal tract—a marked type of catarrh of the gastrointestinal tract. Being an acidosis the treatment was skimmed milk with the administration of sodium bicarbonate.

Dr. BOVAIRD of New York, in closing the discussion, said that observations made on this disease before the section 1919 indicated that sprue did occur sporadically in this country. He recalled a case coming from New Hampshire. The disease was by no means confined to the city. A study of the pathology of the condition was that of atrophy from the tongue on through the gastrointestinal tract with a disruption of the digestive processes. It seemed evident that the great majority of cases were destined to recover whatever was done; some cases were fatal, however, in spite of the best that one could do. The rational dietetic treatment was skimmed milk because it imposed less strain on the digestive tract, but it could be maintained for only a brief time without the addition of other forms of food.

Studies in Familial Neurosyphilis.—Dr. JOSEPH E. MOORE and Dr. ALBERT KEIDEL of Baltimore presented this communication, which was based upon a study of fifty-two marital partners of fifty neurosyphilitic patients investigated by means of amnesia, physical examination, and study of the blood and spinal fluid. Of these forty, or 76.9 per cent., had syphilis; twenty-one, or 40.3 per cent., had neurosyphilis. Thus of the total syphilitic partners 52.5 per cent. had neurosyphilis. In the partners of parenchymatous neurosyphilitics the incidence of neurosyphilis was about twice as high as in partners of meningeovascular neurosyphilitics. After discussing the various types of neurosyphilis observed the writers spoke of the relation of infection of the partner to the duration of marriage and of syphilis in the syphiliphilic. If the original infection took place three years before marriage the marital partner was less likely to acquire neurosyphilis though he had seen cases in which neurosyphilis was manifested in the marital partner when the original infection was contracted five years before marriage. In general, however, the chance of acquiring a neurosyphilis was in proportion to the length of time between the original infection and marriage. The results of the observations were discussed in reference to the theory of duality of strain of *Treponema pallidum*. It was shown that the evidence was inconclusive as to the differentiation of a dual strain.

Dr. HENRY SALMON of Boston said he was much interested in the results of these observations, particularly as they ran higher in percentages than those he had investigated. They had published observations on 555 families of syphilitic patients, which were divided into the paretic and cerebrospinal groups, and a group in which the cerebrospinal system was not involved. While the percentages were lower than those just reported the result was more of a standard, as there was less chance of the individual equation interfering with the results. They found a positive Wassermann in from 23 to 35 per cent. of the cases, as compared with the 76 per cent. in the series just reported. They had not reported the spinal fluid findings as a routine, because it was impossible to do so in such a large group. However, in the cases in which the spinal fluid was examined the positive spinal fluids ran under 10 per cent. All of these had positive Wassermann reactions. In their group it was interesting to know that not more than 25 per cent. of the mates with neurosyphilis suspected that they had syphilis. They had gone through the hands of many physicians and the diagnosis had never been made. The same thing was true of the children in these families. The average at

which the diagnosis was made on the children was between ten and twelve years. He felt that this fact was very important from the practical standpoint. Most physicians were not interested in the families from the standpoint of syphilis when it had been five to thirty years since the original infection. If one considered the autopsy findings there was reason for being conservative in regard to duality of strain of the *Treponema pallidum*. The vast number of patients with neurosyphilis showed aortic and other involvement. The syphilitic organism at least had a predilection for the vascular system so that it could not be considered a pure nervous system strain.

Dr. JOHN H. STOKES of Rochester, Minn., asserted that in spite of their pronounced admiration of laboratory mode of attack he wanted to insist that the ultimate plane of reference must be the clinical. They had been told many things about neurosyphilis long before the laboratory methods had been worked out, though he could not deny that they had likewise been told many things that required modification. A second point he wished to bring out was the underlying principle that there were multiple agencies involved in the production of neurosyphilis. He classified these under four heads. 1. The strain of organism. 2. The duration of the infection; the picture might be entirely different five years after the infection in the subject of syphilis from what it was shortly after the time of infection. 3. The soil upon which the infection was implanted was increasingly coming to their attention as an important factor in determining what happened. 4. The final factor was treatment; this was very far from being definitely evaluated. Genierich had studied the effects of the so called modern method of treatment and he had faced about and felt that arsphenamine was dangerous and predisposed to neurosyphilis. The group working at Rochester had studied syphilitic pairs in which they were certain that the strain was the same and the duration was the same within a few months. In this study they had found many interesting things which were not at all conclusive. It was found that there was a definite tendency for men to develop neurosyphilis over women. The woman had many protective factors which the man did not have. One saw cases of severe cardiovascular syphilis and no neurosyphilis and at other times severe neurosyphilis and slight cardiovascular involvement. So he thought they needed a revision of their clinical knowledge of syphilis based upon the examination of the spinal fluid. Latent neurosyphilis had never been reckoned with in the past, and he believed the examination of the cerebrospinal fluid examination had a value on a par with the Wassermann reaction if not above it. Multiple involvements should be searched for, not only in patients who had neurosyphilis, but in others who might have the beginning of an aneurysm which would cloud their future much as neurosyphilis would do in another case.

Dr. WADE H. BROWN emphasized the importance of epidemiological studies as regarded neurosyphilis. As regarded the duality of strain he thought the clinical evidence was just as strong on one side of the question as on the other, whatever the laboratory might show. He thought they should be very cautious in basing conclusions on theories regarding strain, as we knew too little about it. What they knew was based on animal experiment, and comparisons had been made under conditions not comparable. There was a demand at the present time for more careful epidemiological studies of syphilis and more careful laboratory investigation. They were in need of many more facts and careful examination of strains before they were justified in expressing an opinion. When they had this knowledge it would enable them to get a thorough grasp of what caused this type of syphilis.

Fasting as a Method for Treating Epilepsy.—Dr. H. RAWLEY GYELIN of New York made this presentation in which he said that two years ago he had had the opportunity to observe the child of a friend who was at the time 10 years of age and who had had epilepsy in its most severe form for a period of four years prior to that time. For four years he had had *grand mal* and *petit mal* attacks which had become practically continuous. The child had been sent to numerous neurologists and clinicians in the United States and every-

thing had been tried and nothing had succeeded. At Battle Creek he came under the care of an osteopath who promptly fasted him, the first fast being one of fifteen days. This was followed by a period of feeding of three weeks duration and then by a second fast of four or five days. There were four fasting periods over a period of several months. After the second day of fasting the epileptic attacks ceased. Except during an attack of measles, in 1920, he had had no attack save an occasional winking of the eyes. Following this Dr. Geyelin said he had had the opportunity of seeing two other cases treated in the same way by Dr. Conklin, one of which remained entirely cured for two years and one for three years. These results were so striking that they had undertaken to look into the question of fasting from two standpoints: First, to see if they could confirm the results obtained in a large group of cases, and, second, to see if there was a particular type of epilepsy which yielded to this method of treatment. The most important thing from the standpoint of etiology was to find out whether there was any abnormality of metabolism before, during, or after the fasting as contrasted with that of a normal individual under the same conditions. One case was observed before this line of study was determined upon. This patient was a boy nine years of age, the youngest of eight children. He had been normal until four months before admission to the hospital when he suddenly developed *grand mal* seizures which were typical. These had gradually increased in frequency until he was having from fifteen to twenty-five attacks in twenty-four hours. Food was withdrawn suddenly and fluids by mouth were forced. The only thing given at first was distilled water, then later thin broth. The epileptic attacks stopped on the second day of the fast and had not recurred since. The fast was stopped at the end of the third day because of severe acidosis. This led to investigation of the problem from that standpoint. The cases were selected at random and the report comprised observations made of 26 cases studied from six to twenty months. The ages of the patients ranged from 3½ to 35 years. The shortest duration of the epilepsy in any case was four months; the longest thirty-four years; the average duration was eight years and only three cases had had their epilepsy less than a year before coming under observation. There were 16 males and 10 females. The type of epilepsy had varied from *grand mal* attacks alone and unassociated with *petit mal* attacks to *grand mal* attacks associated with *petit mal* attacks, and to those who had *petit mal* attacks only. The periodicity of the attacks ranged from thirty-five attacks a day down to one seizure a month for five years and then a seizure every two weeks. The average periodicity for all cases was one or two *grand mal* attacks per week. They had started, before they knew what the effect of the fasting would be, on very short fasts, the first fast being three days, the second five days, the third ten days. They found that it was possible for these patients to get through the fasts without discomfort and without ill effects. The length of fast finally adopted was twenty days, though this was entirely arbitrary. There were no reasons why one should not employ longer or shorter fasts. Four only out of the twenty-six cases had epileptic symptoms after the tenth day of the fast. Charts showed the acid excretion during the fasts, before the fast was begun, and afterward. The acid excretion was fairly constant, rising during the fast and coming down on the twenty-first day to where it was before the fast was begun. In closing Dr. Geyelin emphasized that this was only a preliminary report and that he fully recognized that epilepsy sometimes intermitted for long periods of time, as long as eight, ten, or even fifteen years. They could not therefore at the present time interpret therapeutic results. However, two of the 26 cases had remained without sign or symptom of epilepsy for one year or over a year. Six cases treated by one or two fasts had not shown any improvement, and 18 cases had shown marked improvement.

Dr. STANLEY COBB of Boston said epilepsy had been worked over from many angles and by many men, by some of the ablest men in the profession and some of the worst charlatans outside of the profession, so one had to be extremely wary and extremely wise in the

interpretation of the effects of any form of treatment. He felt that it was worth while to repeat that with emphasis. In the past the treatment of epilepsy had been extremely varied, all the way from circumcision to painting the motor cortex with iodine, and from regulation of hygienic habits to psychoanalysis. Luminol, bromides, thyroid, and innumerable other drugs had been tried. From this report one might be inclined to decide offhand in favor of gastrointestinal etiology of epilepsy. We might as well say that the variety of operations devised for the relief of epilepsy pointed toward a certain localization. He thought, however, that Dr. Geyelin's work had given them one important new lead. If one went back over the various modes of treatment it would be found that there was one common factor involved and that was the metabolism of the individual, and Dr. Geyelin's work pointed to the idea that there were changes along these lines. In their laboratory work they had produced convulsions in animals and it was found that various drugs and starvation would increase the ability of the animals to stand convulsions. It was also found that thyroid intoxication increased the ability to withstand the convulsions. He did not claim that the convulsions produced experimentally were a parallel to epilepsy but simply advanced the idea that by various means they had succeeded in controlling experimental convulsions.

Dr. TOM A. WILLIAMS of Washington, D. C., stated that some twelve years ago certain facts led him to believe that epileptic manifestations were due to metabolic disorder. Convulsions occurred in eclamptic states and this they believed to be a state of toxemia; they also occurred in uremia and that was a state. They had found that when the metabolism was improved in these conditions the convulsions were relieved. He then formulated the theory that in epilepsy they were dealing with metabolic states due to a deficiency in the alkalies. On that basis he had treated a number of cases. Some treated on that basis still remained free from epilepsy at the end of ten years. Unfortunately he had not had the laboratory facilities to pursue his theories, namely that toxemia might be the underlying cause of epilepsy and the specific thing involved might be the aminoacids. On that theory he had carried out treatment with some success but not as great as that by management by fasting. This paper was valuable in turning the attention of investigators of epilepsy to the metabolic factor. The neurologists had been dominated by the idea that epilepsy was due to structural changes such as neoplasms, infiltration, etc., but patients with these structural changes only convulsed intermittently. Brain tumor caused only intermittent convulsions and sometimes none whatever. He thought that from that fact they could argue that there must have been a metabolic factor involved.

Dr. Frederick De Lue of Boston said that Dr. Geyelin had given them a very valuable contribution. He cited a case of epilepsy in a boy seven years of age who at the age of nine months was put on adult diet. In two months he showed the results in epilepsy. Notwithstanding the fact that he was a brilliant child he was subjected to two operations for prethipening. When he came under his care he started him on skimmed milk and bread without butter. On this diet he put on flesh and became well of his epilepsy. This child later was so situated that no restrictions were placed on his diet and mild convulsions returned. One interesting factor not mentioned in the paper was the effect of an eye defect on epilepsy. He cited an instance in which convulsions in a myopic poorly nourished child seemed to be influenced by the eye condition. Starvation for a certain period of time might cause great discomfort. He had found that the alkalies and especially lithia and the salicylates had a marked effect upon epilepsy.

Dr. GEYELIN, in closing, gave the loss of weight that occurred with various periods of fasting in children and adults and said they had noticed four things out of the ordinary during these observations. Two of the cases developed marked sinus arrhythmia on the fourteenth day of their fast, without any other symptoms. One of these children was fifteen and the other eighteen years of age. One girl of thirteen years developed a bradycardia, the rate being only 50 per minute. One patient developed maniacal symptoms which lasted for

thirty-six hours. These disappeared, however, without it being necessary to interrupt the fast. In a general way it might be said that the cases with a high acid excretion were those which showed the greatest improvement though this was not always the case. Dr. Geyelin said he wanted to emphasize what all the men who had discussed the paper had brought out, and that was the importance of realizing that the fasting treatment of epilepsy was by no means a cure-all. He doubted whether it would prove more successful than other methods of treatment which had been tried and failed, but at least there was one thing that stood out, that was that when one wanted to relieve a severe convulsion in epilepsy or when one wanted to turn a clouded mentality to a clear one it could almost always be done by fasting. All these patients regained their body weight within three weeks and suffered no ill effects following the fast.

Sulphur Dioxide in the Treatment of Experimental Tuberculosis.—Dr. PHILIP H. PIERSON of San Francisco made this presentation in which he stated that sulphur dioxide was present in many factories, such as storage battery factories, smelters and other industries. It had been shown that sulphur dioxide possessed a bactericidal action *in vitro* but whether it had such an action *in vivo* had not been definitely shown. This they had endeavored to ascertain by giving measured quantities of sulphur dioxide to animals in which experimental tuberculosis had been produced. Two forms of apparatus had been worked out, one for giving the gas in concentrated form and one for giving it in dilute form. In the concentrated form the dilution was 1500-3000 parts of sulphur dioxide to 1,000,000 parts of air, each treatment averaging thirty minutes. In the dilute method the dilution was 1666 parts of sulphur dioxide to 1,000,000 parts of air, each treatment averaging seven hours a day. There were many problems encountered in the use of sulphur dioxide in rabbits, such as diet, apparatus from measuring the gas, capacity and content of the plasma carbon dioxide, and means of estimating the result of each treatment. Roughly speaking the extent of the tuberculosis in the treated animals was about two-thirds of that in the control animals and the progress of the disease in the treated animals was about six-tenths that in the control animals. About 50 per cent. of the animals died of pneumonia and empyema and part of those deaths might have been due to the gas and part to a peculiar susceptibility of the animals for secondary infections. There was need of endeavor to find out what happened to the gas when it entered the animals and of determining its effect on the hydrogen ion concentration and on the carbon dioxide of the plasma. They had found that there was a definite drop in the carbon dioxide of the plasma after treatment, but they did not know the fate of the carbon dioxide in the blood under the concentrated and dilute treatments. Sulphur dioxide exerted an inhibiting effect on tuberculosis in experimental rabbits. It produced a greater effect on the progress than on the extent and distribution of the infection. They expected to be able to show what happened to the gas in the blood and how it exerted its inhibiting action on the tuberculous process in a subsequent communication.

Dr. HALLDORSON of Winnipeg expressed himself as highly gratified that some man had had the courage to take a step forward and to depart from the time-honored method of leaving cases of tuberculosis to nature. It did not matter so much what the results were in this particular investigation; the important thing was that a new departure had been made and that others would now follow. So far as the treatment of tuberculosis was concerned they had been following the same rut for the past twenty years. Sulphur dioxide was one of the substances that had a distinct effect on the tubercle bacillus and the course of the disease. Other substances that were dissimilar and were also acids exerted action upon tuberculosis. They had found from time to time that there was a smaller number of tuberculous patients among those engaged in certain occupations. For instance, it had long been noticed that there were few cases of tuberculosis among sailors and among the workers in salt mines and the same had been said of some coal mines, and the strongest example we had of a substance that would fortify against the action of the

tubercle bacillus was found in lactic acid. All were laminar with the action of lactic acid on the people of Bulgaria. Another interesting thing was that in Iceland where people had lived for centuries on sour milk products, making a kind of junket during the summer which was kept for winter and became very sour, pulmonary tuberculosis was rare. There were different forms of bone tuberculosis but practically no pulmonary tuberculosis except among those who had gone outside of the country. As soon as these people changed their habits and no longer used these sour milk products to such a great extent tuberculosis became a scourge. While he made no claim that lactic acid was a cure-all for tuberculosis, he felt that it would limit the disease to a great extent. He had shown in a paper several years ago chlorine in solution also had an inhibiting effect upon tuberculosis. Leaving the cure of tuberculosis to nature was all right if one did not know what to do for it, but it was a confession of ignorance and helplessness.

Dr. F. L. HEHLER of Washington stated that the attempt to show the effect of sulphur dioxide upon tuberculosis was not new. Back in 1903 Sommerfeldt and others in Germany had experimented with sulphur dioxide in tuberculosis. About 100 cases were reported as having been treated with this agent with excellent results. They did not use a simple mixture of sulphur dioxide but a substance which consisted of oil of eucalyptus, sulphur dioxide and carbon dioxide, though the latter substance played but a small part in the mixture. The sulphur dioxide and eucalyptus were present, however, in sufficient quantities to exert some action. The treatment consisted in placing the mixture on a plate and heating it. As a result of this work propaganda was started and a preparation containing these ingredients manufactured in this country, but the amount of sulphur dioxide emitted when the substance was heated was very small, the concentration not being sufficient to be effective. It was tried out on a number of germs, typhoid, and other bacilli and its result was nil.

(To be continued.)

Chance Cure of Puerperal Fever by Peptonic Shock.—Levy-Solal reports the case of a woman with streptococcal puerperal septicemia which was apparently cured with a single intravenous injection of peptone. Since this treatment cannot be claimed as universally applicable it is evident that an element of chance must figure. There are numerous colloids which might produce this effect, but as yet there is no way of making a choice.—*La Presse Médicale*.

Syndrome of Lethargic Encephalitis Apparently Caused by Syphilis.—Dr. Ricardo Aguilar of Honduras reports the following case in the *Revista Medico-Quirúrgica* for December 1, 1920, ii, 14. A man of 34 was admitted to the hospital at Tegucigalpa last July in a state of lethargy. Fifteen days before he had suffered greatly from headache with fever, this condition passing into stupor. It was learned that he had contracted a chancre 18 months before and three months ago precocious syphilitic manifestations appeared in the nervous centers. There were evidences of meningism and ptosis was present. The patient also showed a risus sardonius and there was nocturnal delirium. Examination showed incomplete transitory pareses of the III, IV, VI, and VII cranial nerves. Other symptoms mentioned were strabismus and vertigo of the pseudo-Ménière type. The Kernig was negative. The lower extremities showed both rigidity and flaccidity. Respiration and pulse unusually slow while the maximum temperature was 38.5° C. There was incontinence of urine and feces, and on the sixth day a bed sore appeared over the sacrum. Spinal puncture showed the fluid to be under high tension but without pathological content. Before making a diagnosis of encephalitis lethargica it was thought necessary to exclude syphilis. Death soon supervened and an autopsy was obtained. The meninges were the seat of diffuse congestion. Softened gummata were found in the region of Broca's convolution involving much of the parietal and temporal lobes. Despite the evidences of syphilis the patient presented the triad of lethargic encephalitis—pareses of the oculomotor apparatus, lethargy, and continued fever.

Miscellany.

MY UNCLE BENJAMIN.*

By EMIL MAYER, M.D.,

NEW YORK.

UNCLE BENJAMIN RATHERY was a doctor, a century and a half ago. He was 5 ft. 10 in. in height, carried a big sword at his side, and wore a coat of scarlet ratteen, breeches of the same color and material, pearl gray silk stockings, and shoes with silver buckles. Over his coat hung a large black queue, almost as long as his sword. It kept bobbing about, and covered him with powder so that his coat, with its shades of red and white, looked like an unbaked brick. He was thus attired because he was a doctor. I do not know whether the patients had much confidence in him, but he had very little confidence in medicine.

He loved wine, not for itself, but for the short-lived madness, which makes a man of wit talk nonsense in so naive, piquant, and original a way that one would like to talk that way always. Uncle Benjamin had principles; he said that intoxication would have been one of the greatest blessings of the Creator, if it did not cause headache, and that the only thing that made man superior to the brute was the faculty of getting drunk.

Uncle Benjamin lived at the time when customs of the little town were not yet glossed over with elegance; they were full of the charming ease and freedom of a lovely simplicity. The characteristic of that happy age was unconcern; bourgeois were not office seekers; the merchants, few in number, then grew rich slowly without doing very much; the laborers worked, not to amass savings, but to make both ends meet.

Benjamin was twenty-eight years old, had practised medicine for three years, but this brought him no income. He owed his tailor for three scarlet coats, and his barber for three years of hair-dressing, and in each of the most famous taverns of the town he had a pretty little account running with nothing on the credit side but a few drugs; and every evening regularly after supper his sister urged him to get married. All this he listened to very attentively, but did not make the slightest use of it.

With delightful humor the author carries us through the adventures of this philosopher and wit, brings vividly before us the customs of two centuries ago, and entertains us mightily with both his humor and pathos.

Uncle Benjamin finally concludes to listen to the thought of getting married, and visits at the home of a Monsieur Minxit, the father of an only daughter, who was very anxious to have an alliance with a physician for the help that it would be to him in his own vocation, as he made a specialty of urines. After twenty years' study of the science, Monsieur Minxit succeeded in distinguishing those that were

clouded from those that were clear, which did not prevent him from telling everyone who came to him that he could tell a great man, a king, and a minister by his urine. He was no more of a murderer than his rivals, only he made more money with his many colored vials than they did with their prescriptions. He had acquired a handsome fortune, and also had the faculty of spending his money to a good purpose. He seemed to give everything as if it cost nothing, and his clients, who streamed to him, always found open table at his house.

Monsieur Minxit gives Uncle Benjamin an illustration of his methods of divination by inspection of the urine, following which a little girl came in. "Well, how is your mother?" asked the doctor.

"Much better, Monsieur Minxit. But she cannot get her strength back, and I came to ask you what she should do."

"You ask me what she should do, and I wager you haven't a sou with which to buy medicine."

"Oh, no, dear Monsieur Minxit. My father has been out of work a whole week."

"Then why the devil does your mother take it into her head to be sick?"

"Don't worry, Monsieur Minxit. As soon as father gets work you will be paid for your visits. He told me to tell you so."

"Nonsense again. Is your father crazy to expect to pay me for my visits when he has no bread in his house? For what does your imbecile of a father take me? Take your donkey this evening and get a sack of wheat at my mill. And take a basket of old wine and a quarter of mutton along with you from here. That is what your mother needs. If her strength doesn't come back in two or three days, let me know. Now go, my child."

Tillier, the writer of this gem of humor, died of tuberculosis at the age of forty-three, in 1844, in poverty. Paris has discovered him within the last few years, after his works have been translated in various languages. His writings reflected his character, his biographer says he was one of those beautiful natures of native nobility, who rise out of the depth of society and, in spite of temptation and misery, pass unsullied through the filth of life. Wholly of the third estate and of the people, he loved liberty passionately and battled for her heroically on the remote outpost that accident had entrusted to him. Regardless of personal matters, he lived for his idea and found his reward in himself. Unselfishness was his virtue, and human dignity his religion.

Although Tillier's pen was often dipped in gall and he railed against the church and its dignitaries, he was at heart devout enough apparently, for when he was dying of consumption he said: "When my last coughing fit has come, when my quill, together with my soul, has returned to God, will the sun darken and the earth cease growing green? The All Father who supplies the young of the birds with food, will He deny it to the little ones of the pamphleteer? My parents gave me nothing, and I am grateful to them for it. Had they given me much I should not dare to sign their name to my pamphlets. When I left the paternal roof I had not even a calling. I fell into this world like a leaf that the storm shakes from the tree and

*My Uncle Benjamin, by Claude Tillier; translated by Adele Szold Saltzer. New York: Boni and Liveright. This translation is the second that has been made of this book in the English language. The first, by Benjamin R. Tucker (1890), contains an appendix, which is omitted in the present translation, in which the story of the struggle for existence that was Tillier's lot is graphically portrayed.

rolls along the highway. But I did not lose courage; I always hoped that out of the wing of some bird sweeping the skies a quill would fall down, fitted to my fingers, and I have not been disappointed."

The warmth of his feeling and the tenderness of his heart burst forth powerfully in these last lines which he wrote on his death bed: "My mother stands beside my invalid's chair; she is deaf, poor woman, and my voice is weak; we can hardly make ourselves understood. But she is here, she envelops me in her glances, she seeks to read in my eyes what I want, she can divine by the smallest fold on my forehead what I dislike. She has left the other half of her family, the half that can spare her; she wishes to have her part of my death struggle. The same care that once watched over my childhood she now bestows on my early old age. One son she has already seen dying, and now she comes to lend me also the support of her arm and to lead me gently down the slope of life. . . .

"Poor mother, with what heavy hand did God measure out the tears that he stored beneath your lids? Or is God unjust to the mothers? A son can only once bury his mother; but a mother, how many sons may she mourn? Am I at least the last child she must bury? Will a last one remain to close her eyes and lay her dear body beside our bones? Or must it be her lot to take the key of our poor house with her? . . .

"Ah! how much less am I to be commiserated than she?" . . .

This story of My Uncle Benjamin abounds in humor, and the style is that of a century ago, when plain speaking was the vogue. In the broad humor one finds, however, no reference to sex, the ungratified passion of the maiden lady of uncertain age, or the yielding to it, with the brute who conquers the aforesaid maiden, in our novels of the present day.

40 EAST 41ST STREET.

Reminiscences of Charcot.—Leon Daudet has just published in the *Revue Universelle* (February 1) an article entitled "Charcot or Cesarism of the Faculty." Comments on the old master are highly favorable, although Daudet hit off some of his neurological colleagues in an uncompromising fashion. He also admired Brissaud, Marie, and Babinski, under whom he had been interne. Babinski had a genius for keeping out of faculty quarrels and intrigues. Charcot, far from being jealous of him, did all he could to bring out his superiority.

Daudet considers Charcot as writer, professor, clinician, and thinker. Of special interest is the account of how the great diagnostician first recognized the presence of the malady which was to destroy him. It happened at a gay midnight festivity at which Pasteur was also present. Charcot was seen to rise from the table ill at ease and to turn pale. He was experiencing his first crisis of angina pectoris, a malady which he had so often described to others. Daudet ran out to get Potain, who lived near by, while another guest went on a similar mission to Damaschino. Daudet sounded the bell insistently and Potain himself answered in his shirt with a candle in his hand. He dressed and hurried to Charcot's house

and after a prolonged interview left with encouraging words. Once out of his presence he gave him two years and a half to live. Two years and eight months later Daudet had a telepathic vision of Charcot seized by a crisis of his malady. He said a prayer for him and at once wrote his father of the experience, feeling certain that Charcot was dead. Nothing happened that day, but on the following a telegram from *Le Temps* to the author, who was at Uriage, asked him for an obituary notice of Charcot, whose sudden death had just occurred. Potain also was sojourning at Uriage and the author grimly recalled to him his prognosis.

The death of Charcot was described by Debove in a eulogy delivered some years later. Debove, Strauss, and Charcot were guests at an inn and had dined together, conversing on many subjects. Charcot went to his room and wrote a long letter to his wife, which was never mailed. At about 3 A. M. Strauss, whose room was near Charcot's, roused him with the information that Charcot was ill. He was in the midst of an attack and had just stated that he was feeling better, when he succumbed. The place of death was a tourists' hotel at Settons, in a solitary corner of Morvan. The author visited the hotel and obtained a firsthand account of the event from the innkeeper. The death chamber had been renovated but the furniture was the same, including the Empire chair, in which the great man had breathed his last. The hotel has no commemorative tablet and the author believes it time to erect one on the façade of the building.—*Le Progrès Médical*.

The Older Votaries of Anatomy and Their Nomenclature.—Many of the names given in days gone by to distinguish the various parts of the human frame have been changed in the latest editions of the classical works on anatomy. In many instances these alterations have been made in the cause of accuracy and correctness, but in some instances the reasons for this revision of nomenclature do not appear to be altogether sound.

In several successive issues of the *Medical Press and Circular*, beginning with March 23, Dr. Charles A. Beck discusses the subject in a series of scholarly and interesting articles. While fully appreciating the improvements in the modern practice in anatomy, as regards both text and illustrations, he aims some criticisms at the new terminology. After pointing out that the carpal and tarsal bones have alien names and that many muscles and ligaments share a similar fate, and allowing that such a change in nomenclature may have much in its favor, he deprecates the omission of the names of the old anatomists hitherto appended to the parts discovered and first adequately described by them. He is of the opinion that their discoveries are worthy of a patronymic accompaniment, and he further holds that the half-hearted way in which these names are put in brackets before giving them the *coup-de-grâce* into the Lethe of oblivion, intended presumably as an apology, is really rather in the nature of an insult. "Few will be the number of students who, in future, may bother their heads about the old pioneers of anatomy whose names were for centuries linked to their

respective discoveries. Thus we find ligamentum inguinale for Poupart's ligament, the Eustachian tube is now tuba auditiva, the Fallopiian tube, the tuba uterina, and so on." The writer is inclined to regard this omission of names of discoverers as a *jalousie de métier*, since dissectional anatomy has nothing new for the knife of the present-day dissector.

Some of the old-time anatomical terms were of Biblical origin, as, for example, pomum Adami, morsus diaboli, lyra Davidis, musculus religiosus, i.e. trapezius, which bears a fanciful resemblance to a monk's cowl. The older anatomists searched long and earnestly for the soul, but failed to find it, or even with any certainty, its seat. Cartenius once thought he had discovered the seat of the soul of man in the pineal gland, but later realized that it could not be confined there.

Another enthusiastic dissector earnestly endeavored to find the soul of woman (although the Koran teaches that they have none), not in the brain, but in the pelvis, but finally gave up the quest in disgust and signalled his failure by a Greek compound longer even than the word, beloved of sophomores, for hash. Beck's review of anatomical nomenclature is instructive and entertaining, and the plea made for the preservation of the names in anatomy hallowed by tradition—that is, when they do not offend against accuracy—is well intended and will doubtless commend itself to many medical men. Some of the changes in nomenclature are obviously for the better, but many of them, "made in Germany," are simply iconoclastic and based on inadequate reasons.

Women of the Public Health Service.—In proportion to its size, the personnel of the United States Public Health Service probably includes more highly trained and specialized women than any other branch of the Federal Government. Highest on the list stand two officers holding commissioned rank in the reserve—Surgeons Lydia Allen DeVilbiss and Josephine Baker. Next in rank come a number of scientific and professional women, all or most of whom are physicians, though some are classified by other titles. Among these are Acting Assistant Surgeons Blanche Sterling and Edith B. Lowry, Viola Russel, pediatrician, and Elizabeth B. Reid, all of the child hygiene section; Ida A. Bengtson, sanitary biologist; Alice C. Evans and Mrs. E. M. A. Enlows, bacteriologists, and Mrs. S. C. Brooks, assistant biologist, all of the Hygienic Laboratory; Gertrude Seymour, president of the American Women in Public Health, and Drs. Daisy Robinson and Edith Rabe, regional consultants, all of the venereal diseases divisions.

Several large groups of highly trained women have been organized in the Public Health Service. Among these are the reconstruction aides, most of whom have had college training or its equivalent and all of whom are of unusual ability and character. These are stationed at various hospitals of the Service throughout the country. Their task is to help maimed soldiers to regain control of injured muscles and nerves or of dormant or deranged mental faculties by appropriate

physical exercises (physiotherapy) or by curative and diversional occupations (occupational therapy). The aides, who are headed by Miss Marian Morris, number about 400, to whom others will be added as qualified applicants can be found.

Vieving with the reconstruction aides are the dietitians, whose section was organized about a year ago to take over from the pharmacists the victualing and food administration of the scores of military hospitals now handled by the Public Health Service. All members of the section, which is headed by Mrs. H. B. Corsette, are graduates of schools of household economics and are thoroughly trained and experienced in all matters relating to dieting. When fully recruited, the personnel will be about two hundred.

The nurses' corps, headed by Miss Lucy Minnerode, consists of nurses who have been highly trained in every-day hospital work and a large proportion of whom are specialists in particular lines, such as mental and nervous diseases and tuberculosis. The corps today numbers 1400 and needs 300 more. All applicants must, however, be graduates of recognized training schools and must be registered either in the State in which they live or in that in which they were graduated. Another body of nurses, 165 in number, who work in clinics and miscellaneous health activities under the supervision of Miss Ann Doyle, specializes in venereal disease treatment.

Death of Von Bunge.—This Swiss scientist, best known to the public through his lectures on physiological chemistry, is dead at the age of 77, and Abderhalden contributes an obituary to the columns of the *Schweizerische medizinische Wochenschrift*. He was an eccentric who was out of touch with modern clinical medicine, largely because of the materialistic viewpoint of medical practice. His writings have furnished ammunition for the foes of scientific medicine, despite the fact that he was a laboratory man pure and simple, and practised animal experiments. The necrologist does not allude to this mental attitude, but eulogizes the great teaching ability of the deceased, not alone in biological chemistry, in which his rank was of the highest, but in physiology as well, for he was equally eminent in this field. An exact scientist, he presented a marked idealism and strong bias toward metaphysics and the subjective viewpoint.

Many years ago von Bunge was a pronounced antialcohol propagandist, and here, as elsewhere, often went to ludicrous extremes. If we remember rightly, he denied that alcohol could exhilarate, and the phenomenon of hilarity in mass drinking he attributed to a sort of crowd suggestion. The latter is a component, of course, but von Bunge admitted no other. This attitude was seen in many other problems, which, although in the opinion of the vast majority of scientists still *sub judice*, were regarded by the deceased as definitely settled, doubtless because of his idealism and moral bias. His complete views, admitting no controversy, naturally made his books very readable and ministered to a frailty of human nature which prefers the air of finality to dubiousness. According to the eminent necrologist, the deceased was not a man for details or for resolutely following up a research no matter where it led.

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THE MORAL CENTER IN THE BRAIN

(CORTICAL REGION FOR CONTROL OF MORALS)
ITS LOCATION AND SIGNIFICANCE

BY WILLIAM BROWNING, M.D.,

BROOKLYN, N. Y.

It has long been thought by occasional observers that our higher moral activities are the function of a limited region or center in the brain. Apparently, however, little has been done to decide the matter or to determine the location of such presumed center.

The suggestion that there is such a thing as a moral center in the cerebral cortex brings up an echo of many disputes in which a majority of psychiatric and psychologic lights have shown conclusively (at least in their own estimation) that not only is it non-existent but that it is quite out of the realm of conceivable possibility. "The vulgar idea of moral insanity," as one of them expresses it. Others have had the saving grace to admit that strange cases are sometimes reported. There are still others, a few, who have either had the fortune to meet striking cases or the vision to see that something of the kind was probable.

Benjamin Rush, who recognized this condition very clearly ("Diseases of the Mind," 1812, Phila., p. 359-360), reported three cases of his own observation, and attributed them to organic defect, thus in principle approaching the idea of a center: "In all these cases of innate, preternatural moral depravity, there is probably an original defective organization in those parts of the body, which are occupied by the moral faculties of the mind."

The term, moral insanity, dates from James Cowles Pritchard, M.D. (1785-1848), in his work, "A Treatise on Insanity," London, 1835. His original definition is not now held applicable, as it included mental cases of other type.

Since then many terms and modifications have been introduced. We hear of moral perversity, defect, imbecility, degeneracy, delinquency, depravity, amentia, moral moron, constitutional immorality, anti-social defect, "a moral maniac with a rational intellect," psychological ataxia, "true Daltonism of ethical sentiment," et cetera.

The great majority of such cases are congenital or are lacking in localizing signs, or so complicated as to be worthless for the present purpose. It is not rare in the public press to read accounts of cases so graphically described as to leave little doubt that they are of this class.

Over forty years ago Bannister of Chicago (J. N.

& M. Dis., 1877, p. 661) put it as follows: "Like all the other senses or feelings, this moral sense must have its special mechanism in the brain for the reception of moral impressions. (For various reasons it appears that this apparatus is localized in some particular part of the brain.)"

Reimer (*Deut. med. Wochschrift.*, 1878) thought this defect must come from an organic brain trouble, and compared it to the loss of music and color senses.

Mercier (*Jrnl. Mt. Sci.*, 1894, p. 596) said: "Moral insanity . . . a defect of conduct and motive without any conspicuous intellectual defect." "I am convinced . . . there can be no doubt such cases do arise."

More recently R. H. Steen ("Moral Insanity," *J. Ment. Science*, 1913, July, p. 478) concludes that in these cases the "moral sense center" is congenitally absent, referring of course to the hereditary form. "They are not idiots, or imbeciles and should no more be called such than persons suffering from music-deafness or color-blindness." And on p. 484: "We may therefore postulate a center for music and a center for color. And in a similar manner I would postulate a moral sense center, . . . congenitally absent" in these hereditary defectives.

From this short review it is clear that for more than a century, with increasing definiteness and in such countries as United States, England and Germany, there has been a distinct recognition by occasional good authorities, of the existence of such a center. It is with the hope of definitely establishing this fact that the following histories are presented.

All these observers and thinkers can be given full credit. To the writer, however, the conclusion arose from observing in practice occasional cases of gross defect on the moral side that evidently were dependent on a certain type of cerebral injury. It has taken years of watching these and allied cases, with a trying out of the facts, to form a mental picture, however incomplete, of their psychic status.

It has long been known that cases of this kind do occur, where there is gross moral defect, with preservation of good intellectual or scholarly ability. The principle remains the same whether or not we quibble over relatively intact intellectual powers.

This center may be imperfect through faulty development, through accident at birth or from injury later in life. And like all centers it doubtless is enfeebled by lack of use, and vice versa. It is only cases that show external or other localizing evidence of injury that are for present purposes demonstrative. This greatly limits available material.

The cases to be given differ somewhat in both anatomical and clinical detail. But on both sides there is enough in common to give new and important light. It would be satisfactory to establish both the existence of such a center and the exact



FIG. 1.—Case I. Palpable depression in the right frontal bone, extending up to scalp line.

anatomical limits of all its subdivisions. But the main thing comes first: for this purpose it seems better to put proof on record and not wait longer for details.

CASE I.—J. T., a boy of nearly 14 years, Hebrew race, seen Oct., 1919, through the courtesy of Dr. R. O. Brockway. Father dead. Mother, a plain sensible woman, keeps a small store. A brother of 16 years and a sister of 20 have never shown any abnormality. Treatment is now sought for persistent pilfering, lying, and deceit. There was a history of seizures, first in March, 1917, with loss of consciousness; the next the following May; the third in Aug.; and the last in Nov., 1918. In these the mouth drew to the left, he stiffened out, made a gasping sound at onset, and vomited. All were at night.

Steals money from his mother, but denies it. The money that he steals is found at different places, and he keeps such hidden caches most of the time. Also takes candy and other things from the store. He claims never to have stolen from strangers, but his statements are known to be unreliable. Nothing controls him in these respects; and his conduct has become intolerable as well as most distressing to his mother. "Awful cranky," "Terrible temper," "Fresh," "Very excitable," "He's awful wild," but never runs away.

He is small for his age. Ht. 60 in. Wt. 86 lbs. P. 72. He has a bright, pleasant face, large mouth. Is in graduating class at P. S. Mentally he is clear, quick, and fully up to boys of his age. Yawns. Sleeps 10 hours, shouting nightly, and wakens tired. Fond of music. Head max. circumf. 56 cm. Cephalic index over 76. A cardiac murmur, and precordial pain on running. Pupils react to light. Is right handed. No paralysis anywhere.

His head was injured by the use of instruments at birth. This left a scar and a depression of the bone in the right temporo-frontal region. The depression is most noticeable 4 cm. above the orbital angle on the right. It is palpable to within 2 cm. of the middle line. Nothing of the kind on the left. In some lights a definite white thin scar is visible. The main palpable depression was marked with an actinic pencil, and is thus indicated in the picture.

Dr. Eastmond very kindly made a series of plates in direct transverse and varying intermediary positions. But owing apparently to the obliquity of the furrow he was unable to establish any x-ray evidence.

CASE II.—M. P., 18 years old, born in Brooklyn, of Italian parentage, seen in July, 1914, at Kings County Hospital. The notes of her case were partly supplied by a physician who had examined her elsewhere, partly by Dr. M. D. Jones, superintendent of the hospital, and partly from other sources. She was admitted to the observation ward, but was not found committable as insane and was transferred to the neurological service. Parents living and well. Has three sisters. At the

age of nearly four years she was hit on the forehead with a brick; this required an operation at St. Catharine's Hospital, with removal of three pieces of bone. General health always good. Matured at 14; is regular. Left school at 14, in 6B grade, to work. Never any particular trouble at school with teachers or other pupils. Poor in spelling and arithmetic. Is left handed. Made trouble at home. Insisted on going with a bad girl. Vicious, immoral, wayward. Stayed out on the street late at night. Took a strange man to her room, or lived with him.

In March, 1913, she was sent to a correctional institution. There reported as profane, tried to tear off the Sisters' veils and did tear clothing from other inmates; very abusive, calling them the vilest names, refractory; "vicious, used violent and obscene language, had outbursts of temper, screaming spells, seemed a leader in starting trouble, at times was silent and then quite talkative, would not attend school and when at school would not apply herself; eats and sleeps well." Sullen. No smiles. "She stated that she frequently had headaches, especially in the morning, but otherwise felt well." "She is of an aggressive and forceful personality rather than of the apathetic and colorless. She is a danger to society morally, because of her history, her shallowness of reasoning and her moods. Like many cases she does not show equal defectiveness in all phases of mentality, since she has been able to grasp a certain amount of knowledge, and has been able to retain a portion of it, as shown by educational tests." "A very important factor in this girl's case is her explosiveness, somewhat akin to epilepsy, although of course there are no seizures." So incorrigible, noisy and bad-tempered with outbreaks that it was impossible to retain her with others. "She is in no way insane." "An operation would doubtless show that there is scar tissue underneath which is acting as a source of irritation."

A girl of good physique. Dark complexion. Heart, lungs, reflexes, extremities, musculature, and urine normal. Pupils equal and react to light and accommodation. No weakness of ocular muscles. Circumference of head 52.6 cm. Cephalic index 78.6. Apparently a moderate degree of intelligence. Very reticent when questioned. General obstinacy of manner. Understands what constitutes proper conduct, but cannot explain her actions, except to claim that she cannot control herself. Yet in the hospital she deported herself quietly and properly. A fair memory. No hallucinations.

There is a deep triangular scar on the left forehead near the scalp line, extending obliquely upwards. The scar was attached to a marked furrow in the bone. "A depression a little to the left of the median line of the frontal bone, the upper portion of which goes up into the roots of the hair." The depression extended diagonally about 1½ inches, and was an inch in width. The photo of this scar was made by Mr. Schwöpe at the hospital, July 29, 1914.

CASE III.—A young nian of 20 years when first referred by Dr. J. P. Warbasse in 1908. One grandmother died at 95. The parents and a brother two

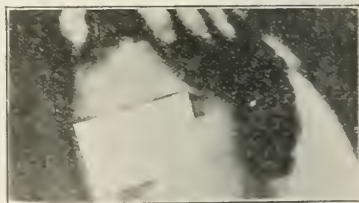


FIG. 2.—Case II. Scar covering depression just in the scalp line of forehead on the left.

years older (been no other child) are sterling people. As the writer was acquainted with the family long before, he can qualify as a character witness. He was born with instruments and the maximum traction of a powerful accoucheur. The doctor now only recalls that it was a long, difficult confinement, and that the

infant was temporarily put aside to attend the mother. No scar left from birth. Bottle-fed. First two teeth at ten months. He was not specially backward in learning to talk. But "his whole right side" has always been weaker than his left (hemiplegic). When he first began to notice things, a few months old, he turned his head to the right and swung his eyes back to the left in looking at anything. At the time this was considered "cute." He is extremely left-handed, the only one so in the family. Nocturnal enuresis until about 14 years old. His teeth were very irregular, but have been straightened. When 8 years old he fell against a gate, injuring his right forehead. From this a circoid aneurysm developed. This was cured by a series of operations, and evidently had nothing to do with his condition otherwise. Adenoids removed soon after (1908). And an appendectomy in 1912. Always backward in his studies; one subject about as another; both slow to acquire and quick to forget. He finished grammar school, but did not really graduate because of deficiencies.

Relief was sought for his many delinquencies. When only five years old he stole money at home, and used it to buy things for other children. Later he stole from the seamstress' purse. He "lied up and down" at eight years, and was actively taking things at nine. Came home drunk at 15, though he never became an habitué. Stayed out to all hours of the night, or all night. Five times he pledged a prized watch, and gambled the money. "It seems sometimes as if I would do anything to get money"—and yet he promptly squanders it. He gained a running championship at school, and later pawned the token. Urethritis a year and a half ago. The worst was taking money from a R. E. agent; then he played pool with it. To raise money to clear this he stole a valued ring from his mother. An almost endless number and variety of bad acts were related. "About all these things he has done he has never told the truth," says the father. "I'd have to have the evidence dead against him." He is very penitent after these things happen. "Yet he adds: 'He has the sweetest and most lovable disposition.' 'He doesn't have a realizing sense.' In fact, he has no sense of fear. And as he says, 'Nothing seems to worry me in the least.'"

He had convulsions three times when about two years old; general in character; several weeks apart; without stomach upset; and all starting with a groan in sleep. None since. But he has had dizzy times, formerly so severe he had to grasp some support and seemed dazed. These have gradually lessened to simple dizziness, and are now infrequent. He early became a cigarette and inhaler. Never had summer complaint, and rarely any headache.

Except for scars he is a good looking fellow. Wt 125 lbs. Appetite good. Pulse 72-82. Cardiac sounds clear. Systolic pressure 105. Maximum circumference of head 55 cm. Cephalic index 77. No cranial bruit. External strabismus and slight ptosis on the right, the wall-eye dating from the time when as an infant he first took notice of things. Latent anisocoria (r. pupil the wider in dim light). Each reacts directly and consensually. Some late hippus. Dr. William Simmons reported congenital amblyopia of the right eye, without changes in the fundus (presumably the customary ignoring of picture to avoid diplopia). "I can sleep any place that I place my head," preferably ten hours a night. Not a sleep walker nor dreamer, though occasionally talking in sleep and formerly shouting. Right hand more livid than left. Considerable fine tremor. Left forearm 1.5 cm. larger in circumference than the right. Right elbow somewhat hypo; left not.

A little later he ran away, and was found working on a truck farm in Virginia. In 1913 he made a runaway marriage in another city. Now (1920) has two bright, normal children.

With all this he was never violently vicious, never sought to harm anyone, and was not resentful—partly due perhaps to gentle rearing, or to the fact that intellectually he was more and more able to recognize his shortcomings. He was in the army from Dec., 1917, to March, 1919, and had a good record. The physical training there was well suited to him.

Reexamined in Jan., 1920. General health and appearance excellent. Still has dizziness on the street or

on closing eyes if reclining. Hair turning a little gray. Hearing is good on each side. Weakness but not paralysis of r. eye-muscles. Simple weakness of vision in r. eye, but no limitation of field. "I often bump into things." Lid reflex good. No jaw jerk. "The only thing I eat is meat and potatoes. . . . I never eat fish," nor does he care for cheese, tea or coffee. "Very fond of candy and practically all sweet stuff." "About the best thing I can do is to eat." No interest in flowers. Nasal respiration free. No trouble in swallowing. The fact thus evident that he did not care for things with flavor or odor suggested olfactory loss. And on testing olfaction this was found to be the fact. Smell is poor; at times absent; again (tested with cloves, thymol, toluol in an olfactometer) shows some on the left, but none or always less in the right nostril. It is thus evident that his food peculiarities are dictated by his inability to detect flavors; and there is a high degree of anosmia, especially on the right.

General senses everywhere perfect. Muscle sense intact in right arm. Touch (contact and localization) as perfect over right hand, arm, and face as over left. Because of motor defect he cannot use the right fingers to button or to pick up small objects. But there is no astereognosis. "I used to write a pretty decent hand with my left, then when I went to school I was taught to write with my right." "I just use from my wrist down" in writing. But he is unable to do any free writing with that arm. "When I am writing on the blackboard I have to write with the left hand" as the right arm does not go up well. Grip r. 78; l. 118. He is not conscious any weakness in the right lower extremity, and shows no limp. Achilles jerks present. No clonus. Right knee jerk the stronger. Some crossed jerk each way, or again only to the right. Both right and left abdominal and epigastric jerks absent (at times the case in frontal lesion).

He rarely starts any conversation. But likes to be on the move, and becomes agitated from slight cause. Yawns oft. "I want to do right, but yet I can't do it." "I do a lot of things, and don't seem to care about the consequences until after I do them." "I haven't the brains to run a farm." "I certainly haven't the brains or responsibility a man of 30 should have, I realize that." "I like to go to the movies."

The parents say that since leaving the army his record "has been perfectly straight." But he says he has thrown up three or four positions since without any reason or any place in prospect. He did, however, keep one for six months as polisher of crank-shafts in a western auto-shop, and even sent a little money to his wife. Recently his father sends word that "He is doing all right."

The evidence is clear that he has a lesion in his left or latent frontal lobe. Forceps injuries are frequently here. Then the only sensory loss due to the lesion is anosmia, indicating an anterior lesion. In view of this fact, the former right hemiplegia, and the early conjugate deviation the site of the lesion can with certainty be placed forward of the central convolutions. And as the only lasting motor effect relates to the arm the focus must be in the frontal lobe just forward of that arm center.

In this case a considerable brain lesion still exists. Yet the man's moral status has swung around to a negative state; at least he is no longer actively anti-social. How do these facts harmonize? In the first place the anatomical focus has become relatively less, both from absorption and from bodily development. Then the discipline of years and circumstances may have accomplished something, independent of anatomical change. However, from what we know of cerebral affairs, it is not likely that these agencies fully account for his progress (*v. infra, sub Treatment*).

Case IV. This was a girl from a distance, 13 years old when first seen in 1902. There had been no other child. An instrumental, difficult birth, 16 hours after rupture of the membranes. The attending obstetrician, now gone, was an old friend of the writer's, who well recalls his description of the severe injury at the side of this

infant's forehead, the doctor's anxiety at the time, and his subsequent marvelling at the amount of head-injury that could occur at birth and yet subside and leave no apparent damage beyond a scar. It was the fortuitous knowledge of birth-injury in this case that originally directed the writer's attention to this subject. There was

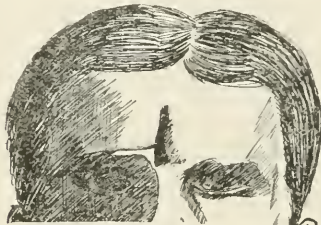


FIG. 3.—Case V. Scar up from root of nose on the right, with line indicating its extension outwards.

no tuberculosis lues, or familial disorder in the antecedents, unless "rheumatic" touches in some members. Parents and grandparents healthy. Mother plump and ruddy. Father, a good business man, was said to have taken some stimulants, though not showing it.

The child had attacks of bronchitis every winter for the first ten years or so. Said to have been a slight pale frail baby. Grew rapidly between eight and nine years of age, had some twitchings at one time, that brought a fear of chorea but subsided duly. General health more recently excellent. Bright happy child, is fond of study, has done well at school without ever any urging, had a high mark, and in fact is next to the youngest in her class at High School. Memory excellent (by repute and test).

The first erratic conduct noticed was when she invited girls to a party without notice or preparation. But it was trouble at school that brought a definite realization. The details could not be fully learned. But she stole various things, threw teacher's keys out of the window, and when confronted, both lied and tried to blame it on others. These acts were sufficient in kind and persistency to compel withdrawing her from school to avoid the disgrace of dismissal. The parents, it might be remarked, had means enough and were anxious to supply all her needs. She had recently stolen jewelry from a neighbor. Also had injured articles and mused up things she was told to do, and tried to lie it off on her grandmother.

It was for the moral break-down, serious in kind and degree for a girl of her age and circumstances, with the school-suspension, that she was brought for advice. Fortunately the parents, though sadly distraught, were minded to heed and apply advice with unusual care.

She was a plump girl. Wt. 112 lbs. Pulse 92 standing. A little anemic. Tired more easily than formerly. Slept long. Had some frontal ache. Slight stigmata (torus palatinus, attached ear lobules). Is left-handed. The birth-injury now only shows as a small scar above and a little behind the outer canthus of the left eye, this is just at and behind that temporo-frontal angle.

At first she seemed to be suffering from petit mal (occasional sudden faints, once to the extent possibly of falling), but the later course makes this uncertain. Many little nervous manifestations noted from time to time, pain here or there, nausea, dryness of skin, transient dazed feelings, occasional twitches, and hysterical touches. Matured later the same year. And the next she went through an attack of paratyphoid fever.

Under most careful guarding, out-door activities, an anti-chlorotic regimen, private tutoring, and a plan of appeal with objectives to tract, she dropped the bad ways, acquiring a superior physical condition, then entered college. She finished the full course, and was one of the class leaders in both scholarship and popularity. Her subsequent career has been highly creditable in all respects, mentality, judgment, family attachment, kindness, tact, all admirable.

Case V. From data kindly supplied by Dr. Frank L. Christian, Superintendent of the Elmira State Reformatory, where this man had been an inmate. He was 29

years of age at the time of his admission in 1905. Heredity excellent; parents well educated (father a professional man) and prominent in their community.

This man graduated high in his class at one of our best technical schools. He then entered the army, and had a fine record as an officer, his associates speaking well of his mental and moral attributes up to the time of his injury. Moderate user of alcoholics.

While on service in the Philippines he suffered a severe wound (by a bolo) in the frontal region to the right of the median line. This was just supraorbital, extending indefinitely outwards for some distance. Surgically he made a good recovery. The main scar is shown in the cut (taken from a photo in the institution's records). The scar reaches (in the photo) up from the root of the nose, a trifle to the right of the mid-line, about 2 cm. There are also smaller scar-markings continuing outwards over the right lower forehead. The thrust penetrated the right lower frontal convolutions to an unknown depth.

From the time of the injury his character became changed. Some time later he was arrested for forgery. He was then placed in a sanitarium. A year or two after this act he was again arrested for forgery, and sent to the Reformatory. After his parole he drifted from his family connections, and was arrested for impersonating an officer. All trace of him has been lost for some years.

Case VI.—For this I am also indebted to Dr. Christian, who has most courteously gone over their records of recent years for available cases. B. X., age 20 years. Received August, 1917, for the crime of Attempted Grand Larceny, maximum sentence 5 years. Previous criminal history as shown by our records was:

1914, disorderly conduct, \$2 fine. 1915, the same, 2 months in workhouse. 1916, the same, 6 months N. Y. C. Reformatory. 1916, carrying concealed weapons, suspended sentence. Bench warrant for violation of parole. Paroled October, 1918, arrested on charge of robbery, discharged for lack of evidence. Unemployed for several weeks. Later he was shot and killed in a saloon brawl, dying without regaining consciousness.

When five years of age he had received a compound fracture of the skull as the result of being run down by a heavy truck. Soon after this injury epilepsy developed, but the frequency and severity of the seizures gradually lessened as he reached maturity. This man had a large irregular scar extending from the right supraorbital ridge and from the nasal process upward, and obliquely across that os frontis, converging near the border of the scalp and diverging over the coronal suture. He left public school when 14 years of age,



FIG. 4.—Case VI.

having attained only the 6th grade. While at the Reformatory he was quiet and made good progress.

Case VII.—Youth of 14 years, *Irish extraction, examined by Dr. Elliott and the writer, in Sept., 1920, at the reformatory. Mother is in good health. Father, a cooper, died of blood-poisoning nine years ago from an injury of the arm. One older sister is normal. There has been no other child. When 6 years old the boy suffered an accident for which he was treated at a hospital. He claims that no trephining or other operation was done

*For knowledge of this case, as well as important items and an opportunity to examine the youth, the writer is greatly indebted to Hobart H. Todd, late Superintendent of the New York City Parental Home in Queens County, and now head of the New York State Institution at Industry, N. Y.

except sewing up of a head wound; and the hospital "books show that he had a lacerated scalp, but we have no record of his being operated upon." He reached the 4B grade at school when 10 years old. This lad was committed to the reformatory by a City Court, April 20, 1918, for petit larceny. "When he came to us he stated that he had had two previous arrests, and had been discharged." "Since coming here he has escaped twice and has been sent to the Disciplinary Cottage at three different times. He is now (March, 1921) at the Disciplinary Cottage and has been making a good record there for some time past."

At the time seen he was in the Disciplinary Class as a result of his misconduct in the institution. "I was in another cottage and ran away," is his explanation of restrictions. In point of fact he was put there because he had planned, organized, and started a combined attempt at school delivery. The scheme was to overpower the night guard, seize weapons, subdue all opposition, and make a forced exit for those in conspiracy. By the time the first watch had been attacked, some of the plotters got tender feet, and soon the outbreak was quashed. The whole scheme was well thought out, and very nearly a success. It was by far the most serious attempt of the kind ever made at the reformatory, and showed superior ability of its kind.

The patient is blond, well oriented, a little pale. He stands erect. Is definitely right-handed. No tremor. Has never had "fits." No palsy. Looks a trifle undersized, but is about up to the average of his associates. Nose a little prominent; and forehead goes up vertically from root of nose. "A lot of headache," bitemporal. Ears well shaped. Maximum circumference of head 56.0 cm. Cervical glands not large. Thyroid seems normal in size. Teeth fairly good, clean. A slight cast in the right eye. There are two scars on the right forehead. One of these (a heavy cross-scar) resembling a large multiplication mark, is out near the temporal angle and fully half way up to the scalp. The other, quite distinct from the first, is a long scar, somewhat higher up, slanting downward to the left, and extending a little across the midfrontal line about half way up the forehead. On palpating we find in addition a marked circular depression or defect in the bony cranium, a half inch in diameter, at about the coronal suture and just to the right of the middle line. This feels like an old trephine opening, but there is no perceptible scar, and both he and the hospital authorities as noted above deny any knowledge of it. In any event both the history and all the findings are of a right frontal injury or injuries. Personally this youth makes an excellent impression, alert, sober, self-contained, shrewd in his replies, with nothing amiss in manner or appearance beyond the scars. He readily gains the interest of visitors.

Case VIII.—For this the writer is specially obligated to Wm. F. B. Burke, M.D., of the Groszman School at Plainfield, N. J. It refers to an only child, now a young man of 22 years, the prospective heir of a large fortune. The father is a man of the best type, of exceptional integrity and rigidly upright. The mother may be a neurotic, though the only criticism is that in her natural efforts to shield the junior from paternal ire she sometimes indulges in fibs. Some remoter relatives are said to be sexual neurotics.

The son has a large scar on the right in the middle frontotemporal region, extending anteroposteriorly at about the level of the midfrontal convolution. This was the result of a severe instrumental birth. He is right-handed. Graduated from High School, though hardly on his merits. Is already bald. Is large and fleshy, weighing about 200 lbs. "A wonderfully glib talker." "He can sell anything." But when he had a job, "he put all the money in his pocket." "His sense of moral responsibility doesn't exist." "He thought nothing of buying \$20 worth of candy a night for the nurses of a training school his father was interested in." He ran up \$14,000 of bills in one year, besides more that was side-tracked. "The most picturesque liar"; and at the same time he would claim "everybody else was a liar."

His unbridled sexuality made lots of trouble. In one case of mere attempt, some thousands were absorbed in settling it. Maids could not be kept in the house. Once when he was at a social dinner with his

parents, there was a sudden yelling among the servants; he had slipped down right in his evening togs and tackled the first girl in sight. For the protection of self and others he was declared incompetent, and finally castrated; this quieted his sexual excesses, but did not aid further. He has fine manners. "He is a perfect gentleman," excellent company. "The girls flock around that boy." "He has repeatedly impersonated physicians."

Case IX.—This case was contributed by an accomplished colleague familiar with all the details. It refers to a man of 27 years, a first and only child. The father was a very successful business man. Both parents of steady old German stock, musical, but not specially scholarly. The grandparents ditto.

It was a forceps birth; head impacted in pelvis, and instruments applied very obliquely. The left lower side of the face was cut by one blade. The head was badly compressed. The other blade caught the cranium on the other side, "very wide deep scar even now," this begins at the middle of the right frontotemporal angle, and extends back into the parietal region.

He was very slow at studies, not because he was stupid, but because he did not know how to apply himself. "He was impish in play and in teasing." Cruel "as a child." Left school at 14, still in a lower grammar grade. He would take or appropriate any valuables of his father or the family; spend money; run in debt, make his father pay his bills when he was very young, bought extravagant things, useless and foolish. Profligate. Untrustworthy.

"Sexually precocious both in development and desire." All sorts of sexualities, even before puberty. "Got entangled and had to marry at 17, a widow" with a past and three unknown children.

He was not so directly a liar as an "exaggerator" and "embroiderer" of the truth. Recklessly fearless, as a boy of 14 he wagered that he could drive up Broadway at 60 miles an hour and not be arrested—which he accomplished by bribing a fireman, thus winning his bet. At about that age he smashed his father's auto while joy-riding. In fact "all sorts of escapades." Only environment and careful guarding kept him from being a criminal.

"When small he'd go into frenzies if he could not have what he wanted." Is right-handed. Rather slightly built. Usual weight about 135 lbs. Has never shown any motor or sensory involvement. Is not an alcoholic. Never any convulsions. Very gentlemanly, very polished manners. "So long as he can be supervised, he can run a business well."

Case X.—Contributed by Dr. John L. Macomber of Brooklyn, late Superintendent of the Kings Park Asylum. It figured at the time as a legal case, and in that way the particulars were well canvassed and are doubtless still of record. James McB., age 33, white, of Irish extraction, married, father of 4 or 5 children, a truck driver by occupation. Previous to the accident he had enjoyed good health, worked steadily, was sober, honest, and a good provider for his family.

On Feb. 1, 1908, his truck struck a hole in the pavement and he was thrown on his head, striking on the stone pavement. He suffered only momentary unconsciousness, picked himself up, drove to the stable, and put up his horses. He vomited at the stable and again on reaching home. He complained thereafter of headache and disturbance of vision. On examination he was found to have sustained a depressed fracture of the right frontal bone. The fracture evidently involved both plates, and the orbital plate as well, as the eye was dislocated. A careful examination failed to find any injury to the optic nerve or globe, but he suffered from diplopia and headache. Protrusion and displacement of the bulb downward accounted for the diplopia. There was a large incision transversely by five eighths inch in depth and about an inch in vertical measurement. This did not reach the mid-vertical line at any point.

The most marked symptoms, however, were from the change in his moral sphere. After the accident he gave himself up to drink, which he could not tolerate, worked irregularly or not at all, neglected his family, was arrested several times for fighting, thievery, and intoxication and was a pathological liar, as was de-

veloped at the trial, lying even to his lawyers all the time. He became a common bum, deserted his family, and was finally lost track of some five years ago. He was right handed.

(To be continued.)

VACCINATION AGAINST TUBERCULOSIS.*

BY KARL VON RUCK, M.D.,

AND

ROSSELL E. FLACK, M.D.,

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SINCE the discovery by Jenner of preventive vaccination against smallpox, we have been justified in the hope that suitable vaccines would be found which would in a like or similar manner succeed in protecting against other infectious diseases. The reason that no progress was made for almost a century was that the underlying biological principles were not understood, that bacteriology had to make its advent or had not as yet accomplished the isolation of the specific virus responsible for the disease against which we wished to vaccinate.

That the spontaneous recoveries, or the difference in the course of tuberculous disease had some relation to autoimmunization, apart from the virulence of the specific bacillus, was more earnestly considered after historical studies of tuberculosis had shown the difference in its evolution and progress in different races, which were shown to be comparatively slow and often symptomless for long periods of time in races that had been permeated and had suffered from it for centuries; whereas in remote and aboriginal races, which had previously been free from tuberculous infection, the disease ran an acute and rapid course resembling typhoid fever and proved almost always fatal after its first introduction among them. Similar changes were pointed out in other infectious diseases, notably syphilis, without our being able to account for the more benign course, as it is now observed.

In races in which tuberculosis had been present as long as we have records of it an acquired resistance had to be postulated to account for the differences, and in order to increase this apparently acquired resistance artificially, vaccination with the specific virus naturally suggested itself.

Our own studies in tuberculosis have convinced us that the defensive substances can pass from the mother to her offspring *in utero*, and that an active immunization can occur by the passage to the fetus of toxins circulating in the mother's blood.¹ It is, therefore, not an entirely Utopian idea of Reibmayer, who holds that with the prevalence tuberculosis has reached and with the favorable modification of its course in the past, the time should come when it will disappear as a serious disease in the form we know it now, and that the human race will eventually resist infection completely.

In the meanwhile we hope that this remote period can be anticipated by acting now and by accomplishing the object with the administration of a suitable vaccine, as we now have it. All students in immunology will agree with the view

that it is because of the production and increase of defensive substances in the course of infectious diseases that they become self-limited and the patient recovers.

The defensive substance, which stands in relation to a favorable course in tuberculous infection, or checks and retards the disease, and which may in time cause a spontaneous recovery, begins to develop immediately after the first infection, at the point of localization, and unless the bacilli are promptly destroyed, or encapsulated, their increase and extension cause their toxins, as well as the defensive substances, to increase and to appear in the circulation, without which sensitization, as we can demonstrate it by a local skin test, could not occur.

The resistance of the human organism to the tubercle bacillus is, however, not great enough always to destroy the bacilli without previously being immunized, and varies naturally in degree in different individuals. It is further influenced by the virulence of the bacilli that find access to its tissue. Therefore, we must expect periods of extension and recession of the local process, which correspond with the advent of toxemias and of increase of resistance, in the latter case, when the health is not disturbed. Thus, the balance between two contending forces—tubercle bacillus *vs.* resistance—may be lost time and time again without the occurrence of marked symptoms that attract attention.

In our experience this specific resistance or immunity against tuberculosis can be increased even with a small diagnostic dose of any of the fractions which may be obtained from the bodies of the related bacilli. To increase it against the whole bacilli, all fractions thereof must, of course, be present in the dose. In order that a maximal degree may be assured we must give the dose large enough or slowly increase it.

The efforts of immunization against the pathogenic action of the tubercle bacillus date back to the period of its discovery, and become more numerous and persistent with Koch's subsequent discovery of tuberculin in 1890. Animal experimentation with it and therapeutic observations from its use did not yield the expected results, and they were at best unsatisfactory or contradictory. It is now easily understood why it could not have been otherwise, since we have learned to distinguish between the different forms of immunity, especially the antitoxic and antibacterial, or bactericidal forms. We have also learned that to produce an antibacterial immunity we need the body substances of the bacilli (endotoxins), rather than the poisons (exotoxins), which they produce during their growth and multiplication in artificial media. We have further learned that the tubercle bacillus does not endanger life by its secretory or excretory products, which are the specific substances found in tuberculin. These facts were recognized at about the same time by Koch and von Ruck, the former publishing his observations with a modified emulsion of tubercle bacilli in April, 1897, while von Ruck reported on his work with a watery extract made from the bodies of tubercle bacilli a few weeks later. With the latter he obtained his first unquestionable

*Read by Dr. Flack at the Tri-State Medical Association, Spartanburg, S. C., February 17, 1921.

results in the immunization of animals. With either of these products it was possible to produce and to increase the appearance of specific antibodies in the blood of experiment animals, and also in human subjects treated with them.

In 1903, von Ruck applied his watery extract of tubercle bacilli—as the first—for prophylactic purposes in a child one year of age, and thereafter continued his efforts in practical experimental and biochemical investigations, seeking to produce a more efficient vaccine from the bacillary body substances and avoiding the use of bacilli emulsions. The results of these studies and observations in the treatment of tuberculous patients appeared in various reports and publications during the years following, and those obtained from his later vaccine against tuberculosis were made public in 1912.³ Greater details are given in his book published in 1916.⁴

Efforts in prophylactic immunization of children were made later by Petrusky and others in Europe. In this country, Webb and Williams immunized monkeys with living tubercle bacilli and applied their method also in a few children.

We have frequently been asked in what respect our vaccine differs from the various tuberculins and from the tubercle bacillus emulsions which are available in the market, and, while this question has been fully dealt with by one of us in our publications,⁵ we may say here that it contains only the albumoses, albumins, nucleo-albumins, fatty substances, and lipoids of tubercle bacilli, in proper proportion, obtained without subjecting them to physical or chemical injury, and represents all organic body substances of the tubercle bacillus in solution.

On the other hand, tuberculins as first made by Koch, and thereafter by others, are derived from the liquid media upon which tubercle bacilli have been grown and have thereafter been filtered out; they contain, therefore, little or no bacterial body substance, while emulsions simply represent the tubercle bacilli after having been separated by shaking or grinding of the bacillary mass, the emulsion being sterilized by heat.*

The subject of vaccination and of biological diagnosis in the efforts to reduce the morbidity and mortality from tuberculosis and consumption appears of such paramount importance that it cannot be ignored, simply because someone has said he did not believe in it, even if this someone were a most eminent physician. Prejudices have hindered progress in every human endeavor, whereas conservative criticism has always been beneficial. No one is, however, entitled to either, unless he has himself fully investigated the subject under consideration and has examined fully and exhaustively the claims which other reliable investigators have made; and has himself the necessary training and ability to do so.

Knowledge and experience are acquired gradually and new methods and advances for the betterment of conditions, whatever they be, are likewise developed gradually. If these are concerned with the prevention and treatment of dis-

ease, the first condition in their practical application must ever be that of safety; that is, there must be sufficient evidence that no harm will follow, which becomes more and more assured with the number of applications and the time that has elapsed. It is estimated in regard to the *benefits* that are claimed when numbers and time also become factors in the final judgment. In the application of a new method or remedy with which we have no previous personal experience, it is essential that we do not deviate from the one recommended by its author until we believe ourselves competent to improve it.

Coming now to the practical side of our subject, we remind you that in the light of our present knowledge tuberculosis infections occur in childhood, and as a rule not in adult life. In an analysis of reactions of 1,315 individuals¹ no reaction of any kind was noted in 25, or 1.7 per cent.; local reactions only occurred in 366, or 28.3 per cent., and general febrile, or focal reactions, were observed in 924, or 70 per cent. We may, therefore, conclude that no infection had occurred in 1.7 per cent., that there were no tuberculous lesions accessible to the circulation in 28.3 per cent., and that 70 per cent. were actually tuberculous and liable to further progressive disease.

Including previously vaccinated cases with the above, and adding vaccinations made since, we have a total material of over 3,000 children vaccinated since 1903, and apart from the biological tests of the blood and the general and local improvement which followed promptly, we have become aware of not a single case in which there was reason to assume that their tuberculosis recurred or became active. We have been particularly interested and observant for possible relapses or the occurrence of active clinical disease. Many of the children have become adults and have married, and, while we have no statistics to offer, we believe that so far there has been no reason to doubt that our efforts in their behalf have produced the desired result. Many of them have been repeatedly examined by us personally. We are, nevertheless, fully aware that the time intervening since their vaccination is entirely too short to form final conclusions, and to assume that the results are actually permanent. We have, however, the satisfaction of knowing that in those whose general condition was more or less impaired, prompt improvement to normal conditions followed, and that all the tuberculous lesions and stigmata which we observed disappeared and, as far as we can ascertain, they have not returned. In addition, we are ahead in time for the forming of final conclusion, and we, as well as other physicians, are going on in the work without reason to doubt the eventual outcome.*

In the studies referred to it appears that unless we resort to vaccination in the first years of life we must, as a rule, reckon with an infection already accomplished, and that children in a tuberculous environment should, therefore, be sub-

*Much of the work in prophylactic and therapeutic employment of the vaccine has come under the personal observation of Dr. Flack, before and since his association with Dr. von Ruck. He likewise participated in the biological studies and experimental work upon animals in 1913.

³Some of the emulsions, as for instance Koch's, have also been designated "tuberculin." Thus Koch called the one introduced in 1891 "tuberculin R," and a subsequent one "new tuberculin."

jected to it immediately or soon after birth. Further, that in 28.3 per cent. of our cases the infection has been overcome, or the lesions have become obsolete, and in these the acquired immunity must have been sufficient.

It follows that our vaccinations were made in 70 per cent. of already tuberculous children, and that in those we cannot speak of it as a strictly prophylactic measure against the acquirement of tuberculosis, but must consider it rather as a prophylactic one against consumption by removing the lesions in the truly early stage of tuberculosis, which at present is rarely recognized.

Unless children came under medical observation for other reasons, no diagnosis would have been made, except in very few, whose symptoms would have pointed the way and in which the ordinary physical methods would have established it. The latter methods would have failed in most instances or would at best have led to a doubtful attitude on the part of the average medical attendant, even if he had not had an opportunity to examine. For confirmation a tuberculin test would have been necessary, and this is rarely made in general practice.

To establish positively a diagnosis in the truly early stage of tuberculosis we must resort to biological reactions, rather than to the search for physical signs, which may be slight or absent; and unless destructive processes are also present, their advent is still too frequently awaited, when tubercle bacilli in the secretions decide the presence or absence of tuberculous disease.

With the approach of that stage which means pulmonary consumption or ulcerative processes elsewhere, more decided symptoms appear, and it is only then that medical aid is sought. It follows, therefore, that infected children must be sought out, and the examination must include a biological test. The latter is much easier than it is supposed to be by physicians unfamiliar with it, and it has the additional advantage that a positive result occurs regardless of the localization of the lesions, which in young children are less frequently in the lungs and most frequently in glandular structures, especially the bronchial and mesenteric groups; and, unless greatly enlarged, they cause no symptoms which would direct attention to them.

Selection of Cases.—There is really no selection of cases. Every child should be vaccinated, although we would naturally defer the administration of the vaccine in instances when other diseases are present, and especially when the symptoms thereof would interfere with the observations of reactions, as, for instance, fever or acute catarrhal affections of the air passages. Vaccination may be resorted to at any time and the earlier it is done the better is the prospect that no infection with tubercle bacilli has occurred. There is really no reason to delay even an hour after birth.

Before administration of the vaccine a record should be made of the present condition. This should include age, sex, weight, temperature observed for at least 24 hours, respiration and pulse, palpable lymph glands of the cervical, axillary, and inguinal groups, the state of the skin, and

general appearance, as well as abnormal changes found by auscultation and percussion. A short history of previous diseases, and of tuberculosis in the family or of known exposure should be part of the record.

Inasmuch as the vaccine is not obtainable through trade channels and must be ordered directly from our laboratory, and since the directions for the use of the vaccine are as follows: the maximal dose of the undiluted vaccine given below may safely be given at one administration in the first month of life, or later if the absence of tuberculous infection is assured; otherwise, when tuberculosis is liable to be present, by gradually increasing doses.

In the adjustment of the individual maximum doses, intervening age periods and body weight should be taken into consideration.

In the light of our experience the great majority of all children have acquired an infection and the frequency increases with age. Children who belong to tuberculous families or who have been knowingly exposed appear to be all infected, excepting infants under one year of age, in whom the positive findings are less frequent.

Inasmuch as such infections need not manifest themselves by physical signs or symptoms, and the child may as yet appear in perfect health, it is evident that we can never be sure that no tuberculosis has been acquired, and the diagnosis in such instances can only be made by the resulting biological reactions which follow the administration of a suitable tubercle bacillus vaccine. It has, therefore, become our practice rarely to attempt protective vaccination with a single maximum dose, and, although we have seen no harm resulting from very severe reactions which we have met unexpectedly, we find that such reactions are alarming to the parents and friends; and in private practice it is undoubtedly the wisest plan to avoid them as far as this is possible. This may be done by giving, first, a minute trial dose, which, if dilutions of the vaccine are not at hand, may be done most easily by taking up into the syringe 0.1 c.c. of the vaccine and then adding 0.9 c.c. of sterile (boiled) water. This makes a dilution of one part of vaccine to nine parts of water, and if we inject 0.1 c.c. of this the dose given is 1/100 c.c. of the vaccine. The balance left in the syringe may be used upon other children if such are ready to be vaccinated at the same time, otherwise the fluid is thrown away.

We as a rule inject for the first dose 0.4 c.c. of this dilution, and if no reaction follows we resort to 0.1 c.c. of the undiluted preparation. So long as no general or local reaction (at the site of the injection) follows, we double the subsequent dose until we obtain a general (febrile) reaction, which we accept to have occurred when the temperature has risen at least 1° F. or a focal reaction is evidenced by the increase of the physical signs of the tuberculous lesion. As a rule the temperature rise should govern, and the dose which is followed by a distinct rise of temperature must not be increased, but must be repeated after five days from the time when the temperature is again normal, which is usually the case in 24 to 36 hours. Temperature rises that start later than 24 to 36

hours have another origin and cannot be attributed to the dose of vaccine administered. The same is true if no local reaction has occurred at the site of injection, but inasmuch as the local effect may be very slight or transient, it is well that the physician take proper precautions for its recognition by the person in charge, and that the child be examined by himself on the following day.

It will be found that several or more numerous doses will be required by this slower and more conservative administration, and the more extensive or the older the tubercles are which are present, the longer will it take to free the organism of their presence. It naturally follows that if extensive enough to cause recognizable changes the treatment will require longer time.

The maximum dose having been reached and no general or local reaction having been obtained after its administration, the case is to be dismissed unless it be one in which manifest tuberculous lesions have been and are still present, which, however, represent as a rule advanced stages of the disease, and in which further increases of the doses of the vaccine may become necessary.

Since it will be found that with the advent of the age of adolescence most children have acquired a tuberculous infection, the method of vaccination has for its object the removal of tubercle in order to protect the child from the detrimental effects of destructive processes in the tuberculous tissue, which in the lungs constitute consumption.

To exclude a preceding infection, neither a focal nor a general reaction should have occurred to any dose, including the maximum dose for the particular age period. Experiences thus far point to the correctness of the conclusion that a fever reaction following a full or smaller dose of vaccine is indicative of the presence of a latent or of a slowly progressing tuberculous process, while if only a local reaction occurs after a full dose, without rise in temperature, it indicates that tuberculous changes resulting from a previous infection are sufficiently remote from the circulation that they may be considered as encapsulated or obsolete.

Specific Reactions.—Local reactions at the site of injection occur in all cases that have or have heretofore had tuberculous lesions, whether these are healed or not. The reaction consists of redness, heat, and swelling diffused over a larger or smaller area where the dose was injected; the part is painful on pressure or may feel lame and tired. As a rule the local reaction reaches its acme in the course of 24 hours and then disappears rapidly. A slight rise in temperature, not over 0.5° F., may accompany the local reaction if it is of a more severe type, when it also lasts longer.

Local reactions do not occur in children or adults who have never been infected.

Focal reactions—that is, reactions in tuberculous tissue in the lungs and in other tuberculous lesions—manifest themselves by an increase of the previously observed physical signs or symptoms. In so-called open, i.e. advanced cases of pulmonary or laryngeal tuberculosis, there is also

an increase in cough or expectoration, or both, lasting for a day or two, after which they subside, and frequently an amelioration of the symptoms is manifest thereafter, the cough being less frequent and easier; if expectoration were present before, it becomes less and changes in quality to a more mucous type. Upon tuberculous lesions of the skin or visible mucous membranes, as in the mouth, nose, or larynx, focal reactions are readily observed, consisting in circumscribed tumescence, redness, and swelling; joints are apt to show swelling, sometimes tenderness with or without spontaneous pain. Bone lesions react in a similar manner, but not as markedly as do joints. Tuberculous ulcers and fistulae show increased secretion. Lymph glands, especially when of recent involvement, or in a state of progressive enlargement or of caseation, are liable to become swollen and tender. Tuberculous kidneys may show tenderness on deep-pressure, or the focal reaction may be indicated by a dull aching, or by a sensation of weight, while tubercle bacilli are particularly likely to appear more numerous in the urine, if there is an open caseous lesion communicating with the renal pelvis. In tuberculous ulceration of the bladder the symptoms may be increased temporarily, and a similar increase of the symptoms of the tuberculous process may occur in other localizations. Not all tuberculous lesions show focal reactions at the same time; viz., focal reaction may occur in one tuberculous area in the lungs and not in others, or in extrapulmonary lesions and not in the lungs at the same time to a given dose.

General reactions cause a sense of fatigue and lassitude, vague pains in the back, bones, joints, sometimes nausea, etc. They are, as a rule, attended by more or less rise of temperature which may amount to 2° F. and more; exceptionally, rises to 103° and to 104° F. have been noted in instances when the dose had been increased too much.

Reactions, either local, focal, or general, can occur in the course of a few hours after a dose or they may not be observed until 24 hours thereafter; as a rule they have reached their acme by the end of 24 hours, when they subside more or less rapidly. But it may also take two or three days before they disappear entirely. If the general reaction is marked, the patient should be kept in bed.

Although no serious consequences from any form of these reactions, singly or combined, have been observed, yet severe general reactions are undesirable, especially in weakly patients, as likely to interfere with the patient's desire and ability to take food. Patients, however, often claim to feel very much better than before the reaction was experienced, and, as stated before, focal reactions frequently are followed by marked and rapid improvement of the physical signs.

All reactions tend to grow less marked and in time none occur on the continuance of the same dose; they recur after one or several further increases in dose; eventually they disappear entirely, even to the maximal dose.

When all tuberculous tissue accessible to the circulation has disappeared by absorption or has

undergone fibroid transformation or cicatrization, no further focal reactions can be produced.

In normal—that is, in non-tuberculous persons—no reactions occur; in them there are neither redness nor swelling at the point of injection, nor any subjective or objective symptoms.

It has been found that a greater degree of immunity develops at the site of injection, and this may completely neutralize a subsequent dose if it is injected in the same place. It is, therefore, necessary to vary the site of injection. The local neutralization of a given dose may be presumed if no local reaction follows its administration in tuberculous subjects.

Much more might be said of and be added to this very important subject, to the study of which Dr. von Ruck has given his entire time, and which he is still pursuing with his associates.

The facts to emphasize are:

1. That tuberculous infections can be prevented only by vaccination.
2. That the certain diagnosis of the presence of tubercle in the organism can be made only by resorting to biological tests.
3. That tuberculous lesions still accessible to the circulation can be made to disappear by the use of specific vaccines.
4. That the rapidity and uniformity of the results depend upon the time elapsed since the infection has occurred, the extent which the lesions have reached, and the degenerative alterations which are present in them.

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TREATMENT OF STERILITY BY MEANS OF ORGANIC EXTRACTS.*

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As this subject is a very extensive one and the time allotted comparatively speaking very short, I have attempted to prepare an outline of the underlying principles and as near as possible describe the types found in the various cases of sterility which are due to a dysfunction of one or more of the endocrine glands.

In order to gain any benefit from the use of the organic extracts, it is necessary that the case should be one in which the sterility is due to some disorder of the endocrine glands. It is further necessary that there should be definite knowledge as to which of these glands is at fault and also that it should be definitely ascertained whether the gland or glands involved are secreting too much or too little. It is further requisite that the interrelation of these glands and the correlation of their several actions should be appreciated.

During the past few years a mass of literature concerning the ductless glands has accumulated, but the real study of this subject is in its infancy. Very few have either the time or the knowledge

to devote to the matter and the studies at the present are for the most part confined to clinical observation. Not until thorough and complete studies are conducted by groups of workers and persevered with may we hope for concrete gain in organotherapy not only for sterility but for other conditions which are often seen in our institutions hidden under the guise of dysmenorrhea, neurasthenia, retroflexion, menorrhagia, metrorrhagia, etc., which are unclassified, unstudied, and unrelieved. Pathologist, pharmacologist, and biological chemist must be enlisted in the work to cooperate with the clinician.

It must be borne in mind that probably the whole of the ductless gland system is related to the genital functions. Further, sterility may be due to several factors which are entirely beyond the control of these ductless glands. Formerly it was the custom to treat every case of sterility by dilatation or curettage. To treat every case of sterility now by administration of the glands of internal secretion is just as irrational and just as unscientific. If one is convinced that these endocrine glands (one or more) are at fault and if one can say which of them are involved and can further give a reason for his belief that the administration of certain extracts should be of service, then one is justified in prescribing these products.

Although the process of menstruation and the nutrition of the female reproductive organs are intimately dependent upon the ovary, still the fact must not be lost sight of that without the stimulus of the product of some of the other glands of internal secretion, especially the thyroid and pituitary, menstruation and therefore reproduction would be impossible. One of the fundamental ideas that has been definitely accepted in recent years is the now common one that the various endocrine glands do not act by themselves individually but by a close functional correlation through which if one gland is affected the others react very quickly in the endeavor to compensate the disturbance induced in the organism by the former. Therefore the reproductive functions are dependent upon the normal action and cooperation of the thyroid, pituitary (especially anterior lobe), and ovaries and the failure of any one of these to furnish a normal supply of its internal secretion increases the task of the rest and disturbs the normal working of the group.

Correct diagnosis must depend then upon a most careful and searching analysis of the signs and symptoms presented. By this means only can the gland primarily at fault be determined and the possibility avoided of mistaking for the real offender a gland which is but secondarily involved.

Cause of Endocrine Abnormalities.—Endocrine abnormalities may develop: (1) After any of the diseases of childhood. (2) In consequence of severe chilling. (3) Chronic debilitating diseases. (4) Prolonged puerperium. (5) Prolonged lactation. (6) Chronic cardiac lesions. (7) Pregnancy. (8) Morphine and lead poisoning. (9) Overwork and underfeeding. (10) Too much strain and monotony and too much depression.

Types.—Pituitary Type: Is divided into those in which the hypopituitarism developed in child-

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hood, the symptoms becoming apparent only at and following puberty, and those in which the pituitary disturbance occurred after puberty. An example of the former case is as follows: The physician is consulted by a young woman, say between 17 and 20 years of age, because her menstruation which began late stopped completely after a few irregular, painful, and scanty periods. The young woman appears to be in good health. There is a tendency to obesity. She is likely short and stocky, nose small and well shaped, perfect nostrils. Teeth well shaped, maybe some recession of chin. Hands and feet unusually small, narrow wrist, short but fragile tapering fingers. She may seem fairly bright, but upon careful inquiry it is often learned that she is inclined to be indolent and takes but little interest in school. Except that there is somewhat sparse growth of pubic hair the external genitals are normal. The uterus is found to be small. A diagnosis of infantile uterus is made and the amenorrhea and the general conditions are explained upon this basis. Clinical study of such patients, however, will reveal an increased sugar tolerance, and they are undoubtedly instances of mild hypopituitarism occurring in childhood.

The following would be an example of the latter type, i.e., the one in which the disturbance occurred after puberty. The patient gives a history of a fairly normal menstrual life before marriage excepting, perhaps, that the periods are a little scanty. Within a short time after marriage she has gradually and steadily increased in weight and at the end of a few years the increase is quite pronounced. During this period her menstruation has been less frequent and more scanty until perhaps by now there is amenorrhea. Sexually she is indifferent, and although married for years is sterile. Her expression is listless and the better defined case may complain of drowsiness. Here, too, perhaps, the physician, finding a small uterus, is satisfied to explain the entire syndrome as one due to infantile uterus, but on carefully going into the case he will find that this also is a case of hypopituitarism in which the disturbance occurred after puberty and therefore did not influence the phenomena of puberty, but found expression later in the amenorrhea, sterility, and increase in weight.

Of thyroid dysfunction the one that interests us most in relation to sterility is that of thyroid insufficiency. Here also we have to bear in mind whether the disturbance occurred before or after puberty. If it occurs before puberty the early history is most significant. Size and weight at birth, for instance, may lead us to suspect the possible influence of prenatal deficiency of the thyroid. Instead of a very large child being the pride of the obstetrician and father it would perhaps be one in which thyroid treatment should be given from the first few weeks of life. In these cases there will be late healing of the cord, late appearance or eruption of teeth, late walking and talking, mental retardation. Menses appear at an earlier age than normal and show an increase in duration and are usually free from pain. The patients are usually short and stocky, have a large head with round face. The nose is short and

blunted, with high saddling and retroussé tip. The lips are thick and full with a tendency to eversion. Teeth poorly set with a tendency to irregularity in outline and placement, especially the upper canines. Lower front teeth always overcrowded and irregular. The chin is wide and blunt. Skin is usually harsh and dry and the hair loses its gloss.

Ovarian Type: Menstruation usually occurs after fourteen years of age, is of short duration, scanty in amount, and accompanied by more or less dysmenorrhea, nausea, perhaps vomiting, backache, extreme malaise, and general distress. Genital organs well developed and secondary sex characteristics have been developed before the onset of the ductless gland disorder. There is an overgrowth of the long bones producing the unusually tall and slender individual having characteristic proportions and measurements. She has a disproportionately elongated head with sharp features, hatchet face, and receding chin. The nose is rather long, of good shape and sharply angled contour. Mouth and lips small and very thin, forming a mouth which has a tendency to be oval in shape. There is a tendency to enlargement of the upper central, and decrease in size or absence of the upper lateral incisors. Hands are long, slender, and artistic, fingers disproportionately long, narrow, and pointed.

The following are a few cases that have come under my observation during the past four years wherein results have been obtained.

CASE I.—Miss M. T., age 25 years, was first seen by me at Outdoor Clinic, Winnipeg General Hospital, April, 1920. She came complaining of amenorrhea, which was of six months' duration. Previous menstrual history was as follows: Commenced menstruating at 18, periods coming at four to six-month intervals, extremely painful, lasting about two days, losing small quantity (one napkin a day). On examination I found a well-developed woman about 5 feet 1 inch tall, weight about 140, teeth well shaped, hands and feet small, short, tapering fingers. External genitalia normal, except small amount of pubic hair, cervix elongated. Body of uterus extremely small; about the size of a walnut. Diagnosis: Amenorrhea due to hypopituitarism. She was given pituitary extract anterior lobe, grs. 2, to be taken t.i.d. This was continued for one month, when she returned stating that menstruation had come on one week after taking the tablets. She was told to continue taking the tablets, and to return in another month, which she did stating that she had menstruated again within five weeks following the last period. This was the first time menstruation had occurred so close to the last period since its onset. The patient was told to continue for another month with the tablets. Was not seen again till November, 1920, when she returned stating that menstruation had recurred monthly till two and a half months ago, since when she has had amenorrhea again. Examination revealed a uterus about the size of an eight-weeks pregnancy. When questioned as to the possibility of her having become pregnant she admitted that there was such a possibility. I then asked her how long since she was first exposed to becoming pregnant. Her reply was about two years. She was seen again in December and a positive diagnosis of three months' pregnancy was made.

CASE II.—Mrs. M. Y., age 26, called to see me on November 9, 1919, for the first time. Complaints of pain in left lower abdomen, and although married four years, has not as yet been pregnant. Menstruation regular, 28-day type, lasting two days, losing small quantity, with some backache on the first day. Had Spanish influenza in December, 1918, since which time her periods have been two or three months apart, losing larger quantity and lasting three to four days, with

backache on first two days. Last period just finished. Examination shows woman about 5 feet tall, weight 150 (has gained about 30 pounds since marriage); skin harsh and dry, teeth irregularly set and overcrowded, hair dull and without any gloss, cervix normal, uterus normal in size and position, adnexæ apparently negative. Was given thyroid extract, gr. 1, t.i.d., and told to return in one month. One month later weight was 135 (a loss of 15 pounds). Menstruation had not recurred. Was told to continue tablets for another month. When she reported again menstruation had occurred December 20 (about six weeks after the preceding period), and lasted for three days. Weight 130. Continued thyroid treatment for two months more, when she was seen again. Menses have been coming on the 28th day following last period, usual duration. Weight 125 (loss of 25 pounds in three months). Was not seen again for four months, when she returned complaining of vomiting and pain in breasts. Last menstrual period two months before. Examination shows uterus the size of a seven weeks' pregnancy. This patient went to term when she was delivered of a healthy male child.

CASE III.—Mrs. P. W. called to see me on November 19, 1919, stating that she had been married for five years and had not as yet been pregnant. Menstruation commenced at 12, was quite regular, of the thirty-day type, lasting five or six days, losing large quantities and without pain. Since marriage has been the same type. Has no other complaints, feeling in perfect health, and is quite piqued at not having become pregnant. Weight 175. Height 5.4. Has gained about 10 pounds since marriage. Examination shows uterus normal in size and position, adnexæ negative. Treatment: Thyroid extract, gr. 1, t.i.d. This was continued over a period of six months, during which time she lost 20 pounds in weight. July 27, 1920, husband called to say that his wife had not menstruated for two months—no vomiting nor nausea nor discomfort of any kind. Was told to have her come in for examination. On August 8, 1920, examination showed pregnancy of about eight weeks. Went to term and was delivered of female child of 10 pounds.

CASE IV.—Mrs. M. W., age 30, called to see me on May 24, 1917, giving the following history: Married in January, 1908, and gave birth to a full term child ten months after marriage. Since then has been sterile. Has not increased any in weight, and apart from being nervous has no other complaints. Menstruation regular, 28-day type, lasting only one day now. (Used to last three days before marriage.) Has severe pain on first two days with nausea; sometimes vomiting and dizziness on first day. Examination shows a thin woman, weighing 125 pounds, height 5 ft. 6½ inches; uterus normal in size and position; adnexæ negative. Treatment: Ovarian extract, gr. 5, t.i.d. This was continued for four months and gave relief to the dysmenorrhœa, also the vomiting and dizziness. December 15, 1918 (nearly seven months since treatment began), called to let me know that she had not menstruated for ten weeks, and thought herself pregnant. Examination revealed a pregnancy of seven weeks. Patient went to term, giving birth to a female child weighing 8½ pounds. On December 11, 1919, she was operated upon for tubal pregnancy before rupture.

CASE V.—Mrs. L. T., age 31, called to see me May 2, 1919, complaining of cramps in both hips, also between scapulae. Married seven years, and has not as yet been pregnant. Menstruates every two or three months, losing small quantity and lasting for five days; very little pain. Puberty at 14, her weight then being 145 pounds. At marriage she weighed 175 pounds; now weighs 210 pounds. Last menstrual period three months ago. Hair dull and grayish, which commenced turning at 24; eyebrows deficient at outer margins; skin harsh and dry; uterus small, cervix tapered, tubes and ovaries apparently normal. Treatment: Thyroid extract, gr. 1, b.i.d., for two weeks. May 17, 1919 (two weeks later), weight 210. Menstruated May 12, which lasted one day, then stopped for two days, and came on again, lasting two days more; small quantity. No cramps in legs nor back since. Thyroid tablets to be taken t.i.d. June 3, 1919, weight 195. Menstruated June 27 (about six weeks since last

period), lasting six days, losing a great deal; weight 185. Has had a little cramp in legs. Continue thyroid. November 10, weight 173; menstruation came on five weeks after last period, lasted three or four days, losing fair quantity. Was given ovarian extract, gr. 5, t.i.d. April 6, 1920, the patient called to see if she was pregnant; she had not menstruated for three months; weight 170. Examination shows pregnancy of about ten weeks. October 27, delivered of a male child weighing 12 pounds.

CASE VI.—Mrs. J. S., age 28, was seen for the first time by me on September 29, 1916. Complaints of pain in left lower abdomen, one week before and one week after menstruation. Married eight years; never pregnant. Had a dilatation and curettage done for sterility two and a half years ago. Menses every six weeks, lasting three days; pain as above, losing fairly large quantity. Weighted 150 pounds before marriage; now weighs 182. Height 5 feet 7 inches. Examination shows uterus normal in size and position, adnexæ apparently normal. Treatment: Thyroid extract, gr. 1, t.i.d. This was continued over a period of four months, which brought her weight down to 162 pounds and her menstrual periods to the regular monthly type. May 15, 1917 (nearly eight months later), has not menstruated for three and a half months. Complaints of pain between shoulders. Examination shows pregnancy of about three months. May 24, 1917, aborted a macerated fetus of about two and a half months; placenta retained, which was removed manually under an anesthetic. June 26, has not menstruated since miscarriage. Was given ovarian extract. December 17, 1917, called to say that she had menstruated on June 30 (four days after taking ovarian extract), then July 24, and not since. Examination shows uterus size of four and a half months' pregnancy; felt fetal movements three weeks ago. She went to term and was delivered of a baby girl, 8 pounds. Has since then had another full term child.

CASE VII.—Mrs. W. M. S., age 37, was first seen by me on September 21, 1917, complaining of severe pain in lower abdomen and back on the first and second day of menstrual period; also nausea and vomiting. Married fourteen and a half years; three pregnancies. Last pregnancy nine years ago. Menstruation regular, of the 28-day type, lasting two or three days, but scanty. Before last pregnancy periods used to last four or five days, losing large quantity, and without pain or vomiting. Examination showed a woman about 5 feet 8 inches in height; weight 130 pounds. Pelvis apparently normal, except for a slight laceration of the cervix, which was slightly everted. Treatment: Sodium bicarbonate douches and ovarian extract, gr. 5, t.i.d. After taking the ovarian extract for three months the dysmenorrhœa disappeared, also the nausea and vomiting. The periods lasted for four or five days and were more profuse. March 15, 1918 (about six months after first coming), called to say that she had not menstruated for two months. Examination showed probable pregnancy. This was later verified, and she went to term, giving birth to twins after not having been pregnant for nine years.

CASE VIII.—Mrs. E. G. Dana, Sask., age 22, called to see me on September 17, 1918, complaining of discomfort in epigastrium which had no relation to taking of food. Married four years. Has not as yet been pregnant. Has gained 50 pounds since marriage; now weighs 180 pounds. Height 5 feet 3 inches. Menses before marriage always regular, but now very irregular, the patient going from two to six months without menstruating. Last period March 19, 1918 (six months ago). Examination shows an excessively fat woman, with flabby, fat abdomen, cervix tapering and long; body indefinitely felt and unable to determine its size. Treatment: Thyroid extract, gr. 1, t.i.d. October 18, 1918 (one month later), wrote saying she had not menstruated. Weight 168 pounds. September 3, 1919 (one year later), came to consult me again. Her weight is now 150 pounds, and she has menstruated regularly every month since November, 1918 (i.e. after about two months' treatment), and wants to know why she has not become pregnant. I gave her ovarian extract, gr. 5, t.i.d. November 2, 1919, she wrote saying she had not menstruated since September 12, 1919. April 13, 1920, she wrote again, saying she felt fetal

movements on January 25. Went to term and gave birth to a male child weighing 10 pounds.

CASE IX.—Mrs. A. J. S., age 36, came to Winnipeg General Hospital Outdoor Clinic last July, wanting to know why she had not become pregnant. Married five years. No previous illnesses except an amputation of the left leg above the knee at 15 years of age, following an accident. Menses regular, lasting two days; pain and vomiting on first days, losing small quantity. Examination showed a tall, thin woman, weighing about 110 pounds, with sharp, pinched features and long, thin hands. Teeth good; upper laterals missing. Pelvis normal. Was put on ovarian extract, gr. 5, t.i.d., which she has been taking continuously since then. Called at my office on the fourth of this month, complaining of nausea and vomiting, pains in the breast and frequency of micturition for the past ten days. Has not menstruated since December 2, 1920. Examination shows a uterus the size of a seven weeks' pregnancy.

I have already exceeded my time limit, therefore will not go any further, although I have about fifteen more cases of sterility that I have been able to obtain results in by using the organic extracts. Kindly accept my apology for keeping you beyond the allotted time and I will close by quoting an extract from a paper by Williams on organotherapy.

"Yesterday was the day of the pathologist, more especially of the bacteriologist. The day before yesterday witnessed the triumphal progress of surgery. Physiology and medicine, all wrung in the withers and quite chapfallen, contented themselves, perforce, with the crumbs that fell from the rich microbic tables of these others.

"But the whirligig of time brings in his revenges. To-day, to-morrow and the day after, are foreordained to the physiologist, the physician, and the therapist. Their hour has come through the agency of the internal secretory glands, which already unfold before the astonished view of the seeing eye a land of promise, beside which the vast territories conquered by Lister and Pasteur, are destined to pale into honorable insignificance.

"The ductless glands and their hormones come to us as peaceful conquerors who brook no denial. They lighten our darknesses and show us apparently miracles. In studying them and endeavoring to unravel their intricate and esoteric mysteries, one seems ever and anon to be on the trail of the 'Great Secret' and in danger of losing one's mental perspective."

405 BROADWAY.

INSANITY;*

A BROAD RÉSUMÉ FOR THE GENERAL PRACTITIONER.

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IT is of much interest to every medical man to review a subject which is at present increasing to such a degree that the statistical figures are astounding. I will not burden you with numbers but in the short space of time allotted will go directly to the matter at hand for consideration. We must first of all remember we are talking only of abstract affairs of the mind. We are dealing with thought, judgment, reason, etc. All of these things

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cannot be passed upon unless we take into account the education of the individual and the environment in which the patient happens to live. The age, heredity, previous life, etc., must also be carefully studied before a proper diagnosis can be made.

To recall briefly a few terms which are used in psychiatry mention must be made of:

Delusion. This term is used to describe a perception of one of the senses which is distorted. For example, seeing a chair and believing it to be a man or some object not a chair, or hearing a bird sing and believing it to be a human voice, etc.

Hallucination. This term is used to describe a perception when there is nothing to perceive, as hearing strange voices when no one is present to make the sounds; or seeing apparitions, etc.

Imperative conception. This term is used to describe a conception which the patient knows to be false but nevertheless cannot put it out of his mind. If he does not know it to be false, it of course becomes a delusion.

A *morbid impulse* is a desire which the patient cannot resist carrying out. As a wish to run away from home, or a desire to steal, set a house on fire, etc. An imaginary illness must not be confounded with a functional disorder which is not imaginary but genuine.

Among the most common functional mental disorders are: Hysteria, neurasthenia, dementia precox, manic depressive insanity, paranoia, paresis, senile dementia, etc.

It is unnecessary to dwell at length on hysteria, except to state it is a functional, but genuine, and not an imaginary disease. The same may be said about neurasthenia. These two conditions were discussed here in a previous communication and we may dismiss them without further mention.

Dementia precox is a form of insanity coming on usually but not necessarily in the earlier part of life. The previous history of these patients often shows that as children they were a little different from other children of the same family. They may have been especially bright or affectionate. They usually give a history of a shut-in personality, preferring to stay alone and reading to going out and seeking the company of playmates. They are often bashful and backward socially. Many of these are more religious than their brothers or sisters, etc. As time goes on they get into a rut so to speak, and usually after a severe mental exertion more marked symptoms come to light. Sometimes in a well-developed case the person will talk in a wild disconnected way. The short sentences, the dissociated phrases, the wild flight of ideas are an indication of the working of the mental apparatus. The actions may be of the same nature as the words expressed. In another class of cases the patient talks very little or not at all. One of this type may sit for hours in a corner, apparently listless, eating and drinking nothing, soiling his or her clothing, etc. On examination we find these patients very stubborn; they refuse to obey any command given them. Some even do the opposite of what is asked of them. As, when asked to open the mouth they will close it; or, when asked to sit down they will stand up, etc. This phenomenon is characteristic of this type of insanity and is called negativism.

With all these symptoms the memory and in-

sight of the patient into his mental state seems to be good. The more sudden the onset and the more the patient is of the second type of case mentioned the more likelihood is there of recovery. In most of these cases there is no history of any hereditary taint in the family.

Some of the cases go on to a complete dementia but only late in this disease do any memory defects occur. Memory for more recent events is lost sooner than memory for old and remote affairs of one's life. A peculiar condition occurs in these cases, especially in the second type mentioned. That is in the quiet, apparently listless patient at times a tendency exists to leave a limb or a part of the body in any position it is put. This is termed catatonia. All degrees of catatonia may be present from merely sitting in a peculiar position for hours to staying for almost an indefinite period in any awkward attitude in which the patient may be placed. There are patients who talk of peculiar sex or love affairs, of being under certain spells, such as electricity, which is being used to influence them, etc.

The catatonic types get well almost without exception, while the paranoid, the first type mentioned, usually do not recover. Hallucinations almost never occur in this form of insanity.

These patients are at times very impulsive. Without any previous warning they will often commit some act which is perhaps dangerous. Thus they may suddenly strike some one or throw some object, and then continue what they were doing before in a calm way as if nothing at all had happened.

Paranoia, or doubting or delusional insanity, is a type of disease which is characterized chiefly by the delusions present. The patients have delusions which often become so firmly fixed in their minds that one cannot eradicate them. Often these delusions become what is called systematized; that is, in order to prove in a reasonable way why a certain train of thoughts is in the patient's mind he will argue perhaps from false premises and therefore naturally draw wrong conclusions. A patient's line of reasoning may start from a dream and as time goes on all the intricate ideas that confront one in life may become mingled into the dream. If these delusions are actually believed true by the patient, and especially if he reacts to them and tries to make others believe the same way, he is suffering from paranoia. For example, a man may state that he believes that he should own all the oil wells in the world. He will tell you that his great grand uncle was the only brother of the discoverer of the first oil well and he being the only living person in direct line of descent, naturally he should own all the oil wells; he may go into minute details and produce figures to prove his points. These patients become very dangerous, often, because nothing can stop them from carrying out their belief and they may commit crimes to further their cause. If some one opposes them they become his enemy. If they see this enemy talking to some other person they often think that the subject of the conversation is against the patient and thus many suspicions and jealousies are aroused. They always talk about conspiracies, schemes. They are often the leaders of peculiar sects, religious and

otherwise. They are not the so-called religious fakers but genuine believers. They are fanatics, monomaniacs. Many of them are very dangerous and well advanced cases will stop at nothing to carry out their distorted ideas.

Sometimes they know they are suspected of irrationality and very cunningly hide their pet hobbies. In cases of this type it takes quite some experience and ingenuity to bring out the hidden thoughts. They remember the smallest details to prove their thoughts to be true. Such matters as dates, small points about certain glances of a supposed enemy, an insignificant act, and the like may be in the patient's mind for years. Add enlargement of the productive imagination of such a patient to any of these, boil them up with time and irritation, or other resistance mental or verbal or physical, and behold, what must one expect? Paranoiacs are the most dangerous of all kinds of insane and must be very cautiously handled.

As in all types of mental disease varying degrees of the illness exist, and these must be properly weighed before a question of danger to the patient himself or others can be passed upon by the examiner.

Paresis, sometimes called softening of the brain, is always the result of syphilis. Among the first evidences we have of this disorder is a marked coarse tremor of the hands, face, lips, or tongue. The finer movements of coordination are interfered with so that speech is not clear, especially when certain difficult phrases or sentences are attempted. Among the phrases used are "Fifth artillery brigade," "Around the rugged rock the ragged rascal ran," "Emancipation proclamation" and many others. These cases often present a history of syphilis, give serological specific tests, show an increased cell count in the spinal fluid, have irregular pupils or pupils immobile to light, etc. They may present a Romberg sign or lack knee-jerks. The blood at times shows a positive Wassermann in some of the cases. In some only the spinal fluid shows syphilitic signs. This type of case often goes along unnoticed until suddenly an act of great irrationality is performed, such as drawing a life's savings from the bank and buying some useless thing with it; ordering articles two or three times over; suddenly taking to a new and foolish habit from which one has previously been free; doing some act of gross immorality or indecency, etc. These patients become progressively worse and finally die mental derelicts. In a few cases with vigorous antispecific treatment amelioration of the symptoms take place and apparent cures are performed. But these are only of a temporary nature, and the final breakdown comes inevitably.

The term Manic Depressive Insanity is used to define a peculiar condition in which the patient is either markedly depressed or in the reversed condition, which may assume the form of a wild mania. All degrees of this state exist, from a mild melancholia to a state of self-accusation and great desire for self-destruction. Extreme moroseness, unhappiness to a degree which no normal mind can conceive, makes these patients objects of great pity. They often have an insight into their condition and beg for help. At times some of them in the more advanced types of cases ask to be left alone so that

they can take poison and end the horrible torture. Often they claim to have committed an unpardonable sin or crime and keep praying for days, weeks or months without stopping except for exhaustion.

In contrast to this class of the depressive type we have an exalted type. Here we find all degrees from a mild euphoria to a wild mania, in an advanced case. The patients will talk irrationally for hours; will fight any attempt to restrain them from doing what they wish. They will wander away often without any goal in view. They seem to have lost all judgment and the power of curbing their desires. They ramble from one subject to another, often not finishing a sentence. Hallucinations and delusions are quite common. At other times these ideas follow a trend somewhat like the paranoias but they are not so deeply or positively set into the foreground of the mental picture as in the former mental disease. The prognosis in these cases is nearly always good but recurrences usually take place. In many of these cases the succeeding attack may be different from the previous one. For instance, a manic attack may be followed by a period of gradual restoration to health, and this in turn by depression. In other cases the following attack may be a manic after a previous manic or a depression follows a depression. In any of these types there is the possibility of a period of normality of a duration which may be days or even many years. In one form, called *circular insanity*, there is practically no period of health and a depression alternates with an excited attack regularly.

These cases usually give a history of heredity upon which a severe mental shock has been engrafted. A death in the family, a financial loss, a prolonged illness, or other mental strain may be the exciting cause.

In conclusion we must not forget that so many of these mental states do not affect the memory or the patient's insight into the state; especially in marked catatonic states the attending physician is tempted to believe that the patient does not know what is going on about him. It is in this kind of case that one must use great tact and diplomacy, because when the patient is again normal he will come back with reproaches that are, to say the least, very embarrassing.

A second point to remember in these cases is that when the patients are cured their full rights as citizens are reestablished; if anyone divulges any professional secrets the patients are quick to come back with justifiable suits. A third point to remember is that certain types are dangerous not only to themselves but to their fellows, and whatever the inexperienced family may wish, they must be advised of this danger. This is especially true of certain dementia precox types.

A fourth type comprises those who suffer from a complex as it is called—a dissatisfaction which might perhaps be cleared up sometimes at home, at other times in a hospital.

A fifth point to think of is that what the patient says and what the patient thinks do not always correspond.

A sixth point to remember is that where no mentality existed no mind can be lost. The idea is that feeble-mindedness and insanity are two different illnesses and must not be confounded. Hence we

must be very careful in judging children insane.

The following is a summary of types of the insanities mentioned:

CASE I.—A young school teacher, who as a student was always the head of her class, taking all the prizes right through the elementary and high schools, was referred because she did not care about her school work any more. She had not been at her class in four weeks, choosing to remain in bed and simply answering "because" to any question asked of her. At times she would be quite rational and gave evidence of a good memory for both recent and remote events. She knew everyone about her, but seemed to take very little interest in what they did or said. Her sense of shame was grossly lacking. She cared very little whether her body was exposed at the examination or not. When her arms were extended by the examiner she left them in the position for four or five minutes before she would take them down; and then only slowly. On two occasions she soiled the bed with feces. Her sister claimed that for a long time her underclothing would become quite filthy after her bowel evacuations, although no one ever remarked about it. The toilet seat also would not be left as clean as might be after she finished using it.

The only thing of interest bearing on this case in her past history was that she never went out with other girls, but always remained at home and studied (shut-in personality). Another point bearing on the case is that about one month before she stayed in bed, while at the moving picture show with her mother, for no reason at all, not even an argument, she suddenly slapped her mother in the face and then went on looking at the picture as if nothing at all had happened (spontaneity). The mother was embarrassed and went home, but the girl remained to see the whole performance and came home as unconcerned as if nothing strange had happened.

She could not be treated at home; was committed to a State hospital, and has now returned and is teaching again. The whole case represents a quite typical dementia precox of the catatonic type, with apparent recovery.

CASE II.—At one of our institutions the secretary to the superintendent suddenly began to become loquacious. She would talk without stopping for hours at a time. The conversation was disconnected and rambling. Occasionally she would stop to talk about the woman in the next house, who would turn on the "current" through the walls, etc. This was the evil influence that made her "crazy," she would cry out loud. This girl also gave a history of shut-in personality. She had no catatonic phenomena. Her parents remarked that she had not been sleeping well of late and that she seemed to talk about an electric current of a neighboring house for several months. They never paid much attention to it. As a child she was always different from the six other children. She always asked to be dressed rather gaudily. She would be late for her meals, was disobedient, and was a very difficult child to bring up in comparison with her brothers and sisters. The onset was three years ago and she has not improved much. She now soils the bed and clothing regularly. She has become very negativistic and must frequently be tube-fed. She has lost a great deal of weight, hardly recognizes any members of her family except to call their names, say "Hello," and then go on talking in an aimless way. This is quite a typical case of the second type of dementia precox mentioned. Cases of this kind are usually incurable. They often die from an intercurrent disease. Many seem to be susceptible to chest diseases such as pneumonia and tuberculosis.

CASE III.—To illustrate a case of paranoia one might mention the woman of sixty who was arrested on the steps of City Hall for gathering a crowd and preaching without a permit. She was given a summons and asked to appear before a certain police magistrate for breaking a city ordinance. When she appeared at the bar she spoke of the outrage of arresting her when God had given her the right to go among the people and show them their errors and try to make them follow the teachings of Jesus Christ. She claimed to be "inspired," and no man had a right to interfere with

her work. She could not be reasoned with at all. The magistrate lost his patience and sent her for observation into her mental condition. During the investigation it developed that she had a host of faithful followers in another city. Although she never definitely said she would harm anyone, all the examiners felt if opposed strongly she would feel "inspired" to do anything to fight for God. Take a life if need be. She is very tractable, but when one talks to her on any subjects touching on her delusions she is off on a wild tantrum. She remembers every word in the argument with the magistrate. Small details in regard to her arrest and incarceration are always at hand. This is quite a typical case of paranoia. This patient has never tried to hide her delusions, but it is to be expected in an effort to gain her freedom she will for a time with much effort not mention this religious trend of her thoughts, and ask to be examined, thus proving that she is now well again. If it is a concealment that gains for her the desired freedom she is likely to come back at some time and work out her vengeance on the "enemy" to her work. If she really feels "inspired" there is no telling how far she might go.

CASE IV.—An interne in a regular hospital came home to tell his uncle, who is a physician, that he (the interne) could now cure any kind of an illness. He then went back to his place at the hospital. Not very long afterward he was found beating up a drug clerk and the next day he claimed to have wonderful muscular power and he could whip anyone. He threatened to throw the examiner off the roof. He made all kinds of statements, most of which were disconnected and in no way associated with his examination. He wrote pages of letters in the same tenor. In the next twenty-four hours he became so unruly that he had to be restrained. In three months he was absolutely cured.

His family history is that his father and his mother both have insane members in their family. His paternal and maternal relatives all have manic depressive members, some of whom are or were in hospitals and others have been treated at home. The writer has treated four such members himself. This is a typical excited manic case.

CASE V.—The uncle (not the doctor) of the preceding was of a typical depressed type. He became very morose, and claimed that a girl to whom he was engaged to be married had broken the engagement because she found out he had a very serious and contagious sexual disease. This was untrue. The girl never broke off the engagement. He began to pray and entreat God for pardon of his misdeeds. He often said he wished to end it all. How did he have a right to live with such shameful knowledge of himself. This was a hallucination, for he never had any sexual disorder of any kind. He would chide himself for taking up this girl's time, etc. His plight was a very sad one. In six months this man was seemingly quite well again. He is back in business again doing serious work and supporting his widowed mother. He remembers the whole episode distinctly, and describes it as horrible.

Although both he and his nephew are quite well now, they are liable to get other attacks. Of course they must not be told this fact or they will not feel free to act as healthy individuals.

CASE VI.—To briefly describe a typical case of paresis we need only take a man who owned a candy factory and one day ordered so many small candy boxes from a manufacturer of paper boxes that suspicion was at once aroused. The next day this man ordered several thousand dollars' worth of chrysanthemums to be planted in his yard and each flower was to have a small electric light in its center. Examination showed that he had seventy-nine cells in his spinal fluid and this fluid showed a four plus Wassermann reaction. The blood test was negative. His speech became more and more indistinct. He had marked tremors, coarse and fine, of his tongue and hands. He deteriorated very rapidly, lost all sense of propriety, and died two years after losing the peculiar order for boxes.

It would be unwise in a paper of this kind to mention more than a single case of each kind to give a broad view of this subject. Thus can a general practitioner get a formula, though crude, that he

may follow to appreciate that insanity is a quite definite science. That it is important to be able to give a prognosis as well as a diagnosis not only for the patient but also for his family and business associates.

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UROLOGY: ITS PLACE IN MEDICINE.*

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THE advances made in urology in the past decade have more than justified its claim to a prominent place among the major specialties of medical practice. The progress achieved has been deliberate and epoch-making in character.

The perfecting of the armamentarium of the genitourinary surgeon has aided to no small degree in placing his work upon a scientific basis. With the cystoscope, both operative and diagnostic; the prism urethroscope; the ureteral catheter; the various operative instruments for intravesical and intraurethral manipulations; and by the combined efforts of the x-ray tube and the opaque ureteral catheter, many hitherto impossible procedures of diagnosis and treatment can now be carried out with comparative ease.

A visual study of the lower urinary tract with the cystoscope and the urethroscope gives definite information that cannot be obtained by any other means. Then, in urinary infections, to catheterize the ureters and collect the separate kidney urines for study will give undisputed data as to which kidney is the offender.

However brilliant may seem the advances made in perfecting instruments and appliances that he daily employs, the urologist points with still greater pride to the strides made in the study of renal function, particularly as relates to phenolsulphonephthalein and indigo-carmin as tests of the secretory power of the renal tubules. Then, too, the clinical application of the blood-chemical methods for determining retention products, as nonprotein nitrogen, creatinine, etc., were for the first time placed on a practical working basis by urological investigators.

Now as regards the application of these methods to general practice. Let us take the most common symptom for which a patient, suffering with a supposed urinary complaint, consults us. I refer to *frequency* and *burning*. The first condition that the average practitioner thinks of is Neisserian infection. But supposing the case proves negative for gonococci. Some other bacterium, such as a coccus or a bacillus, may be found. Or the urine might show only a sterile pyuria, as is particularly frequent in renal tuberculosis. Supposing further that the ordinary measures employed for treating cystitis fail after a reasonable trial. What then?

It is contended by the majority of urological workers that primary inflammation of the bladder is comparatively rare; that cystitis is usually secondary to infection of one or both kidneys. Exceptional cases may be encountered where the bladder mucosa has been traumatized by a dirty catheter or where the viscous harbors some foreign body, as a

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calculus, serving as an irritant. Here then would be a case where cystoscopy and ureteral catheterization are indicated. Let me illustrate this type with a case-record:

CASE I.—A woman, thirty-two years old, recently consulted me because of marked urinary frequency—both nocturnal as well as diurnal—and ardor urinae. The trouble had persisted for three months without relief. Her family physician told her she had "cystitis," and gave her urotropin by mouth and a weekly bladder instillation of 10 per cent. argyrol. Under this treatment she did not improve.

Upon her consulting me, I immediately cystoscoped her, catheterized her ureters, and collected from both kidney pelves a urine loaded with pus cells and colon bacilli. Both renal pelves were lavaged with a 2 per cent. silver nitrate solution. Relief was almost immediate. The day after the first lavage she phoned me that she had slept the night through—the first time this had occurred in three months. Four lavages cleared up the infection in the kidneys and after the second treatment the intervals of voiding had returned to normal, that is, three times during the day and not at all at night.

It is not such a long time ago that surgeons would occasionally be faced by a sudden death following a nephrectomy or even after a simple cystotomy, and the fatality was not easy to explain. Yet were the operator so fortunate as to obtain an autopsy in such cases he would have invariably found that, in the nephrectomy case, he had removed the only functioning kidney; and in the cystotomy death it would have been equally well shown that both kidneys had suffered marked embarrassment from prolonged damming-back of foul urine upon the kidneys—a condition due to back-pressure of an hypertrophied prostate or of a urethral stricture. The shock of rapidly evacuating over-distended bladders, particularly in old men, may produce anuria or gradually lead to uremia from which the patient does not rally. Two case-records will illustrate this point:

CASE II.—A negro male, seventy-three years of age, was admitted to a charitable institution late at night suffering from urinary retention. He had not voided in several days. The bladder fundus could be felt on a line with the umbilicus. A resident surgeon attempted to pass, in succession, a soft-rubber catheter, a metal catheter, and lastly a steel sound, but without success. All instruments used were of the size 25 F. Because no filiforms, Le Fort instruments, or other aids used in surmounting strictures were handy, the surgeon did a suprapubic cystotomy, emptied the bladder completely, left in a Pezzar catheter above and returned the patient to the ward. During the next twenty-four hours the patient passed only an ounce of urine and the next night died. Here one has exemplified the fatality that occurs from shock, due to sudden emptying of the bladder, which is followed by anuria and death.

CASE III.—A white male, seventy-six years of age, was admitted to a hospital, also suffering with urinary retention. In the course of a routine urological examination, the prostate was found markedly enlarged by rectal palpation. Cystoscopy confirmed the rectal findings. Patient was put to bed and kept warm. A soft-rubber catheter, threaded over a curved wire mandrin, was passed into the bladder, was fixed in place with adhesive tape to the penis, and about 500 c.c. of urine was drawn off every two hours, until bladder was empty. By this gradual evacuation, no alarming symptoms developed. The catheter was allowed to remain in place. The bladder was irrigated daily with 2 per cent. boric acid solution. At entrance the phthalein test read 14 per cent. for two hours; urea nitrogen 97 mg., and creatinine 3.8 mg. for each 100 c.c. of blood. Within ten days of catheter drainage the phthalein rose to 38 per cent. in two hours; urea nitrogen 24 mg. and creatinine 2.9 mg. for each 100 c.c. of blood.

Suprapubic cystotomy was now done under local anesthesia without disturbance to the patient. Pezzar catheter drainage was established suprapubically; urethral catheter (which was producing marked urethral spasms and irritation) was removed. Within twenty days after entrance the phthalein reading was 45 per cent. for two hours; urea nitrogen 14 mg. and creatinine 2.1 mg. for each 100 c.c. of blood—practically normal findings for a man of his age. Prostatectomy was now carried out suprapubically under light ether-gas-oxygen anesthesia. Recovery was uneventful.

Hematuria is a symptom that, when present, deserves our most serious consideration. Although of not extremely common occurrence, its presence may be the only warning sign of cancer somewhere in the urinary tract. Therefore we should adopt the rule that *every case of hematuria demands immediate cystoscopy* in order to determine the source of the bleeding. The routine practice of the attending physician passing over hematurias lightly, of administering some internal medicine and sending these patients "on their way," is a practice that cannot be too severely condemned. Another case-record here will illustrate what I mean:

CASE IV.—A white male, sixty-three years of age, consulted me not long since for severe pain in the bladder region, marked frequency and the passing of bloody urine. He had had intermittent attacks of hematuria for the past fifteen years! And all of this time he had been under the care of one physician or another. He had taken medicine by mouth until he had become disgusted with drugs. Cystoscopy revealed a vesical carcinoma occupying the entire left lateral wall of the bladder and trigone region. Marked, irregular, intravesical projection of the prostate was also seen. Upon rectal palpation, cancerous metastasis to the prostate was definite. This case had progressed until now it was beyond relief. For humane reasons suprapubic cystotomy was performed under local anesthesia, and this gave him much relief from pain. He lived six months after I saw him.

Pain probably brings more patients to the physician than any one other symptom. And how often is it the case that in vague abdominal disorders it is practically impossible to differentiate, let us say, appendicitis from right-sided ureteral stone or tubovarian trouble; or again, to say definitely whether or no a pain in the upper right quadrant of the abdomen is due to gall-bladder trouble, renal calculus, or a ptosed kidney with a Dietl's crisis. Or looking at the matter from another angle, admitting that the trouble is renal, how can we say that the painful side is the truly diseased one? We know that cases exhibiting *renorenal reflex* phenomenon are met with every now and then. The clinician is told that all the pain is in one side but finds all the pathology in the opposite side. In any of these instances cystoscopy, ureteral catheterization with opaque catheters, and the making of pyelograms become almost imperative. With either the wax-bulbed ureteral catheter or x-ray films or by combining the two procedures, ureteral calculi can be definitely diagnosed. By renal catheterization and the taking of pyelograms the diseased side can be recognized and in the radiogram we can note the abnormal misplacement of the kidney, if such exists. I desire to report briefly, as illustrating renorenal reflex pain, the following interesting case:

CASE V.—A young white female fourteen years of age, was brought to us suffering with intense pain in her right side. As her physician had repeatedly found albumin in her urine for over a year he had considered

the case one of chronic nephritis. Of late the patient had been developing attacks of extreme pain in her right side, high fever, marked urinary frequency, and hematuria. Cystoscopy and ureteral catheterization demonstrated a normal right kidney as shown by the urine chemically, microscopically, to culture, and by functional tests. The left kidney urine showed a heavy albumin deposit, many pus cells, many cocci and bacilli, many red-blood cells, a much reduced renal function, and radiograms revealed three calculi in this left kidney. Radiogram of right kidney negative. Left nephrolithotomy, followed by a few lavages of the left renal pelvis (to rid it of infection) produced a complete cure. The pain in the right side disappeared the day following operation and has not returned.

Sexual disturbances, particularly in relation to impotence in the male, not infrequently bring patients to the physician, seeking relief. Derangements of genital function often tax the acumen of the clinician to the utmost. That with some of these patients the trouble is only imaginary is perfectly true. That some, however, suffer with true sexual neurasthenia or some functional neurosis is equally true. Practising psychology helps many of these cases. With another group we must go further.

The posterior urethra, particularly the verumontanum, plays a very important role in many cases of disturbed sex function. With the increased interest shown by urologists in more universally employing the posterior urethroscope in studying these cases, better results can be expected in the future. Where inflammation of the verumontanum exists, treatment in the form of instillations, topical applications, or high-frequency fulguration to the affected part most frequently accomplishes the desired result.

Radium therapy is being extensively employed in urology in such conditions as are deemed appropriate. And whereas it has proved disappointing in many cases, in other selected instances it has accomplished much good. The mere fact that it has a selective action only on certain tumor-cells renders it of more value in some cases than in others. For instance, in cancer of the prostate, seminal vesicles, or the external genitalia it seems to retard the process slightly. But such retardation is only transient. It does however control pain frequently and minimizes hemorrhage. In early bladder carcinoma the results from radium have been more promising. In papilloma of the bladder or urethra it is almost a specific. Much experimental work is still necessary to determine the exact value of radium in urology. Whether the combination treatment with x -ray, or with high-frequency fulguration, or the employment of all three agents conjointly, namely, radium, x -rays, and high-frequency fulguration, will give the best results, is one of the many problems in medicine still to be solved.

In conclusion, it is submitted that urology, as a surgical specialty, has won for itself a very definite place among the medical sciences. That by the general practitioner utilizing more liberally the many aids that the urologist has at his command, correct diagnoses will be made more frequently, the administering of proper treatment will be instituted with more dispatch, and our percentage of invalids and incurables among those suffering with genitourinary ailments will be reduced to a minimum.

MACHECA BUILDING.

A CASE OF CHRONIC NEPHRITIS WITH A RENAL NEOPLASM.*

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ERRORS in diagnosis and surgical surprises in practice should always be recorded, hence the following case history:

Male, aet. 47 years, was seen in consultation in view of performing renal decapsulation for advanced chronic nephritis, a survival of some weeks being desired on account of business interests.

The patient's history was devoid of interest until 1909, when he first noticed some transitory malleolar edema, rather frequently recurring epistaxis and some headache. However, these symptoms did not increase in intensity, so that the patient was able to continue his affairs until the middle of November, 1919, at which time he developed paroxysms of dyspnea lasting for some twenty minutes to half an hour and recurring once or twice a week. By March, 1920, these so-called "asthmatic attacks" became more frequent and severe, and at length the dyspnea was constant night and morning. There was also intense headache and much lassitude. Patient micturated two or three times in the night.

On May 13, 1920, when we saw the patient, the following notes were taken: marked dyspnea, face slightly puffed with pale color peculiar to chronic renal disease. Temperature 36.9° C. (98° F.).

Circulatory system. Pulse regular, weak, high tension, 100 to the minute. The heart apex could be indistinctly felt under the sixth rib; no vibration or thrill, but by palpation one could feel a general rising of the thoracic wall. On auscultation the first sound was distant and prolonged with accentuation of the second sound. The aorta could be felt in the suprarenal fossa, but not in the abdomen. The femorals were hard, tense with strong pulsations, but did not appear to be enlarged. Blood pressure with Vaquez's sphygmotensimeter = 18 maximum. Blood examination, hemoglobin, 73 per cent.; red blood cells, 3,950,000; white blood cells, 11,960; globular value, 0.92; polymorphonuclears, 79 per cent.; lymphocytes, 12 per cent.; mononuclears, 7 per cent.; eosinophiles, 2 per cent. Dosage of urea in blood, 1.95 per liter; indican absent.

Examination of the lungs and nervous system was entirely negative. Examination of the eyes revealed albuminuric neuroretinitis, more pronounced on the right.

Digestive system. Tongue clean, no dyspeptic symptoms. For the week after examination there was nausea and easy vomiting of food. Abdomen somewhat distended, no muscular rigidity, no dull area. Liver and splenic dullness normal in extent.

Urogenital system. Micturated several times in night and five or six times during the day. Some burning at the end of the act. Lower pole of right kidney could be palpated. Left kidney could not be felt. Prostate normal, seminal vesicles not enlarged. Permeability to methylene blue maximum delayed, low elimination lasting six days. Total amount of urine in twenty-four hours, 2,250 c.c. Examination of urine, clear, transparent, no shreds, slight flaky sediment after standing. Albumin, 2.3 per liter; glucose, guaiac test, bile pigment, biliary acids and urobilin were negative; urea, 15.5 per liter; chlorides, 2 per liter. Microscopically, there were some large opaque granular casts, some free kidney cells and an occasional leucocyte. No red blood corpuscles were found. To complete the examination a Wassermann test was made on the blood and cerebrospinal fluid and proved to be negative in each.

The diagnosis was chronic nephritis, renal heart and pericarditis.

Given the patient's status and the clinical data ob-

*Read at the annual meeting of the Section of Urology, Royal Society of Medicine of London, May 27, 1921.

tained I was most disinclined to do decapsulation, more particularly on account of the extremely slow and imperfect elimination. However, as the patient and family were very insistent, I acquiesced.

On May 20, 1920, the right kidney was exposed, the lower pole being detected at the bottom of the incision and moving freely with the respiration. Introducing the hand to free the upper pole and to bring the organ out of the incision, a tumor the size of a large orange was found to occupy the upper pole. After breaking down a few friable adhesions the kidney was delivered without too much manipulation. The neoplasm was round, distinctly confined to the upper pole, whitish in color and firm to the touch. Given the circumstances decapsulation of the lower pole of the kidney was quickly done and the organ returned into its fatty capsule. The left kidney, which was very shrunken, was decapsulated without too much difficulty.

The outcome was much more simple than might have been expected. Operative convalescence was uneventful. The dyspnea and headache were considerably ameliorated but the urine continued to contain albumin and casts in the same amount as before the interference. The patient survived exactly five weeks, dying in uremic coma. One week before death the urea in the blood had increased to 2 grammes, 65 centigrammes per liter. Perhaps, in this case, decapsulation may have accomplished the end for which it was done, namely, to postpone the fatal outcome for a week or two, but it certainly did not hasten it.

The renal growth, obtained post mortem, proved on histological examination to be an adenoma and both kidneys were the site of atrophic nephritis.

Primary renal neoplasms arise either in the capsule or in the pelvis of the kidney and are either non-malignant or malignant. According to the degree of malignancy the malignant growths are divided into cancerous and sarcomatous tumors. The former belong to the epithelial type and include but one variety, namely adenomata. These neoplasms are often consecutive to nephritis and may be overlooked clinically, while in kidneys manifestly involved by interstitial nephritis one or several gray or reddish nuclei, varying in size from a pin's head to a filbert, are found directly under the capsule.

On the contrary, in adenomata strictly speaking, the kidney appears normal. Single or multiple, the growth is usually directly subcapsular—it may, however, occupy the medullary region—not usually larger than a cherry and offering a yellowish-white color. The capsule is usually thick, separating the growth from the renal parenchyma, while the white tractus given off by the capsule divides the neoplasm into distinct lobes.

The symptomatology of these tumors is reduced to two cardinal symptoms, namely, tumor and hematuria, while pain becomes added later on. In 50 per cent. of the cases hematuria is the first symptom noted, but it may occur tardily in the evolution of the neoplasm at a time when the latter has attained notable proportions. However, in the case here reported no red blood cells were ever detected in the urine. This hematuria occurs without any evident provocative cause, gives rise to no painful phenomena, lasts for two to four days and then subsides only to recur in a few weeks or months. The amount of blood voided varies greatly from one case to another. Lastly, instead of a frank hematuria, the loss of blood may be only microscopic, but this can usually be detected by the guaiac test and always microscopically.

However, the presence of a tumor is the chief symptom and is the first one to be noted in about 28 per cent. of the cases. The data of its detec-

tion will depend upon the site and the thoracic or abdominal development of the growth. Pain is of secondary importance; usually dull and moderate, but it may be, in some very rare cases, the only clinical symptom noted.

Analysis of the urine will usually bring forward important data, and although a Teuton has mentioned the presence of sugar in cases of malignant renal growths, he is, I believe, the only one who has been able to detect it. Histological examination of the urine may reveal the presence of neoplastic cells, but this, unfortunately, is rather infrequent.

3, RUE BELLOT.

Medicolegal Notes.

Requirement of Physical Examination Under Workmen's Compensation Act.—The provision of the Illinois Workmen's Compensation Act requiring an employee "entitled to receive disability payments" to submit, at the employer's request, to a physical examination by a duly qualified medical practitioner or surgeon selected and paid by the employer is not restricted to cases where the employer acknowledges his liability and makes compensation payments. It applies to all cases where the employee is entitled to receive disability payments as well where the employer is denying right to compensation as where he acknowledges liability and makes payment. An award will be set aside for error in not requiring the employee to submit to an examination as prescribed by the act.—*Jackson Coal Co. v. Industrial Commission*, 295 Ill. 18, 128 N. E. 813.

Physician's Right to Quit Case on Giving Proper Notice.—A physician has the right to quit a case on giving proper notice, and in a physician's action for services to the defendant's employee, where the only point of dispute was what the defendant was to pay in the event the employee got well, the defendant contending payment was only to be made out of the employee's wages, it was held reversible error to permit cross-examination of the physician as to whether he had intended to quit treating the employee before the contract with the employer was made.—*Marshall v. Brown* (Mo. App.), 224 S. W. 13.

Identification and Custody of Evidence in Prosecution for Attempt to Poison.—In case of attempt to murder by placing poison in water, objection was taken to the admission of the testimony of the chemist who analyzed the substance found in the alleged poisoned water. This chemist, who lived in Dallas, Tex., testified that he found on his desk a bottle, whose content was analyzed by him and found to be strychnine. The accused's objections were based on the lack of identification of the bottle and the failure to show proper custody of it from the time the alleged poisonous substance was placed therein until it reached the analyst. It was claimed the strychnine had been put into a water cooler at a railroad station at Avinger, Tex., with intent to kill the station agent. A witness had drank a small quantity of the water and finding it bitter threw the rest away and called the station agent's attention to the facts. An examination of the cooler disclosed a quantity of white powder floating on the ice on the top of the water, and some of this powder was sent in a bottle by Dr. J. W. Peebles to the analyst. Dr. Peebles testified that he removed some of the powder from the alleged poisoned water, placed it in a bottle, sealed it up by pasting paper across the top, and mailed it by registered letter to the chief surgeon of the railroad. This witness also identified the bottle. The analyst testified that he was told the bottle on his desk came from the office of the railroad surgeons; that it was sealed with paper, and that after analyzing its contents he gave it to the district attorney. It was held that this evidence was sufficient to take the question of the identity of the bottle and its contents to the jury. The accused was convicted, but the judgment was reversed on account of the absence of the accused's wife.—*Steele v. State*, Texas Court of Criminal Appeals, 223 S. W. 473.

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RELATIONS OF PSYCHIATRY TO MEDICINE.

PSYCHIATRY is and is not a subdivision of medicine. Some old and reputable general practitioners admit that for them it is still a *terra nova* which has no connection with the requirements of a rural practice. If not to medicine then it must belong to psychology. The crux of the subject is general paralysis, for while the diagnosis of this affection was formerly wholly psychological it has now become physiopathological. Jasper has recently predicted that the psychiatry of the future would rest upon pathological brain anatomy, general somatology, legal medicine, and institution-technique; while psychology in its application to the subject matter would count only as so much dilettantism. Psychiatric psychology can go to extreme viewpoints in connection with wholesale movements like Christian science and spiritualism; for according to some writers any idea held by a sound subject is presumably sound and to prove the idea wrong we must first prove the individual himself of unsound mind. At the other extreme we have an expert opinion that a supposed dementia precox patient withstood the psychological tests successfully, but was nevertheless adjudged insane because of a positive Abderhalden reaction characteristic of this affection.

Christoffel, who discusses this subject in the *Schweizerische medizinische Wochenschrift*, February 24, 1921, li, 8, says that it was Wundt who first applied laboratory methods to psychology, which movement was extended by Kraepelin to psychopathology. Progress was the result up to a certain point and causal factors like brain lesions, intoxication, and fatigue were isolated. But technique of this sort reached its limit, and then certain theoretical anatomical lesions of minute character were postulated and a certain amount of progress resulted, mixed with much that was fanciful.

Clinical psychiatry began with Esquirol a century ago when this pioneer laid the main stress on the course of the affection in fixing its nosological position. Kraepelin has followed the same principle and has thus isolated the two major groups of dementia precox and manic-depressive insanity. Nothing definite is as yet known of the causation,

but we do know that exogenous factors play a minor rôle. Conversely, when it is the external or affective element which dominates the picture, we may influence the condition favorably by suggestive therapy. A whole school of psychiatrists have become eminent in the affective field, this culminating in psychoanalysis in which it is presupposed that the original affective element has become a part of the subconscious. Goethe with the insight of genius anticipated "conversion" and "displaced affect" in his "elective affinities." The author cites other early anticipations of Freudian teachings. Hypnosis and counter-suggestion force new affects upon the subjects and to this extent are opposite to psychoanalysis, although the discovery of psychoanalysis was founded on a hypnotic experiment intended to make the subject recall a buried affect.

Bleuler sought to show that in dementia precox the symptomatology is essentially accidental and that the real underlying condition is a splitting of the ego. He goes further and attributes to the true psychoses both psychic and physical components. Under psychotherapy these subjects may announce that they are improving and although the mental state does show improvement, the physical condition may be seen to deteriorate. Many conditions which are not regarded as psychoses show the double makeup, as hyperemesis gravidarum, enuresis, and certain painful affections. It is clear that the psychological psychiatrist should be familiar with the somatic and the medical psychiatrist with the psychologic aspect of this branch of knowledge.

INTRAUTERINE RESPIRATION IN STILLBORN CHILDREN.

It has long been taught that under certain circumstances infants *in utero* may breathe shortly before term and it is conceivable that under such circumstances they may inspire amniotic fluid and thus by interfering with the first extrauterine respirations be victims of stillbirth. On the other hand it is denied that the respiratory movements are sufficiently pronounced to permit of the inspiration of any considerable quantity of amniotic fluid, which in fact could not get below the glottis and would simply pass into the stomach. Duvoir, in an article on this subject in *La Médecine* for April 1921, ii, 7, says that Balthazard and Piedelièvre have systematically examined the histology of the lungs of stillborn children, and have often found indubitable evidence that amniotic fluid had actually entered the pulmonary alveoli. These finds are described in a thesis by Humbert (Paris, 1920) entitled "Intrauterine Submersion." The percentage of stillborn to show this evidence is placed at present at 64.

The causes appear to be varied. In the first place there should be a group in which for one or another reason the circulation in the placenta or cord has been impeded; among such cases being those due to premature detachment of the placenta and compression of the cord. Another cause during labor would be contracture of the uterus. Many obstet-

rical maneuvers may contribute to such results, as podalic version, forceps application, introduction of the balloon, any maneuvers which may stimulate the skin and provoke respiratory movements, etc. But under such circumstances labor itself has usually been dystocic and fetal death cannot imply that inspiration of amniotic fluid is the decisive causal factor. If the intake of fluid occurs during delivery the lungs should contain vaginal secretions and air from without while before labor there should only be pure amniotic fluid and meconium. The latter is seldom found, and then only when as a result of severe intrauterine asphyxia the sphincter ani of the fetus is relaxed. When this form does occur the diagnosis of submersion can be made from naked eye appearances alone.

The technique of microscopic research of the lungs for amniotic fluid has been set forth by Richter of Vienna in 1905, and is very simple. The lung tissue is squeezed out on slides and an examination is at once made without staining. The presence of amniotic fluid is recognized by the cutaneous epidermis, lanugo, etc., from the fetal skin. The other method is more exhaustive and is the one usually employed. The lungs are imbedded in paraffin and sections are made and stained. Among the finds in the alveoli have been crystals of cholesterin from the meconium. Authorities differ to some extent on the best technique for simple and differential staining. The totality of the finds of extraneous substances in the alveoli comprises horny cells from fetal epidermis, fetal down, pigment granules, and mucin. Since the bronchioles and certain areas of lung tissue may give negative results sections should be made from different parts of the lung. An insignificant amount of extraneous matter might perhaps be aspirated from the upper air passages and in the case of minimal finds care should be used in reaching an opinion. The author touches but lightly on the differentiation of antepartum and intrapartum submersion from the effects of infanticide by drowning a child which has breathed. This subject is thoroughly considered in works on jurisprudence, and what Duvoir is mainly interested in is the salvage of life possible in the case of stillbirths, for the problem looms large in connection with the low birth rate of France.

SPINAL ANALGESIA IN CHILDREN.

THE question has often been raised as to whether or not spinal anesthesia with stovaine or novocaine is feasible in children. As far back as 1905, Prelitner published a series of forty cases of spinal analgesia with cocaine in children with excellent results. Later on, Sonnenburg stated that in his opinion the use of stovaine in spinal analgesia should not be resorted to below the age of fourteen years. Columbini has affirmed that debility and old age are not contraindications for this procedure, but that it is contraindicated in children. On the other hand, Bier does not think that childhood is a contra-

indication and in the list published some time since by Barker there is a fifteen year old patient in which spinal analgesia was remarkably successful.

In 1908, Carret (Thesis, Lille, 1908) published a very interesting study of spinal analgesia from the Surgical Clinic of Lille. There were twenty-four cases in all, four in children eight years of age, three in children nine years old, seven in children of ten years, four in subjects of eleven years and six in thirteen year old children. The cases were all major operations on the lower limbs, such as amputations of the thigh or knee and arthrotomies and one case each of inguinal hernia and a cyst of the popliteal space. In a second series of sixteen cases the children were between eight and fourteen years old.

In the first series the dose of stovaine was never larger than one cgm.; in the second series the dose varied from one and a half to two cgm. of the drug, but never more. The result was that out of the total of forty cases composing the two series no phenomena of a dangerous nature were noted and only slight headache occurred. Neither was there the slightest evidence of meningeal irritation. It was found that the results were better in the second series of cases in which larger doses of stovaine were injected. Other scattered reports in literature seem on the whole to favor spinal analgesia with stovaine or novocaine in children, but it should be limited to operations on the lower limbs. It is probable that the procedure will not become a current one in infantile surgery for many obvious reasons, but it evidently has its important indications under certain circumstances. It is to be especially recommended in amputations or other serious operations susceptible of producing marked surgical shock; spinal analgesia is probably preferable, especially when the child is weak from prolonged suppuration.

The contraindications to its use are furnished by abdominal operations in which it would seem better not to resort to this procedure in young subjects. Also in very young children or very nervous ones. The simplicity of the technique, as well as the evident innocuousness of the procedure, commend it, Carret thinks, in infantile surgery in properly selected cases.

DIPSOTHYMIA AND DIPSOMANIA.

BENON, an alienist of Montpellier, has coined the word "dipsothyria" to distinguish the chronic, habitual thirst for alcohol from the peculiar intermittent craving known as dipsomania. The term "chronic alcoholism" is altogether generic and comprises several conditions. A constant thirst for alcohol is much more common than the periodical thirst, but in some dipsomaniacs the sober intervals are very short and the subjects pass readily for chronic alcoholics. Again the chronic drinker who ordinarily carries his liquor fairly well may as a result of repeated overwork or misfortune indulge excessively at short intervals and pass readily for

a dipsomaniac. In many patients the differential diagnosis is very difficult. The dipsothymic is known for making a hobby or religion out of whiskey, and under favorable circumstances would never draw a sober breath, never decline an invitation to drink and in general could be depended on to react always in the same way to the temptation of drink. But if such a man, as may happen, is often penniless or in jail, there are many intervals of enforced sobriety and when the chance comes to indulge, the subject may drink in the barbarous fashion of the born dipsomaniac. The latter, however, invariably has his lucid spells in which alcohol is specially repugnant to his senses. He may during the interval pass as a model temperance man and do uplift work. Herein, however, there is no sharp line between the man with the habitual and he with the periodic thirst. The former often wishes to break away from his curse, and after a protracted debauch during which he has lost repute and money, will make surprising efforts to rehabilitate himself. At such periods his will power is severely tested while the dipsomaniac is under no such strain—in his intervals it is no sacrifice at all to quit—in fact, it is altogether the easiest thing he can do.

The author, whose article appears in the *Gazette des Hôpitaux* for January 22, 1921, xciv, 7, gives a case history in which differentiation between the two types was extremely difficult. The subject showed a strong dipsomaniac tendency by beginning at the age of 31 to have one spree annually. He was an only son and his mother's brother was a known dipsomaniac. The rest of the history was negative. He had had these yearly sprees for 15 years and had reached the age of 46, when his attack was continued over a long period and suggested that of a chronic alcoholic addict. His spree lasted at least 9 days, but he then quickly sobered up. He later described this debauch as something unique in his experience. He did not quickly reach satiety but found new pleasures daily. He had full insight into the moral and legal hazard he ran and made attempts to break off, but the drink impulse was too strong. The attack ended only with exhaustion and profound sleep, from which he awakened not as a physical wreck with renewed cravings—which would have been the case with one who was a chronic alcoholic, but, on the contrary, with a complete loss of all desire for drink and with a deep feeling of remorse which led him to work with unusual zeal.

SIMPLE ANGINA AND ITS SEQUELÆ.

THE recently deceased pioneer of modern laryngology, Killian, delivered an address at Upsala during 1920 on the familiar but little understood condition, angina simplex, based on twenty years of continuous special study. A digest of the original report is found in the abstract columns of the *Schweizerische medizinische Wochenschrift* for May 12, 1921, li, 19. According to the author, the disease usually begins in the vault of the

pharynx. On the first day the subject complains of high fever, headache, fatigue, and anorexia. Posterior rhinoscopy as a rule shows swelling and redness of the pharyngeal tonsil, and at times there is a membranous deposit. Later and, as a rule, by the second day of the fever, there is noted the supervention of redness of the faucial tonsil, with the characteristic white points, seen especially on the latter and the lingual tonsil. In a minority of cases the condition is limited to the pharyngeal tonsil. If the practitioner does not use the pharyngeal mirror the enlarged submaxillary lymphnodes will locate the process. The most important complication in simple angina is prolongation of the fever for from one to three weeks. Killian was able to abort this fever by expressing the plugs from the tonsillar crypts. This is the best proof that tonsillar plugs may cause toxic and septic conditions. One should not try to express these plugs during the first few days of the angina, for during this period they are too adherent to the tonsil, as the result of the outpouring of tenacious fibrin. Aside from continued fever there are many complications of angina simplex. Most of these come under the head of tonsillar focal infection. Peritonsillar abscess and phlegmon occasionally supervene as sequelæ. In a certain number of cases acute tonsillar infection passes to the chronic stage with a second series of focal infections, tonsillar abscesses, etc. In the treatment of the chronic as well as of the acute cases, the aim is disinfection of the diseased tonsils.

HEMOCLASTIC CONSEQUENCES OF BOLTING FOOD.

THE late Horace Fletcher, who preached the gospel of slow mastication and attributed many of the ills of mankind to the reprehensible practice of bolting one's food, would have been greatly pleased by an observation recently reported by Pagniez and de Gennes (*La Presse Médicale*, April 27, 1921, xxix, 34) of a man who, whenever he ate rapidly, developed an urticarial outbreak. This phenomenon seems to have been of daily occurrence, although it had begun only a few months before the man was seen by the authors. He had made various changes in his diet but none in his manner of eating. He ate with extreme rapidity but bolting his food had caused him no digestive disturbances. As soon as he had acquired the habit of eating slowly the rash ceased to appear. After three weeks' immunity the authors asked the subject to resume his old habit of bolting in order that blood tests might be made. Nothing happened until the fourth day, when hives broke out with itching. The man was subjected to experiment for several months and the possibility that the eruption was due to any particular kind of food was eliminated. A complete hemoclastic crisis did not occur but leucocytosis was affected in that the phenomenon of digestive leucocytosis did not appear as usual. This absence had been noted by the authors before in certain cases of urticaria and migraine in which an anaphylactic origin had been demonstrated. It is evident that the mechanism of the phenomenon in the case reported was complex and could not be regarded as a simple reflex.

AN APOLOGY TO DR. MORTON PRINCE.

THE publishers of Dr. Morton Prince's work entitled "The Unconscious" have called our attention to the almost literal, and indeed for the most part exact, correspondence between a section on pages 391-410 of that work, published in 1914, and an article entitled, "Technique of Psychoanalysis as Practised in a Case of Phobia", alleged to have been written by Dr. H. Laveson of this city and published in the MEDICAL RECORD of May 21, 1921. Comparison of the article and the section noted in the book confirms this assertion. We apologize to Dr. Morton Prince and to the Macmillan Company, publishers of the book, for this rank plagiarism by one of our contributors, and we assure them that Dr. Laveson will never have an opportunity to repeat this performance in the columns of the MEDICAL RECORD.

News of the Week.

Smallpox Outbreak in Arkansas.—Thirty-two cases of smallpox have been reported among the 1800 residents of Pocahontas. An investigation of the epidemic by the State Board of Health of Arkansas shows that the outbreak originated with an unvaccinated seventeen-year-old girl in the public school.

New Decision Upholds Law Governing Vaccination.—A writ of mandamus brought by a parent to compel the Haverhill (Mass.) school board to allow his three children to attend the public schools without complying with the regulation of the school committee, providing that every pupil who has been given a certificate by a physician, stating that such pupil is not a fit subject for vaccination shall be required to renew such certificate once in two months, has been dismissed by the court. The decision declares that the intent of the Legislature clearly is that exemption from vaccination is not to cover the entire period of a child's attendance and that such certificates are limited to the period when the child's physical condition is such as, in the opinion of a physician, to unfit him for vaccination at that time.

Public Health Committee of the New York Academy of Medicine.—At the meeting of this committee on June 6, the question of the proposed abolition of the Division of Industrial Hygiene of the Health Department of the city was discussed. The committee voted to support the position taken by the Commissioner of Health in urging the retention of this bureau. The work done by this bureau could not be fully carried out by the State Department of Labor because of lack of sufficient personnel. Moreover, so far as the city was concerned it would really not secure any important saving of expenses. This protest was sent to the members of the Board of Estimate and Apportionment.

The Committee also discussed the Shepard-Towner Bill, now before Congress, which aims, in addition to administrative expenses, to appropriate a certain sum of money to the different States of the Union, provided they will also furnish an equal sum for the purpose of cooperating in promoting the care of maternity and infancy. The matter had been referred to a subcommittee and the purposes as well as the principle underlying the bill were very

carefully considered. The subcommittee reported that it would be undesirable to take any action on this bill at the present time because the questions of health and welfare were undergoing a reorganization.

House of Delegates of the American Medical Association Sidesteps the Alcohol Question.—At the recent meeting of the American Medical Association a resolution, introduced before the House of Delegates by Dr. Victor C. Vaughan of Ann Arbor, Mich., to the effect that the Association reiterated and reaffirmed its judgment of 1917 that the use of alcohol as a beverage was detrimental to human economy and that there was no scientific basis for its use as a food and in the treatment of patients, gave rise to a three hours' debate behind closed doors. The resolutions were finally referred to the Committee on Scientific Research with instructions that it give the subject full investigation and submit a report at the next meeting.

Protests Against the Volstead Act.—At the annual meeting of the American Medical Editors' Association in Boston last week resolutions were adopted declaring that the medical restrictions of the Volstead Act, together with its various administrative and other interpretations are obstacles to the free practice of therapeutics, and have reacted to the detriment of society and the public health; that the American Medical Editors' Association protests against further undue regulation of therapeutic procedure by statute or by administrative interpretation or regulation; and that the Association requests of the proper authorities a review and revision of such existing statutes, rules, and regulations as may be unduly restrictive of the therapeutic judgment and procedure of physicians.

The Right to Prescribe.—At a recent meeting of the Lycoming County (Penn.) Medical Society resolutions protesting against the interference of the government with the power of physicians to prescribe for their patients were adopted. These resolutions were presented before the House of Delegates of the American Medical Association.

Fordham Medical College to Close.—Announcement was made a few days ago that the medical school of Fordham University in New York would cease to exist with the close of the graduation exercises on Thursday of this week. The school has been in existence for sixteen years and was in the A class of medical colleges. During the war it sent over an ambulance and a hospital unit recruited from graduates and undergraduates of the school. Want of funds is the cause of the discontinuance of classes, the annual deficit amounting to over \$20,000 a year.

Medical College Commencements.—At the commencement exercises of New York University, 111 of the 966 degrees conferred were bestowed upon medical students. At the same time Chancellor Elmer Ellsworth Brown announced an expansion of the medical department. A seven-story structure is to be added to the medical group, the primary purpose of which will be to provide satisfactory housing for the New York State Bacteriological Laboratory. Two floors will be devoted to a laboratory and museum for the teaching of preventive medicine, hygiene and sanitation, the Rockefeller Foundation having contributed \$35,000 for this purpose.

The Jefferson Medical College of Philadelphia, at its commencement exercises on June 4, conferred the degree of Doctor of Medicine on 114 graduates.

Forty graduates of the New York Homeopathic Medical College and Flower Hospital received their diplomas at the sixty-first annual commencement of this institution, which was held in the Hotel Astor on June 9. Dr. Samuel B. Moore, president of the Medical Board of the Metropolitan Hospital, administered the Hippocratic oath.

China Will Adopt U. S. Pharmacopœia.—The United States Pharmacopœia is being translated into the Chinese language under the auspices of the Philadelphia College of Pharmacy and Science. Germany before the war is said to have tried every means to have the German Pharmacopœia translated into Chinese in order that German manufacturers might export to China drugs of German standards, and it is understood that Great Britain has made a similar effort since the war. Through the adoption of American standard formulas for drugs and medicines, it is expected that American drug manufacturers will be greatly benefited.

New York Celebrates "Milk Week."—During the week beginning June 6, the New York Health Department conducted a campaign to increase the use of milk as a food not only for babies but for adults as well. Bars where milk was served were conducted in all drug stores throughout the city. One of the features of the campaign was a drive to secure funds to provide pure milk for babies during the summer.

St. Louis Hospital Acquires New Site.—The Liberty Hospital, located at Delmar Boulevard and Pendleton Avenue, has purchased a lot 100 x 200 feet at the southwest corner of Washington Boulevard and Taylor Avenue, where it plans to erect a hospital building at a cost of \$500,000.

Fake Arsphenamine.—A preparation purporting to be arsphenamine of German origin has been sold in New York City by seamen and other unscrupulous vendors. Upon investigating these sales and making analyses of the substance the New York Health Department has found it to be a substitute for asphenamine, composed of sodium chloride and a yellow dye. The New York City Health Department warns physicians and druggists against purchasing such products from unknown persons.

Hospitals Get Whiskey.—United States Judge Thomas I. Chatfield in Brooklyn recently sustained the decision of Federal Judge Garvin, ordering the release for distribution to hospitals of 1076 gallons of bonded whiskey which were seized in the Long Island Railroad yards in Long Island City last December.

The Alaskan Territorial Medical Society, at the recent meeting of the American Medical Association, was admitted as a constituent member of the association.

The Second English-Speaking Conference on Infant Welfare will be held at the Central Hall, Westminster, London (instead of at the Kingsway Hall, as previously announced), on Tuesday, July 5, Wednesday, July 6, and Thursday July 7, 1921, from 10 to 1 and from 2:30 to 4:30 each day. The Child Welfare Exhibition will be open from Tuesday, July 5, to Saturday, July 9, from 11 A. M. to 9 P. M., in the Central Hall, Westminster, ground

floor. It will include the latest exhibits and posters relating to the welfare of mothers and babies, including a special section arranged by the Child Hygiene Association of the United States. Demonstrations from 11 A.M. to 9 P.M., on the care of the baby, including feeding, cookery, toilet, exercise, clothing, sleep, habits, etc. Illustrations of the work in Day Nurseries, Nursery Schools, and Montessori Schools, also of the teaching of infant care to schoolgirls. Child Welfare doctors, dentists, and oculists will be in attendance daily to give free consultations and advice on the health of mothers and young children. Throughout the week a large number of Infant Welfare Centers, resident institutions of all kinds for mothers and babies, day nurseries, nursery schools, etc., will be open for inspection by delegates to the conference. The conference fee, including admission to the exhibition and to the evening lectures, the right to receive proofs of the papers to be read, and a copy of the report of the proceedings when published, has been fixed at £1 1s. per member. Tickets are to be obtained from Miss Halford, Secretary, National Association for the Prevention of Infant Mortality, 4 and 5, Tavistock Square, London, W. C. 1.

Charitable Gifts and Bequests.—The Carnegie Corporation announces an appropriation of \$100,000 for the use of the National Board of Medical Examiners in a period of five years.

By the will of the late Pemberton Hollingsworth of Philadelphia, the sum of \$5,000 is bequeathed to the Presbyterian Hospital in honor of Dr. H. R. Wharton, and the sum of \$10,000 each to the Chestnut Hill Hospital, for a room in memory of Laura Albert Hollingsworth, and to the Presbyterian Hospital for a room in memory of his mother, Anna Clifford Hollingsworth.

The General Education Board of the Rockefeller Foundation has made a gift of \$3,000,000 to the trustees of Vanderbilt University to be used in the development of the School of Medicine.

At the commencement exercises of New York University, Chancellor Elmer Ellsworth Brown announced the following gifts: For university endowment, \$200,000 from the Carnegie Corporation; for additions to the Edward Gibbs Memorial X-Ray Laboratory, an addition of \$1,000 to a former benefaction by Mrs. Charles H. Sherrill; a gift of \$150,000 from Mrs. Helen Hartley Jenkins to complete an endowment of the department of medicine for which Mrs. Jenkins had previously contributed \$100,000. This endowment is a memorial to Alexander A. Smith.

The will of the late Daniel Fraser of Washington, D. C., provides for the following bequests: the Garfield Memorial and Homeopathic Hospitals, Washington, each \$25,000; the Northern Infirmary, Inverness, Scotland, \$15,000; the Inverness Home for Convalescents, \$10,000.

The Children's Homeopathic Hospital and the Lankenau Hospital, Philadelphia, receive bequests of \$5,000 each under the will of the late Alfred E. Bruk of Philadelphia.

The Rochester Homeopathic Hospital, at Rochester, N. Y., is a beneficiary of the will of Bertha E. Hoxie to the extent of \$6,000, to be used for the endowment of a permanent bed.

Dr. T. Mitchell Prudden of New York has been elected a member of the International Health Board of the Rockefeller Foundation.

Dr. Brandreth Symonds of New York received the honorary degree of Doctor of Laws at the ninety-sixth Commencement of Hobart College on June 13, in recognition of his services to the cause of public health.

Dr. George David Stewart of New York received the degree of Doctor of Laws from the New York University at its commencement exercises on June 8.

Dr. John A. Kolmer, Professor of Bacteriology in the Graduate School of the University of Pennsylvania received the degree of Doctor of Science at the commencement of Villanova College on June 9.

Dr. Simon Flexner delivered the commencement address at Bryn Mawr College on June 9. He urged women, now that opportunity had opened the door, to take up the pursuit of science for which he believed they possessed particular aptitude.

Professor José María Albanana Sanz of Madrid has been sent to Mexico by royal order to investigate the primitive medicines of the Aztecs and their influence over modern European medicines. He will leave Spain this month.

Dr. Harold E. Anderson has been appointed surgeon-dentist to St. Mary's Hospital, Hoboken.

Licensing of Mechanotherapeutists.—A bill now before the Illinois Legislature to license practitioners of mechanotherapy is strongly opposed by the medical practitioners of the State. In the bill mechanotherapy is defined as "the relieving and treatment of human ailments by mechanical means, especially by massage and gymnastic exercise." The medical men believe that were this bill to become a law men licensed thereunder could rightfully contend that treating fractures with splints and plaster of paris casts and even surgical operations with the use of instruments could be defined as coming under the provisions of this measure. Objection is also raised to another section of the bill which reads: "No person who has received a license to practise mechanotherapy in this State shall make a diagnosis of human ailments or prescribe or administer drugs, except under the direction of a duly licensed physician." This would give the mechanotherapist the right to prescribe or administer drugs under the direction of a licensed physician, but it is not clear just what the term "direction" of a physician means. It could be construed in many objectionable ways.

Medical Society Elections.—THE MEDICAL ASSOCIATION OF GEORGIA, at its seventy-second annual meeting held in Rome, May 10-12, 1921, elected the following officers: *President*, Dr. E. G. Thrash, Atlanta; *First Vice-President*, Dr. H. W. Terrell, LaGrange; *Second Vice-President*, Dr. R. M. Harbin, Rome; *Secretary-Treasurer*, Dr. A. H. Bunce, Atlanta.

THE WEST TENNESSEE MEDICAL SOCIETY, at its annual meeting held in Paris, May 13, 1921, elected the following officers for the ensuing year: *President*, Dr. C. H. Johnston, Lexington; *Vice-Presidents*, Dr. R. L. Motley, Dyersburg, and Dr. T. B. Wingo, Martin; *Secretary-Treasurer*, Dr. Isaac A. McSwain, Paris; *Assistant Secretary-Treasurer*, Dr. George R. McSwain, Paris.

THE CALIFORNIA STATE MEDICAL SOCIETY, at its annual meeting held in San Diego, May 11-13, 1921, elected the following officers for the ensuing year: *President*, Dr. H. G. Brainerd, Los Angeles; *First Vice-President*, Dr. Alfred C. Reed, San Francisco; *Second Vice-President*, Dr. Joseph H. Catton, San Francisco; *Secretary*, Dr. W. E. Musgrave, San Francisco.

THE FLORIDA MEDICAL ASSOCIATION, at its meeting held in Pensacola, May 12, 1921, elected the following officers for the ensuing year: *President*, Dr. S. R. Mallory Kennedy, Pensacola; *First Vice-President*, Dr. L. M. Anderson, Lake City; *Second Vice-President*, Dr. Wellcome Herbert Adams, Jacksonville; *Third Vice-President*, Dr. J. C. Davis, Jr., Quincy; *Secretary-Editor*, Dr. Graham E. Henson, Jacksonville.

THE MISSISSIPPI MEDICAL ASSOCIATION, at its annual meeting held in Laurel, May 11, elected the following officers for the ensuing year: *President*, Dr. Henry Boswell, Sanitorium; *First Vice-President*, Dr. J. A. Mason, Cold Water; *Second Vice-President*, Roland H. Cranford; *Secretary*, Dr. T. D. Dye, Clarksdale; *Treasurer*, Dr. J. M. Buchanan, Meridian.

THE NEBRASKA STATE MEDICAL ASSOCIATION, at its annual meeting held in Lincoln, May 12, 1921, elected the following officers for the ensuing year: *President*, Dr. B. B. Davis, Omaha; *First Vice-President*, Dr. Porter F. Dodson, Wilber; *Second Vice-President*, Dr. P. R. Howard, North Bend; *Secretary-Treasurer* (short term), Dr. E. R. Manning, Omaha; *Secretary-Treasurer* (long term), Dr. R. B. Adams, Lincoln.

THE LOGAN COUNTY (ILL.) MEDICAL SOCIETY, at its annual meeting held in Lincoln, May 13, 1921, elected the following officers for the ensuing year: *President*, Dr. C. B. Caldwell, Lincoln; *First Vice-President*, Dr. Forrest Van Hook, Mt. Pulaski; *Second Vice-President*, Dr. J. H. Butler, Lincoln; *Secretary-Treasurer*, Dr. E. C. Gaffney, Lincoln.

THE ELEVENTH CONGRESSIONAL DISTRICT MEDICAL SOCIETY OF INDIANA, at its semi-annual meeting held in Logansport, May 19, 1921, elected the following officers for the ensuing year: *President*, Dr. Ira Perry, North Manchester; *Secretary-Treasurer*, Dr. J. H. Reed, Logansport.

THE IOWA STATE MEDICAL SOCIETY, at its seventieth annual meeting held in Des Moines, May 12-14, 1921, elected the following officers for the ensuing year: *President*, Dr. Alanson M. Pond, Dubuque; *First Vice-President*, Dr. S. A. Spilman, Ottumwa; *Second Vice-President*, Dr. M. A. Tinley, Council Bluffs; *Secretary*, Dr. T. B. Throckmorton, Des Moines; *Treasurer*, Dr. T. F. Duhigg, Des Moines.

THE ARKANSAS ECLECTIC MEDICAL ASSOCIATION, at its meeting held in Little Rock, May 14-16, 1921, elected the following officers for the ensuing year: *President*, Dr. J. F. Hilburn, Pine Bluff; *First Vice-President*, Dr. R. C. Norris, Tuckerman; *Second Vice-President*, Dr. B. D. Clutch, Booneville; *Secretary*, Dr. S. G. Boyce, Little Rock; *Treasurer*, Dr. C. E. Spann, Altheimer.

THE HOMEOPATHIC MEDICAL SOCIETY OF WISCONSIN, at its annual meeting held in Milwaukee, May 12-14, 1921, elected the following officers for the ensuing year: *President*, Dr. F. T. Clark, Waupun;

Vice-President, Dr. J. M. March, Elkhorn; *Secretary*, Dr. John F. Guy, Milwaukee; *Treasurer*, Dr. F. E. Brown, Milwaukee.

THE INDIANA INSTITUTE OF HOMEOPATHY, at its annual meeting held in Indianapolis, May 12, 1921, elected the following officers for the ensuing year: *President*, Dr. C. A. Walton, Anderson; *Vice-Presidents*, Dr. G. A. Low, Indianapolis; Dr. E. R. Wallace, Aurora; *Secretary*, Dr. J. D. Coons, Lebanon; *Treasurer*, Dr. J. C. Slaubaugh, Nappanee.

THE MEDICAL SOCIETY OF NORTH VIRGINIA AND THE DISTRICT OF COLUMBIA, at its meeting held in Alexandria, Va., May 18, 1921, elected the following officers for the ensuing year: *President*, Dr. Stephen Hamsberg, Catletts, Va.; *First Vice-President*, Dr. W. L. Lewis, Kensington, Va.; *Second Vice-President*, Dr. V. P. Borden, Washington; *Recording Secretary*, Dr. William T. Davis, Washington; *Corresponding Secretary*, Dr. Joseph J. Rogers, Washington; *Treasurer*, Dr. Robert S. Lamb, Washington.

THE ESSEX SOUTH DISTRICT (MASS.) MEDICAL SOCIETY, at its annual meeting held in Lynnfield, Mass., May 12, 1921, the following officers were elected for the ensuing year: *President*, Dr. P. P. Johnson, Beverly; *Vice-President*, Dr. J. B. MacDonald, Hathorne; *Secretary*, Dr. G. E. Tucker, Salem; *Treasurer*, Dr. G. Z. Goodell, Salem.

THE FRANKLIN DISTRICT (MASS.) MEDICAL SOCIETY, at its annual meeting held in Greenfield, May 13, 1921, elected the following officers for the ensuing year: *President*, Dr. J. H. Mather, Greenfield; *Vice-President*, Dr. J. A. Suitor, South Deerfield; *Councilors*, Dr. H. G. Stetson, Dr. H. N. Howe, and Dr. Charles Moline, Sunderland; Dr. Roscoe Philbrick and Dr. A. L. Newton, Northfield.

THE BAYONNE (N. J.) MEDICAL SOCIETY, at its annual dinner meeting held May 19, 1921, elected the following officers for the ensuing year: *President*, Dr. A. J. Malloy; *Vice-President*, Dr. E. E. Lupin; *Secretary*, Dr. W. L. Williamson; *Reporter*, Dr. E. S. Klugman.

Obituary Notes.—Dr. L. A. SPAULDING, a graduate of the Medical College of Ohio in 1878, died at his home in Bluffington, Ind., on May 13, at the age of seventy-three years.

Dr. FRANK BORSODY of New York, a graduate of the Royal Hungarian University, Budapest, in 1872, died May 19, at the age of seventy-five years.

Dr. FRANK PIERCE KENYON of Pomona, Cal., died following a surgical operation in a local hospital on May 8, at the age of sixty-seven years.

Dr. EDGAR DINKELSPIEL of New York, a graduate of the University of California in 1899, died at his residence on May 23, at the age of forty-four years.

Dr. ABRAHAM MANDELBAUM of Brooklyn, a graduate of the Maryland Medical College, Baltimore, in 1900, died in a local hospital on May 24, at the age of fifty years.

Dr. GUY CARLETON BAYLEY of Poughkeepsie, N. Y., a graduate of the College of Physicians and Surgeons, New York, in 1872, died on May 24, at the age of seventy years. He was surgeon in chief of the Vassar Brothers' Hospital from its founding until 1907.

Dr. THOMAS HARVEY WILLIAMS of Neshoba, Tenn., a graduate of Jefferson Medical College in 1872, died May 18, at the age of seventy-one years.

Dr. CHARLES F. MCCARTHY of Winchester, Conn., a graduate of Long Island College Hospital in 1890, died after a lingering illness on May 19, at the age of fifty-one years.

Dr. WARREN HUGH MAUZEY of Findlay, Ill., died on May 17 at the age of fifty-five years. He was graduated from the Louisville Medical College in 1898.

Dr. CHARLES D. BRINER, a graduate of Starling Medical College, Columbus, in 1886, died of Bright's disease at his home in Williamsport, Ohio, on May 20, at the age of fifty-eight years.

Dr. SIMON B. RICHMOND, physician to the Boys' Industrial School, Pine Bluff, Ark., died there on May 12, at the age of sixty years.

Dr. GEORGE W. MILLER, a graduate of the Miami Medical College, Cincinnati, in 1901, died at his home in East Chicago, Ind., May 12, at the age of forty-four years.

Dr. RIVES ANDREW MANKER of Memphis, Tenn., a graduate of the Memphis Hospital Medical College in 1908, died from heart trouble in a local hospital on May 19, at the age of thirty-eight years.

Dr. IRVING J. WOODIN of Independence, Cal., died from cancer in Los Angeles on May 10, at the age of sixty-nine years. He was graduated from the Long Island College Hospital in 1874.

Dr. HARRY M. SHERMAN of San Francisco, Professor of Surgery in the University of California, died following an attack of bronchial trouble on May 15, at the age of sixty-seven years. He was a graduate of the College of Physicians and Surgeons, New York, in 1880, and a Fellow of the American College of Surgeons. He was director of St. Luke's Hospital.

Dr. ROBERT W. MCCLELLAND of Pittsburgh, Pa., died in the Hahnemann Hospital on May 18. He was graduated from the Hahnemann Medical College and Hospital, Philadelphia, in 1884. He was a member of the American Institute of Homeopathy.

Dr. J. B. FINCH of Dresden, Tenn., a graduate of Vanderbilt University Medical Department, Nashville, Tenn., in 1880, died suddenly May 20, at the age of sixty-four years.

Dr. HENRY J. CUMMINGS, a graduate of Trinity Medical College, Toronto, in 1889, died at his home in St. Louis, May 15, following two months' illness, at the age of fifty-four years.

Dr. CLINTON STUART KERR of Los Angeles, Cal., and Emlenton, Pa., died in the latter place on May 20. He was graduated from the Cincinnati College of Medicine and Surgery in 1876.

Dr. JOHN WILSON, for sixty years a practitioner of medicine, died at his home in Tacoma, Wash., on May 14, at the age of ninety-one years.

Dr. MELAMED OVIDIN, a graduate of the Temple University Medical Department, Philadelphia, Pa., in 1909, was shot and killed by an insane patient at the National Soldiers' Home in Togus, Me., on May 25. He was forty-three years of age.

Dr. HARLOW A. WHITNEY of Northfield, Mass., a graduate of the University of Vermont College of Medicine in 1907, died after a lingering illness on May 20.

Dr. RICHARD WILLIAMS WOOTEN of Kinston, N. C., a graduate of the University of Virginia Medical Department in 1870, died on May 17, at the age of seventy-two years.

Correspondence.

THE CASE OF CUSACK VS. MORRIS

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—On the way to the meeting of the American Medical Association with a group of doctors bound for Boston, I find a general expression of regret that the details of the suit against me have not become available, as the case was discontinued. A number of important points were involved.

Some years ago I presented at a meeting of the Surgical Society in New York a man who had lost both testicles in youth as a result of mumps. There was no sex power or feeling. A small graft had the peculiar effect of stimulating the remains of one testicle into development, although the graft itself was absorbed. The patient gained sex power and married.

Three years ago a patient, Mr. H., came to the Post Graduate hospital for removal of a small tumor of the leg. He had undeveloped testicles although he was a man in good health and since that time has been married. It occurred to me, having the former case in mind that a graft of testicle tissue might stimulate the development of the testicles with the effect of perhaps lowering his voice at least, through enzymic response. I told him that if he would come to the hospital on some occasion when I had trimmings from a hydrocele operation I might try these for endocrine effects. Some time later a patient, Mr. Cusack, was sent to me by his family physician for an operation for double inguinal hernia and hydrocele of the right side.

Many years ago at the Ithaca Hospital after a Bergmann operation for hydrocele there was a return of the condition a year or so later. At the first operation I had removed only the parietal layer of the sac. At the second operation to insure a radical cure I removed the visceral layer, marked off lines with a scalpel and then with curved scissors removed peritoneum and found that no harm was done if some of the tunica albuginea and adherent tubules were included here and there among the trimmings. Since that time I have regularly done this addition to the Bergmann operation.

Knowing that we were to have trimmings of this sort I asked Mr. H. to allow me to use some of the material, small pieces of which, including several kinds of structure, were inserted in the abdominal wall beneath the sheath of the rectus muscles. Incidentally it may be remarked that in this case the tissue was absorbed after the operation. In the case of Mr. C. the hernial and hydrocele wounds had become healed to such a degree at the end of a fortnight that I informed him he might return home on the following day. Incidentally there had been a collection of brownish fluid at the hydrocele site, which I took to be ordinary serous oozing, at the time when it was withdrawn with the needle. I then left town for a Medical Society meeting at a distance. In my absence it was found that an infection was under way at the hydrocele site with the formation of an abscess. Because of the late development of this complication it was presumed to be a catgut infection.

My colleague on the staff, Dr. S., who had a pa-

tient in the next room, was called in to help out with my patient in my absence. He opened the abscess and incidentally asked another colleague, Dr. E., to be present at the operation. Dr. S., Dr. E., and I had previously had a good deal of controversy over the employment of rubber gloves in surgery. In this particular case I had worn gloves, as they are discarded in my abdominal work only, for reasons stated in various published contributions on the subject. The result of the abscess on the right side was a defect in contour which may be remedied. There is no loss of virility.

The patient gained the impression that I was responsible for his trouble and through Mr. Leo Levy brought suit for felonious assault and \$250,000 damages. Mr. Levy began proceedings in a way which displeased my counsel, Mr. James Taylor Lewis, then counsel for the New York State Medical Society. Because of this legal hitch the case passed into the hands of Mr. Cornelius J. Smyth. Mr. Smyth, examining into the various features, found it desirable to call Mr. George Gordon Battle to his aid.

Mr. Battle having examined me in advance of trial in the presence of the plaintiff and others interested, decided that it was a case which he did not care to try. Mr. Smyth next called in Mr. W. J. Fallon. The case has now been discontinued on the request of Mr. Cusack, who learned the real facts for the first time when Mr. Battle made the preliminary examination before trial.

It is necessary to correct several points of misconception which have been widespread and of which I have heard not only from various parts of this country but from abroad. It was said that Mr. H. paid me a large fee for the grafting operation. Mr. H. paid me nothing at all for this, as it was simply a bit of side experiment made at a time when I hoped to be of service both to Mr. C. and to Mr. H.

It has been said that I paid a large sum of money for discontinuance of the suit. I have paid nothing at all for this. On the other hand, my counsel, Mr. Lewis, will be witness to the fact that I have urged him during these three years to bring the case to trial at the earliest possible moment. My witnesses in the case were members of the Surgical Society, doctors who assisted me previously and at the time when I did this particular form of hydrocele operation and doctors who had adopted the same form of operation themselves. The witnesses against me were two doctors whom I did not know personally. They were paid \$150.00 each for examining the patient and they are said to have received their information about the case from a doctor who was not present at the operation. There was no question in my mind of bad faith on the part of these two doctors who were to have been witnesses against me.

Legal points in the case relate to the employment of waste materials without the consent of the party from whom they were removed. Skin, bone, and other tissues are so frequently used in this way that it was believed that the point would not require adjudication.

ROBERT T. MORRIS, M.D.

616 MADISON AVENUE,
NEW YORK.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, May 17, 1921.

The Queen and Medical Women.—In a letter sent a short time ago a brief account was given of the new unit of obstetrics and gynecology, established at the Royal Free Hospital, London, the Women's Medical School. It was mentioned that this unit was the first recognized by London University, of obstetrics and gynecology in London. Attention may be further drawn to the fact that the Royal Free has always been a pioneer among the London hospitals. In 1828 it was the first to admit indigent men, women, and children without any of the formalities which had to be gone through before admittance was granted to the other hospitals. Again in 1877 it was the first to make the new departure of admitting female students to its wards, in 1896 it made another forward step by appointing woman graduates as medical and surgical registrars, and in succeeding periods it opened its resident posts to women graduates and elected two women graduates to its honorary staff. Strictly speaking the London School of Medicine for Women is situated in Hunter Street, W. C., in convenient proximity to the Royal Free Hospital, but all the clinical work is done at the Royal Free Hospital. This hospital is the only one in London which is absolutely open to female medical students. Some of the other big hospitals admit quite a limited number of these and the remaining ones refuse to admit them. This being the case girl students in great numbers flock to the London School for Women and its subsidiary hospital with the consequence that the clinical facilities have had to be extended. Accordingly in 1915 a fund was opened to extend the hospital on land presented by its chairman. A total of £500,000 is required to carry out the full scheme, but already the unit of obstetrics and gynecology has been created and 100 additional beds equipped for that neglected and large class of patients who are unable to obtain free treatment, who have no proper facilities for operations in their own homes and cannot afford to pay the high fees of a good nursing home.

The Queen, on May 11 last, opened the new clinical unit of obstetrics and gynecology of the Royal Free Hospital. Miss Aldrich Blake, M.D., the dean of the Medical School, welcomed the Queen on behalf of the school and hospital and of past and present students, and said in part, that clinical units in medicine and surgery had recently been created in some of the other medical schools in London, but they had the honor, they hoped not inappropriately, to be the first to have a unit in obstetrics and gynecology. For this new development in the teaching of clinical subjects the medical schools were indebted to the Board of Education and the University Grants Committee. For the conditions which had made the unit possible there they had many friends to thank. They owed thanks to Lady Barrett, now consulting obstetrician to the hospital, for the energy and initiative which developed the department of midwifery; to the Duchess of Marlborough both for her own great gifts and for £10,000 which came to them by her influence with the American Red

Cross; and they wished to thank the American Women's Club for the equipment of wards and their constant helpful interest in the patients in them. During the tour of the hospital Dr. May Thorne addressed the company and said that all present felt that the Queen was there because she was keenly interested in the medical education of women, and therefore interested in the Royal Free Hospital, as that hospital had been the alma mater of the medical education of women in England for well over forty years. The jubilee of the hospital would occur in 1924 and by that time they would like to have the extension of the hospital built and equipped and containing sufficient beds to enable them to have units of medicine and surgery in addition to the unit which had been opened that day.

Hospital Crisis.—According to the *Pall Mall* and *Globe*, May 17, 1921, it would really seem that our great hospitals are at last awakening to realities and are recognizing that only by frank acceptance of the paying patients is State control to be avoided. Everyone who knows anything of State control also knows that under its blighting influence the hospital as we have come to know it would disappear. It is regrettable that the hospital managements have been so slow to recognize the social changes of the time, changes that have cut off the old flow of subscriptions and created a new poor that cannot pay the fees of fashionable surgeons and nursing homes. It is regrettable because had the paying system been introduced earlier we should not have had such statements as those recently issued by great hospitals to the effect that they are closing down wards owing to lack of funds to carry on. King's College Hospital, which is one of those in distress, has said that when the occupied beds are reduced to 200, a paying system will be introduced. It is to be hoped that when it is introduced it will be planned upon a businesslike basis, for it appears certain that if the public need is properly catered for by a graduated system of payment for value received, no more will be heard of insolvency, although really necessitous uninsured patients are accepted without charge. On the whole the above seems to be a reasonable statement, and it is probable that the introduction of a system of paying patients on a graduated scale would nominally save the situation or, at any rate, effect a great amelioration. At the present time while the hospitals are free to all, as a matter of fact they are closed to the very people who need their services most. The middle class are really the poor now. They cannot get into the big hospitals and are unable to pay the charges of the nursing homes. It is only the rich and the presumably poor, the working classes, who receive skillful and adequate medical and surgical treatment when they are truly ill. But over and above, the introduction of the pay system, better management or rather organization of the hospital system is called for if these institutions for the sick are to be placed on a sound financial basis. The voluntary system is not actually defunct, it only requires to be wisely modified and revised.

Spahlinger Serum for Tuberculosis.—One or two of the lay papers here, and especially one of

the Sunday papers, continue to extol the Spahlinger treatment for tuberculosis and almost to revile the Government, represented by the Department of Health, for not taking a more active interest in the matter. As mentioned in a former letter many questions on the subject have been asked in the House of Commons and a really extraordinary concern has been manifested by all sorts and conditions of men. This curiosity on the part of the general public is not to be wondered at for it has been unduly fanned by certain journals. While the lay press has given much prominence to the serum, the British medical press has observed a discreet reticence, and as said before the Ministry of Health does not appear to think it worth while to make any special investigations. The most recent communication was made by Spahlinger through Professor D'Arsonval to the Académie des Sciences and this report included the treatment of cases by two British physicians, Dr. Croucher and Dr. Leonard Williams. The former gave a very favorable report of the cases treated by him by this method. Dr. Williams described several cases of surgical tuberculosis and of open pulmonary tuberculosis with bacilli in the sputum, which he declared are now free from active disease. Lastly, Dr. W. Camac Wilkinson, in the *British Medical Journal* of February 26, stated that he had studied the evidence in favor of M. Spahlinger's treatment and discussed his point of view with him at an interview. Dr. Wilkinson said that it was practically the same method that he had been using for the past thirty years and, of course, he is strongly in favor of it. The details given of the treatment are meager and vague in the extreme. Professor D'Arsonval merely states that "acute cases are treated by means of complex antitoxic and bacteriolytic serums, and that chronic cases are dealt with by vaccination with a series of antigens and ferments, the former of these being derived from the bacillary substance of the tubercle bacillus. The Swiss correspondent of the *Lancet* is sceptical of the whole matter. It may be pointed out that more than one serum has been produced for the treatment of tuberculosis, all of which have been lauded as cures, and it may be added that none has met with success. The composition or method of preparation of these serums was made known in every instance, but so far as Spahlinger's serum is concerned absolutely no information has been forthcoming. Consequently it is impossible to pass an opinion and the secrecy observed does not tend to inspire confidence in its curative merits. People on your side of the water probably still remember the furore, not to say uproar, with which the Friedman turtle serum was greeted a few years ago, and the laudation it received from yellow journals and even some medical men who ought to have known better.

The Danger of Athletics for Women.—Since a meeting was held a short time ago to protest against the cult of athletics for girls and women, or at any rate, to protest against the extreme manner in which it is being now carried on, opinions have been freely expressed on the subject in the correspondence columns of the daily papers. Perhaps the majority of the writers were in favor of

athletics for females and thought that the views ventilated at the meeting referred to, were absurd and far-fetched. However, Miss Cowdry, one of the speakers at the meeting, "sticks to her guns" and in a letter to the *Lancet*, May 14 last, puts her point of view logically and well. She used to think that games of all kinds were good for girls, and as the mistress of a large school encouraged all forms of physical culture. Experience has caused her to change her views and she gives her reasons for this change. She believes now that strenuous games are bad for the girl and worse for the woman, and the sooner it is realized that the differences between the sexes are profound and vital and that these differences are accentuated and not lessened by evolution, the better for humanity. It would be interesting to learn the opinions of medical men, medical women, and women who are intrusted with the training of girls in America on this subject.

Progress of Medical Science.

Boston Medical and Surgical Journal.

June 2, 1921, clixiv, 22.

1. Some of the Mutual Relations Between the Physician and the Commonwealth. F. W. Anthony.
2. The Essential Factors of Cancer Causation. James W. Shannon.

2. The Essential Factors of Cancer Causation.—James W. Shannon continues this discussion by considering how and why it happens that the conditions favorable to the causation of cancer (in which protozoal organisms in water play a primary part, if the theory be properly interpreted) are not present in an equal degree in all organs and parts of the body. The distinction is made between the predisposition to cancer and to lesions, the contention being that cancer results only from the cooperation of lesions and water.

New York Medical Journal.

June 1, 1921, cxlii, 15.

1. Some Emotional Reactions in Epileptics. L. Pierce Clark.
2. Singultus. Harry Schultz De Brun.
3. Report of a Case of Hysterical Aphasia. Anthony A. Ruiz.
4. Sensory Aphasia. Everett M. Ellison.
5. Shaker Cellulacy and Salacity Psychologically Interpreted. Theodore Schroeder.
6. Mental States Associated with Apoplexy and Allied Conditions. Albert C. Buckley.
7. The Effect of Tobacco on Man. William J. Gies, Max Kahn and O. Victor Limerick.
8. Ataxia Paraplegia with Pernicious Anemia. Karl A. Menninger.
9. Syphilis of the Lungs Simulating Tuberculosis. Henry M. Minton.
10. Encephalitis Lethargica as a Complication of Influenza. Bernard Frankel.
11. Report of a Series of Remarkable Cases of Injury to the Eyeball. Walter L. Pyle.
12. Two Cases of Foreign Body Removal. Joseph Friedman.
13. Marie Curie. Davina Waterson.

2. Singultus.—Harry Schultz De Brun considers that hiccup has been sadly neglected in the practice of medicine, and that it is a symptom which physicians have passed over without determining the absolute cause. From his own study of the subject the following conclusions are formulated: (1) Singultus has been known to be the sole cause of death. (2) The symptoms may be classified as to cause: (a) Simple; (b) inflammatory; (c) irritative; (d) traumatic; (e) specific; (f) neurotic; (g) unknown origin. (3) Attacks last from one minute to several months, with or without spasms, during sleep, and with or without remissions. (4) If the condition of the patient permits, always treat the causative factor when found. (5) If physiomechanical and medicinal treatment fails, resort to narcotics and anesthetics.

9. Syphilis of the Lung Simulating Tuberculosis.—Henry M. Minton reports three cases of syphilis of the

lung which, by the casual observer, might have been diagnosed as pulmonary tuberculosis. The frequency with which these cases appear at the Phipps Institute causes him to conclude first, that syphilis of the apices of the lungs is not by any means a rare condition, and that there are many cases of this disease being treated for pulmonary tuberculosis. Second, that one should avail oneself more frequently of Wassermann and other blood tests in private practice in cases giving signs and symptoms of active tuberculosis, but not giving positive sputum. This should be done whether a history of a primary luetic lesion is obtainable or not, realizing that syphilis is often innocently acquired. Signs of an aortitis, or a perihepatitis, of weak or suppressed breath sounds, should make one suspect syphilitic infection. By pursuing such a practice there is no doubt that some cases will be arrested which are running a rapidly downward course.

Journal of the American Medical Association.

June 4, 1921, lxxvi, 23.

1. Myocardial Necrosis in Hyperthyroidism. Ernest W. Goodpasture.
2. The Problem of the Narcotic Drug Addict. Alfred C. Prentice.
3. Enlargement of the Spleen in Experimental Acidosis. Raymond Householder.
4. Bronchial Spirochetosis. W. A. Bloedorn and J. E. Houghton.
5. Serum Desensitization. George M. Mackenzie.
6. Value of the Alimentary Test in the Diagnosis of Mild Hyperthyroidism. M. Ford Morris.
7. Experiences with the Lyon Test (Magnesium Sulphate Lavage of the Duodenum) for the Determination of Gallbladder Disease. Burrill B. Crohn, Joseph Reiss, and Morris J. Radin.
8. Significance of Diabetes Mellitus in Mental Disorders. Horace Victor Pike.
9. The Diagnosis of Chronic Genital Gonorrhea in the Female with Reference to Cutaneous and Complement Fixation Tests. Thomas H. Cherry and Salvatore di Palma.

4. Bronchial Spirochetosis.—W. A. Bloedorn and J. E. Houghton, holding the belief that this disease is more common in the United States than is generally recognized, and that if the nature of the infection and the possibility of encountering it were more constantly kept in mind, it would be more frequently observed, give a brief review of the history of bronchial spirochetosis, and report in full three personal observations. The organisms of spirochetel nature encountered in the sputum of these three patients more closely resembled *Spironema* than *Treponema* in that they were more refractive, more active in movement, and tended to change shape in motion. The disease, in its clinical aspects, is very suggestive of pulmonary tuberculosis, but usually can be readily distinguished from this infection. The routine examination of all sputum should include a search for spirochetes, and their presence should be regarded as significant, unless proved otherwise. The disease appears to be capable of transmission from an infected to a noninfected individual, although the degree of contagiousness is probably slight. An individual harboring the spirochetes in the sputum may present little or no evidence of the disease himself, and it appears that there exist carriers of *Spirocheta bronchialis*. The disease, as a rule, responds readily to treatment, and the arsenical preparations, particularly arsphenamine or nearsphenamine, are ordinarily very efficacious.

6. Value of the Alimentary Test in the Diagnosis of Mild Hyperthyroidism.—M. Ford Morris, in the effort to determine what value, if any, is attached to the alimentary hyperglycemia test in the diagnosis of mild hyperthyroidism—particularly in the so-called borderline cases in which the clinical signs and symptoms are not sufficient to warrant one in making a positive diagnosis, and in which it is necessary to resort to laboratory tests in order to decide what the condition is—studied ten cases in which a positive diagnosis of hyperthyroidism could not be made until the basal metabolic rate was known. These cases very properly belong to the borderline group, as far as signs and symptoms are concerned, and to the group known as mild hyperthyroidism after the metabolic rate is known. Three perfectly normal persons were used as controls for the experiment. The different tests and determinations in both normal and hyperthyroid cases were

made under the same conditions. From the results obtained in this series of cases one seems to be justified in concluding that the alimentary hyperglycemia test is of distinct value in the diagnosis of mild hyperthyroidism. In persons whose symptoms and physical findings are suggestive, but insufficient to warrant the making of a positive diagnosis of hyperthyroidism, the obtaining of results similar to those recorded in the ten cases reported may be considered as valuable corroborative evidence of the presence of thyrotoxicosis. The test, however, is not pathognomonic.

8. Significance of Diabetes Mellitus in Mental Disorders.—Horace Victor Pike states that it is not uncommon to find patients suffering from various types of psychoses who present the clinical and laboratory evidences of diabetes mellitus, in which the glycosuria appears solely as a complication of the mental disorder. These psychoses should not be confused, however, with that more uncommon group in which the mental manifestations are unquestionably due to an autotoxemia resulting from faulty sugar metabolism and in which the psychic symptoms are typical and fairly constant. During the past year he has observed, among the patients admitted to the State Hospital for the Insane at Danville, Pa., three cases of glycosuria which illustrate these two types. In these cases the intensity of the mental symptoms is in proportion to the toxemia, and improvement of the sugar metabolism is marked by a corresponding approach to normal mental functioning. When diabetes mellitus is the direct etiologic factor in the development of a psychosis, if it is early recognized and promptly treated, the progress of the mental disorder may be stayed.

The Lancet.

May 14, 1921, cc, 20.

1. The Goulstonian Lectures on Glycæmia and Glycosuria. Lecture II. George Graham.
2. The Prevention of Urinary Obstruction After Prostatectomy. J. W. Thomson Walker.
3. A Contribution to the Study of the Endotheliomata. E. H. Kettle and Joan M. Ross.
4. The Relation of the Liver to the Difference Value of the Blood. P. J. Canmidge, J. A. Cairns Forsyth, and H. A. H. Howard.
5. Outline of a Scheme to Finance the Voluntary Hospitals of London. W. McAdam Eccles.

3. A Contribution to the Study of Endotheliomata.—E. H. Kettle and Joan M. Ross have examined a large number of vascular tumors in the attempt to distinguish and define the characteristic features of the neoplastic endothelial cell and so place the diagnosis of the endotheliomata on a more secure basis. They have found that in tumors which can be recognized as of endothelial origin the cells invariably revert to the primitive vaso-formative type, and that this reversion is adequate to explain the structure and growth of these neoplasms. They suggest that the mere relation of tumor cells to blood vessels or to circulating blood is not conclusive evidence of an endotheliomatous origin, and that there is no evidence that the cells of an endothelioma can so closely resemble those of a carcinoma as to give rise to confusion. It is possible that this polymorphism can occur, for under certain conditions endothelial cells, especially those of serous membranes, can assume a cubical or even columnar form, but it has not been observed in any of the endotheliomata which have been examined. On the other hand, the more atypical endotheliomata progress gradually to a type of growth which is indistinguishable from a spindle-celled sarcoma. But in these, as in the hypothetical carcinomatous forms, differentiation is entirely lost, so that it is no longer possible to distinguish their endothelial origin, and there is no justification for including them among the endotheliomata. This name should be kept for tumors which reveal in their structure definite evidence of having originated from endothelium.

4. The Relation of the Liver to the Difference Value of the Blood.—Canmidge, Forsyth, and Howard consider the experimental evidence on which is based the conclusion (set forth in a previous communication) that disturbances in the functions of the liver change the relation normally existing between the difference value and the sugar content of the blood, but that when the

estimations are made at hourly intervals after a meal a difference-value curve of an entirely distinct character to that occurring in association with pancreatic insufficiency is found. They also discuss its bearing upon the original problem of their research, namely, the origin and significance of the dextrinuria of pancreatic disease, set forth in previous communications. Their summary from the present research follows: (1) The difference value of the blood, estimated at hourly intervals before and after a test-meal, follows an abnormal course in conditions where the functions of the liver are interfered with. (2) This "hepatic" curve differs markedly from the type of curve associated with pancreatic affections previously described, and bears no constant relation to the sugar content of the blood. (3) The increase in the difference value of the blood following a meal in disease of the liver is chiefly due to hydrolyzable carbohydrate, probably of a dextrin-like nature, absorbed from the alimentary tract, which is permitted to pass through the liver into the peripheral circulation instead of being retained as it is normally. (4) Dextrin-like bodies from the glycogen store of the liver may be a contributory factor in the production of the raised difference value under certain circumstances. (5) Destructive changes in the hepatic parenchyma are associated with a diminution of the amylolytic ferment content of the blood, thus tending to confirm the conclusion that the liver is the main source of that ferment.

British Medical Journal.

May 14, 1921, i, 3150.

1. An Address on Prevention and Treatment of Puerperal Infections. W. Blair Bell.
2. Remarks on the Use of Peptone in Asthma and Its Compensers. A. G. Auld.
3. The Diagnosis and Treatment of Gastroptosis. John F. Hall-Edwards.
4. Eclipse Blindness. William Oliver Lodge.
5. The Treatment of Urethral Stricture. P. L. Giuseppe.
6. Two Unusual Cases of Abdominal Tuberculosis. E. G. Slesinger.

1. An Address on Prevention and Treatment of Puerperal Infections.—W. Blair Bell, avowing that he has nothing new or striking to present, discusses the subject from a broad and practical point of view, and indicates lines of future progress. He summarizes his views as follows: (1) There must be an honest recognition by all who attend childbirth that puerperal infection is almost always avoidable, and that the appearance of it in any case that has been examined, or in which interference has been practised, is a serious reflection on the accoucheur or accoucheuse. If the whole profession would combine in an attempt to reduce the present incriminating figures a great change would be noticeable, not only in the statistics presented by the Registrar-General, but also in the health of the female population which is perpetuating our race. (2) The remedy does not lie in better teaching, so far as practitioners are concerned, but in obedience to the dictates of conscience. No man can plead ignorance of asepsis and antiseptics today. The trouble is that imperfect asepsis is practised as a sop to conscience instead of complete asepsis as a real scientific safeguard. (3) Examination per rectum with the gloved finger should be practised in the case of the parturient woman in preference to vaginal examination. Forceps delivery is far too common. Most women deliver themselves safely if left alone. Forceps delivery, when necessary, is a surgical operation, and should not be conducted in insanitary surroundings. (4) All lacerations, not only those of the perineum, must be efficiently sutured. (5) Care must be taken to maintain the natural defenses of the patient. With regard to the treatment of puerperal infections the chief conclusions are: (1) The evacuation of large pieces of placenta and efficient antiseptic irrigation of the uterus should be practised in the early stages of infection of the placental site. All infected lacerations should be purified. (2) The employment of autogenous vaccines and polyvalent serums is often useful in cases of generalized infection. (3) Major operations must be performed, especially ligation of the veins in puerperal thrombophlebitis, without hesitation and in good time when indicated.

Bulletin of the Johns Hopkins Hospital.

April, 1921, xxxii, 362.

1. The Dangers to Life of Severe Involvement of the Thorax in Rickets. Edwards A. Park and John Howland.
2. Diphtheria Bacillus Carriers. A Report of Conditions Found in an Orphan Asylum. W. L. Moss, C. G. Guthrie, and J. Gellen.
3. Studies with Lecithin and Cholesterol in Relation to the Antihemolytic Property of Human Serum. Hallie M. Clark and Frank A. Evans.
4. Variations in the Bacterial Flora of the Upper Air Passages During the Course of Common Colds. Arthur Bloomfield.
5. Hemolytic Influenza Bacilli. T. M. Rivers and Erida L. Leuschner.
6. Experimental Observations on Bone Marrow. George B. Wislocki.

4. Variations in the Bacterial Flora of the Upper Air Passages During the Course of Common Colds.—Arthur Bloomfield bases this contribution on certain bacteriological studies on colds made during the past winter, and upon a review of the literature. A consideration of the clinical features of colds, together with the information available in the literature, leads to the following conclusions: (1) The common cold is a definite disease generically related to grippé and influenza. The primary disease is often followed by local complications which tend to overshadow the picture. (2) Cold may produce disturbances in the upper air passages which are to be distinguished from true infectious colds. (3) None of the common bacteria found in the nose or throat have been proven to be the primary cause of colds. (4) The most convincing evidence in the literature favors a filtrable virus as the cause of the common cold. Ten individuals suffering from the so-called infectious type of acute coryza (common cold) were studied during the months of November and December, 1920. Most of the patients had the disease in its uncomplicated form, a few developed secondary local complications. The same methods as those used in studying the normal flora were employed in this work. Cultures were made at intervals during the active stage of the disease and during convalescence on rabbit-blood agar and oleate-hemoglobin agar. The swabs were taken from the nasopharynx and tonsils. Cultures were not made from the nose, because it was desired to compare the conditions with those previously studied in normals. Furthermore, in addition to draining the nasal mucous membranes, the nasopharynx was involved in all cases. The cultures were worked out in considerable detail, both quantitatively and qualitatively. On clinical grounds the view was advanced that the common cold is an infectious disease analogous to influenza, featured by the frequent development of complications in the upper air passages such as sinus infections, tracheitis, and otitis. A review of the literature showed no convincing evidence that any known organism is the primary cause of the cold. The cultural studies in the present report fail to show in uncomplicated cases any variation in the flora which would enable one to select any organism or group of organisms as the cause of colds. On the other hand, where clinical complications occurred pathogenic organisms were definitely associated with them. It is felt, therefore, that the primary cause of colds is probably an organism as yet unknown and certainly not one of the usual pathogens such as streptococcus, pneumococcus, *B. influenzae*, or staphylococcus. But the primary cold, whatever its final cause, alters the mucous membranes in such a way as to allow secondary bacterial invasion and consequent frequent development of local complications. The cultures clearly indicate that such complications are due to a variety of bacteria such as pneumococcus, streptococcus, and staphylococcus. In general it seems that the method of serial comparative study is necessary in working out the bacteriology of respiratory infections. Such a method allows one to pick out and interpret the significance of unusual organisms and also checks premature conclusions as to the etiological bearing of such organisms.

5. Hemolytic Influenza Bacilli.—T. M. Rivers and Erida L. Leuschner state that, on account of the meager descriptions given to the original *B. influenzae*, especially concerning hemolysis, it seems best to regard both hemolytic and non-hemolytic, aerobic, non-motile, Gram-negative hemoglobinophilic bacilli as influenza bacilli and disregard any such confusing terms as

"*Bacillus X*," which in itself represents not one organism but a group. After all, it makes very little difference what any one of these bacilli, non-hemolytic or hemolytic, are called, so long as everyone recognizes that they belong to the same big group.

American Journal of the Medical Sciences.

April, 1921, clxi, 4.

1. Pellagra. Ward J. MacNeal.
2. The Absence of Pancreatic Secretions in Sprue and the Employment of Pancreatic Extract in the Treatment of This Disease. Thomas R. Brown.
3. Epinephrin Hypersensitiveness and Its Relation to Hyperthyroidism. Francis W. Peabody, Cyrus C. Sturgis, Edna M. Tompkins, and Joseph T. Wearn.
4. The Use of Diet in the Treatment of Chronic Arthritis. Ralph Pemberton.
5. The Pathology of Bronchial Asthma. Nai Kamchorn and A. G. Ellis.
6. Influenza. Channing Frothingham.
7. Acute Nitrobenzol Poisoning, with Studies on the Blood in Two Cases. Robert F. Loeb, Arlie V. Bock, and Reginald Fitz.
8. A New Intestinal Tube, with Remarks on Its Use in a Case of Ulcerative Colitis. Max Einhorn.
9. Nocturnal Polyuria. Joseph H. Barach.
10. The White Adrenal Line (Sergeant): Its Clinical Significance. Willard E. Kay and Samuel Brock.
11. Cholesterol in Cerebrospinal Fluid. A. Levinson, Loraine L. Landenberger, and Katherine M. Howell.
12. Pulse-Rate and Blood-Pressure Responses of Men to Passive Postural Changes. Max M. Ellis.
13. Laboratory Aids in the Diagnosis of Gonococcal Infections, with Special Reference to the Gonococcus Complement-Fixation Test. Robert A. Kilduffe.
14. The Pathology and Treatment of Fractures of the Spongy Bones. Philip William Nathan.

3. Epinephrin Hypersensitiveness and Its Relation to Hyperthyroidism.—Peabody, Sturgis, Tompkins and Wearn remind the reader that two procedures are in extensive use at present in this country for the determination of functional hyperactivity of the thyroid gland, the measurement of basal metabolism and the injection of epinephrin. The diagnostic significance of the latter, to which this contribution is devoted, depends on the type of reaction which has been described as occurring in patients with hyperthyroidism, and which is supposed to be characteristic of this condition. The test is usually carried out by the method suggested by Goetsch, and 0.5 c.c. of a 1 to 1000 solution of epinephrin is administered. The "positive" reaction which has been assumed to indicate hyperthyroidism consists of the production of a rise of systolic blood pressure of at least 10 mm. of mercury or a rise in pulse-rate of at least 10 beats per minute, together with an increase of such signs and symptoms as tremor, sweating, vascular pulsation, nervousness, and palpitation. The test is so easy to apply and apparently so simple to interpret that it has been widely adopted as a diagnostic measure, and the "positive" reaction is frequently considered as an indication even for surgical interference. On account of this tendency to regard the test as highly specific in its significance, it has seemed to be of importance to study in more detail the nature of the reaction to epinephrin and to determine the conditions under which the "positive" reaction, which may be assumed to indicate epinephrin hypersensitiveness, appears. Such studies have been carried on at U. S. Army General Hospital No. 9, Lakewood, N. J., and at Peter Bent Brigham Hospital, Boston. From these observations, the results of which are briefly summarized in this communication, the following conclusions are formulated: (1) Different individuals, both sick and well, react with different degrees of intensity to the injection of epinephrin. By means of selected dosage of the drug and carefully chosen criteria for the response, one can differentiate, somewhat artificially, between the slight reactions which are called "negative" and the more violent reactions which are called "positive." In certain instances "doubtful" or "questionable" reactions are obtained. (2) The fundamental nature of the reaction is unknown. It is associated with a rise in heat production which runs more or less parallel to the intensity of the reaction. On the basis of what is definitely understood with regard to the physiologic action of epinephrin it seems probable that the phenomenon is due to a stimulation of the sympathetic nervous system. Theoretically, a "positive" reaction might indicate hyperactivity of the

thyroid gland, of the adrenal glands, or of the sympathetic nervous system. It might, on the other hand, depend on a lowered threshold of response of the sympathetic nervous system. With the exception of hyperthyroidism little is known about these conditions in man, but they probably occur and there would seem to be no reason for assuming that a "positive" epinephrin reaction is constantly associated with hyperthyroidism. It is much more likely that different causes account for the reaction in different types of clinical cases. (3) Hypersensitiveness to epinephrin is found in many patients with the clinical picture of hyperthyroidism and with an increased basal metabolism, but it is not constant under these conditions. (4) Hypersensitiveness to epinephrin is also found in persons who have no indications of hyperthyroidism. Thus it was present in many psychoneurotics in about 50 per cent. of patients convalescent from acute infections, in nearly the same proportion of soldiers with "effort syndrome" in 14 per cent. of apparently normal young men and in patients with various unrelated diseases. (5) The "positive" reaction to epinephrin appears to occur most often in highly nervous individuals, but it is not constant in such persons. The clinical significance of the reaction is not clear, but at present it should certainly not be regarded as having any specific significance in the diagnosis of hyperthyroidism.

10. The White Adrenal Line (Sergeant): Its Clinical Significance.—Willard E. Kay and Samuel Brock, from the study of 225 cases of a variety of diseases and normals, upon which numerous pharmacological and other tests were performed, feel justified in asserting that the so-called white adrenal line of Sergeant (a blanching of the skin following light stroking by a blunt object) is a local vasomotor reflex, resident in the skin, bearing no direct relationship to adrenal gland activity. The reasons for these postulations are: (a) Its independence of blood-pressure, acute fatigue and other signs of hypoadrenia; (b) its frequent occurrence in normals and in a variety of diseases unassociated with hypoadrenia; (c) its reappearance in the face of persistent general manifestations of adrenalin subcutaneously administered; (d) its peculiar association with scarlet fever. It would appear that the state of the vasomotor system which allows of its best exhibition is found in young adults of either sex, and especially in the exanthem of scarlet fever. On the basis of this series of observations it is stated that this line has not the clinical significance attributed to it. In spite of the various hypotheses evolved regarding it, further work seems necessary to establish the exact physiological mechanism of this remarkable vasomotor phenomenon.

New Orleans Medical and Surgical Journal.

May, 1921, lxxviii, 11.

1. The Specific and Non-Specific Immunities. G. H. Sherman.
2. The Fatulous Appendix—A Toxic Focus. W. A. Love.
3. Case Report. F. W. Farham.
4. Case Report. W. T. Patton.
5. Report of Two Cases of Leprosy. J. M. Perret.
6. Mercurousal. John L. Marchand.

1. The Specific and Non-Specific Immunities.—G. H. Sherman holds that a careful analysis of prevailing conditions after recovery from infectious diseases would indicate that non-specific collateral immunity is a prevailing factor in the process of specific immunization. Persons who have recovered—by which is meant that they have been completely restored to health from typhoid fever, measles, scarlet fever, or other acute infections—are not susceptible to infections for some considerable length of time as is the average individual. As a rule they enjoy exceptional good health and frequently the resistance to infection that has developed can best be explained by nonspecific immunizing responses. And this is an important natural provision. If this were not the case infections would be liable to follow one after another to an enormous disadvantage to those recovering from infectious diseases.

Obesity Following Epidemic Encephalitis.—Nobécourt mentions a case of this sequence in a girl of thirteen with the pseudo-parkinsonian syndrome. Others have seen the sequence only in subjects who made good recoveries.—*La Presse Médicale*.

Book Reviews.

ESSENTIALS OF TROPICAL MEDICINE. By WALTER E. MASTERS, M.D. Brux., M.R.C.S., I.R.C.P. Lond., Medical Officer Gold Coast, West Africa. Price, \$11.00. New York: William Wood & Co., 1920.

THIS book was planned as a digest of the knowledge of tropical medicine for the sole use of the author, but was amplified and published in book form on the suggestion of a number of professional people who had seen the earlier notes. It takes up briefly in abstract form practically all of the diseases which are considered to be characteristic of tropical regions. But in spite of the brevity of treatment none of the essential points is omitted. The work is well illustrated with numerous photographs. The book is printed in England and the use of short lines has made it rather more bulky than seems necessary. The frequency with which cases of the so-called tropical diseases are met in the temperate zone should make some such work as this a desirable addition to the library of the clinician. It is probable that this particular book would be of more use than some of the more complete and voluminous volumes on the subject which are better suited for research or reference purposes. A final section on laboratory hints contains many bits of information which will prove a valuable aid to those who are not familiar with tropical conditions.

THE GREAT WAR AND THE R. A. M. C. By Bt. Lt.-Col. F. S. BRERETON, R.A.M.C. With 9 Maps, 1 Plan, and 2 Appendices. New York: E. P. Dutton & Company, 1919.

THIS volume of nearly three hundred pages is the first of the popular medical histories of the war. It is rendered authentic by adherence to facts obtained from official papers, diaries and other basic documents. The story is told in narrative style, with enough of the "human interest" incident interpolated here and there to hold the attention of the nonmilitary as well as non-medical readers. It is rather to be regretted that the author retained the wartime use of abbreviations, for as time passes and these become less and less a matter of memory, the reader will doubtless be puzzled, if not irritated when he reads of "Lieut.-Colonel F. W. C. Jones, the A. D. M. S. of the Third Division;" of another who was "the D. A. D. M. S. of the division;" of "the K. O. Y. L. I.," part of which (or whom) contrived to escape; or of the distinguished officer who "returns to the War Office as D. G. A. M. S." Even though familiar with all these abbreviations, one would be able to read the interesting story a little more attentively if not confronted on very nearly every page with outstanding capital letters. However, that is a mere detail. The point is that the author tells in a most interesting manner the story of the splendid work of the Royal Army Medical Corps up to the time when the British Expeditionary Forces were *en route* to Flanders.

DISEASES OF CHILDREN Presented in Two Hundred Case Histories of Actual Patients Selected to Illustrate the Diagnosis, Prognosis and Treatment of the Diseases of Infancy and Childhood, with an Introductory Section on the Normal Development and Physical Examination of Infants and Children. By JOHN LOVETT MORSE, A.M., M.D., Professor of Pediatrics, Harvard Medical School; Visiting Physician at the Children's Hospital, and Consulting Physician at the Infants' Hospital and at the Floating Hospital, Boston. Third Edition. Price, \$7.50. Boston: W. M. Leonard, 1920.

STUDENTS and practitioners who delight in the "case history" variety of literature will find in this volume much to commend the manner of presentation. Barring the first sixty-two pages, which are devoted to the discursive consideration of the normal development and physical examination of infants and children, the entire volume follows the "case teaching" method adopted by the Harvard Medical School in 1900. The cases are arranged under diseases of the new-born; diseases of the gastroenteric tract; diseases of nutrition; specific infectious diseases; diseases of the nose, throat, ears and larynx; diseases of the bronchi, lungs and pleura; diseases of the heart and pericardium; diseases of the

liver; diseases of the kidneys and bladder; diseases of the blood; diseases of the nervous system, and unclassified diseases. The consideration of the various diseases under these headings involves the presentation of 200 illustrative cases, many of which are also illustrated.

ORTHOPEDIC SURGERY OF INJURIES. By Various Authors. Edited by SIR ROBERT JONES, K. B. E., C. B., F. R. C. S., in Two Volumes. New York, Oxford University Press, American Branch, 1921.

THESE interesting volumes might well serve as an encyclopedia of war surgery. They deal with all its phases. There are chapters on Precombat Training, on the splitting of war fractures from the line to the base, on the treatment of various fractures at their different stages, on osteomyelitis, on nonunion, and finally on amputations and reconstruction. Its title might almost as well be a "History of the Origin, Organization, and Services of the Department of Orthopedic Surgery in the British Army." Of particular interest are the chapters contributed by Sir Robert Jones himself, by Mr. Hey-Groves, and the collection of chapters on nerve injuries.

Although the title expressly states that the volumes deal exclusively with the orthopedic surgery of injuries it may be as well to emphasize this fact. Students and practitioners of orthopedic surgery have waited so long and so patiently for a text book by Sir Robert Jones that many of them would be likely to purchase the first books appearing under the aegis of his name, expecting a text book dealing with the subject in all its branches. This, however, it is not.

In the chapters on fractures the reader will be impressed with the simplicity of the methods employed, and with the advantages, in training large numbers of men to meet war conditions, of a more or less uniform system. This is in sharp contrast to the more individual methods of the better known French surgeons, and it is undoubtedly productive of better average results. Whether these methods will, or should supersede all others in civic practice and civil teaching, is a matter of opinion.

To readers who wish to keep fresh in their minds their war experiences, and to students who wish to prepare for the possibility of another war emergency, the volumes will be of great value. They will also find a place in the library of the industrial surgeon, and in that of the already established orthopedic specialist. The chapters on the anatomy of the peripheral nervous system, diagnosis, prognosis, operative and post operative treatment of nerve injuries make it an authoritative work of reference on peripheral nerve surgery. The size of the field covered by the various chapters is an interesting comment on the constantly enlarging scope of modern orthopedic surgery.

DERMATOLOGY. The Essentials of Cutaneous Medicine.

By WALTER JAMES HIGHMAN, M.D., Chairman Section on Dermatology and Syphilology, American Medical Association; Member of the American Dermatological Association and New York Dermatological Society; Associate Professor of Dermatology, New York Post-Graduate Medical School and Hospital; formerly Instructor in Dermatology, Cornell University Medical School; Acting Associate Dermatologist, Mt. Sinai Hospital; Adjunct Dermatologist, Lenox Hill Hospital; Pathologist, Department of Dermatology, Vanderbilt Clinic. New York: The Macmillan Company, 1921.

THIS is a book written for the general practitioner and not for the dermatological specialist; a work, as the legend on the cover reads, "which has been written from the standpoint that the dermatologist is an internist who knows the skin." It is essentially a clinical treatise, and as such devotes little space to pathology and histology. Etiology, of course, is considered, but the main insistence is upon the symptomatology and treatment. The most important and most frequently encountered lesions are pictured in ninety-five excellent illustrations, reproduced from photographs and printed on inset plates. This allows the text to be printed on uncalendered paper which is most grateful to the eyes. The descriptions of the various diseases are very clear, and the book is the best work on dermatology for the general practitioner that it has been our privilege to see in many a year.

Society Reports.

AMERICAN MEDICAL ASSOCIATION.

*Seventy-Second Annual Session, Held in Boston,
June 6-10, 1921.*

(Special Report to the MEDICAL RECORD.)

SECTION ON MEDICINE

(Continued from page 1039.)

The Importance of the Study of Symptoms with a Discussion of Mackenzie's Law Governing Their Causation.

—Dr. FRANCIS M. POTTINGER of Monrovia, Cal., read this paper, in which he emphasized the fact that clinical observation had lagged far behind laboratory study, and that an understanding of disease required an understanding of the patient. The patient's reactions were equally as important as the laboratory reactions. An understanding of the relation of nerve stimulation to body function was of prime importance in the understanding of symptoms. Dr. Pottinger then presented a classification of the symptoms of tuberculosis and showed the part played by the nervous system in producing symptoms in this disease. Under symptoms of toxemia he classified those resulting from harmful stimulation of the central nervous system and those resulting from disturbance of the endocrine system. These symptoms were malaise, lack of endurance, loss of strength, nerve instability. Symptoms caused by harmful stimulation of the sympathetic nervous system were shown in diminished digestive activity; those caused by harmful stimulation of the sympathicotonic were symptoms of endocrine disturbance, particularly of the adrenals and thyroid, and included diminished digestive activity, increased metabolic rate, loss of weight, increased pulse rate, night sweats, elevation in temperature and polymorphonuclear leucocytosis. The hormones acted on and through the nerves. Inflammation of the lungs caused symptoms through stimulation of the parasympathetic (the vagus) and through the sympathetics. The fundamental facts regarding the vegetative sympathetic nervous system should be the common knowledge of the clinician. The nerves might be stimulated from within or from without. The symptoms of disease might be due to abnormal stimulation of the nerves through endocrine imbalance which might account for abnormal physical or psychological states, through reflex nerve action. Some symptoms of disease were produced by disturbance in normal reflexes. This was Mackenzie's conception and it had had a far reaching effect. The study of the nervous system, and particularly of the vegetative system, should be attacked with the same vigor as we were attacking laboratory problems. One could then correlate each symptom with the nerve from which it came. Thus, hoarseness was dependent upon the laryngeal nerve. Laryngeal irritation was related to the supralaryngeal nerve; cough to the laryngeal nerves. Inhibition of the heart was controlled by the motor fibers of the vagus. Increased muscle tonus and glandular secretion in the gastrointestinal canal was controlled by the motor fibers of the gastric and intestinal vagus; deviation of the tongue by the hypoglossus. Taking the sympathetotonic nerves, flushing of the face was controlled by the third sensory cervical. Spasm of the muscles of the shoulder girdle by the cervical motor nerves. Lessened motion of the chest wall was partly due to muscle spasm as above due to the cervical motor nerves, particularly the third, fourth and fifth. Deep pain in the shoulder girdle, a definite sign of tuberculosis, was due to the cervical sensory motor nerves, the second to the eighth. The degeneration of the skin and subcutaneous tissues (a matter of some importance as a symptom of tuberculosis) was governed by the scapulo-cervical, third, fourth and fifth. So in the classification of symptoms there were two factors to be taken into account, the symptoms due to toxemia and the reflexes; neither one of these alone made the diagnosis, but by their proper correlation the diagnosis could be made. If a patient had the group of symptoms designated as due to toxemia and certain of the reflex symptoms the diagnosis could be made even though some of the symptoms of toxemia were absent. Such

a classification as was reported was important because it put a bridge between cause and effect, and gave a better understanding of clinical symptoms.

An Automatic Method for Serial Blood Pressure Observations in Man.—Dr. MARION A. BLANKENHORN of Cleveland gave a lantern slide demonstration of this apparatus. He stated that it had long been recognized that it would be valuable in many conditions to be able to make repeated observations on the blood pressure at regular intervals over a long period of time with the psychical factors partly or altogether eliminated. To meet this need he had designed an apparatus to make automatic records of blood pressure, especially during sleep. It was constructed in a cabinet that could be placed at the bedside, and when connected by a tube to a pneumatic cuff on the patient's arm, made hourly tracings on a smoked drum, from which systolic and diastolic blood pressure could be estimated directly. It was constructed of simple standard laboratory equipment with the exception of the recording manometer which introduced a new principle, it being a combination of the oscilometer and manometer.

Dr. PAUL D. WHITE of Boston expressed the opinion that this instrument gave a great opportunity for further investigation not only of blood pressure during sleep but under other conditions, and it certainly gave a great opportunity for blood pressure experimentation. During the war they had used the oscilometer method which gave abnormally high readings. Owing to its less delicate mechanism this instrument did away with this inaccuracy. He thought Dr. Blankenhorn had given them a valuable instrument for determining the diastolic as well as the systolic blood pressure.

Dr. PLUMMER said this apparatus interested him because he had frequently felt the need of a method for determining the blood pressure during sleep. It certainly opened up an important field for investigation for which up to the present time they had had no apparatus which was suitable.

JOINT MEETING OF SECTIONS ON PRACTICE OF MEDICINE, PHARMACOLOGY AND THERAPEUTICS, AND PATHOLOGY AND PHYSIOLOGY.

Second Day—Thursday, June 9.

Chairman's Address—The Interrelationship of the Thyroid Gland and of Its Active Agent, Thyroxin, in the Tissues of the Body.—Dr. HENRY S. PLUMMER of Rochester, Minn., delivered this address, in which he gave a comprehensive review of the investigations leading up to the discovery of thyroxin by Kendall, and followed the development of their work from that time to the present, emphasizing the importance of metabolic studies, inasmuch as they formed the basis upon which elaboration of the thyroxin in the thyroid and its delivery to the body could be estimated. There was no evidence that the thyroid had any function other than the elaboration of thyroxin and furnishing it to the body. Thyroxin acted directly or indirectly upon the cells throughout the body, being perhaps the chief factor in the excitation of cellular activity. Dr. Plummer defined hypo- and hyperthyroidism, and reviewed his classification of thyroid diseases. He emphasized the point that the severity of symptoms in exophthalmic goiter was not due to the amount of hypertrophy in the gland but to the amount of hyperthyroidism. From his studies it might be drawn that after the administration of known quantities of thyroxin sufficient to bring the basal metabolism to normal the basal metabolism remained about normal for ten or twelve days and then returned to its previous status in from five to eight weeks. Kendall had estimated that the amount of thyroxin in the tissues of the body normally was about 14 mgs. The thyroid in approximately a normal individual maintained a very constant amount of thyroxin in the body, which was somewhat different from our knowledge of the products of the body generally. It was assumed that the thyroid had a definite known action on the other agents of the body without knowing the exact mechanism by which it acted. It had been found that in the normal individual in whom the thyroid was supplying a very constant amount of thyroxin to the body the daily administration of one milligram of thyroxin daily would place the thyroid at rest. They had given one milligram of thyroxin daily

in this way for months without producing a change in the basal metabolism rate or any physical disturbance. On this basis the dose for myxedematous patients could be regulated to meet the needs of the individual patient. There was much evidence to suggest that the rate of exhaustion of thyroxin was much more rapid in the female than in the male. The constant manner in which the administration of thyroxin was followed by elevation of the basal metabolism left no doubt as to the definite relation between the metabolic rate and thyroid activity. Whatever might be the significance of hyperthyroidism in exophthalmic goiter it had no definite relation to pregnancy and adolescence. Marine's work had shown definitely that small doses of iodine administered to young people living in endemic goiter localities prevented the development of the condition, and also apparently controlled adolescent colloid goiter. Evidence had been collected that went to show that it was the adenomatous tissue that hyperfunctionated. Once this tissue had started to hyperfunctionate it continued to do so erratically and without regard to the needs of the individual. Through the entrance of toxic material into the intestinal tract a change in the intestinal flora might be brought about which would interfere with the small amount of iodine available. This relationship of the intestinal flora to the small iodine content of the intestine might explain the geographical distribution of exophthalmic goiter. In closing, Dr. Plummer said that taking the theme as he had presented it it was apparent that a lack of assurance in childhood might cause a mild hyperthyroidism which would lay the foundation for a colloid adenoma in adolescence and of hyperfunctionating adenoma in old age.

Fundamental Ideas Regarding Basal Metabolism.—Dr. GRAHAM LUSK of New York reviewed the literature in connection with oxygen absorption and heat production and noted that it had early been observed that oxygen absorption and heat production went on much more rapidly in small animals or birds than in larger animals. He then went on to trace the development of the law of surface area and demonstrated the principle that caloric estimations should be expressed in terms of surface area and not in weight, inasmuch as we had no means of estimating the protoplasmic mass. He traced the development of Du Bois' work showing that the measure of the basal metabolism in a normal individual was 40 calories per square meter of body surface per hour for men and about 7 per cent. less in women. Du Bois had found that there was no decline in the metabolic rate due to old age. The differences of the results by the different methods devised for the estimation of the basal metabolism did not show a great variation in results, so that to-day the main controversy centered not around methods but around the interpretation of results. The establishment of a predictable basal metabolism on the basis of the relation of surface area to heat production now made possible the interpretation of variations from the normal in many diseased conditions and offered a method now widely accepted for closer clinical diagnosis in several pathological conditions.

The Measurement and Standards of Basal Metabolism (Lantern Demonstration).—Dr. FRANCIS G. BENEDICT of Boston made this presentation, in which he stated that the measurement of basal metabolism had, by a new technique, been brought from the special research laboratory to the hospital. It was not feasible for the busy clinician. It was not easy. Training in the technique and especially in the interpretation of results was essential, if pitfalls were to be avoided and, indeed, if real harm from misinterpretation of results was not done. With the wide distribution of portable apparatus for the estimation of the basal metabolism it was important to establish a normal average with which to compare pathological data. In making the basal metabolism observation of the patient the time selected must be twelve hours after the last meal, the patient must have been in complete muscular repose for at least one-half hour before the test was begun, the room temperature should be about 20 deg. C., and any febrile condition must be ruled out. Basal metabolism was affected independently by height, age, weight and sex. Standards should consider all these factors. Variability was large even among normals, hence fixed

standards should be used only guardedly. To the ordinary factors of height, age, weight, etc., two measurements had recently been added. One of these was the sitting height emphasized by Dreyer and the other was the sitting height to the supra-sternal notch. With the perfection now developed in the actual tests, the difficulty had shifted to the interpretation. An intelligent high school girl might be trained to make the tests, but their interpretation was another matter. Dr. Benedict presented two mathematical equations, which had recently been published, upon the basis of which the predictable basal metabolism could be estimated in any individual. Between the ages of twenty and forty the predictable error was small. Outside of this range the prediction should be made only with great care. The predictable basal metabolism in women could not be made with anything like that in man. Before attempting to use the basal metabolism it behooved every physician to gain as much information as possible both as to the technique of the tests and the interpretation of results. Medical schools should admit to the curriculum our present knowledge of this subject as was being done at Cornell Medical College under Dr. Du Bois.

The Basal Metabolic Rates in Hyperthyroidism (Lantern Slides).—Dr. WALTER M. BOOTHBY of Rochester, Minn., made this contribution, in which he showed that exophthalmic goiter and adenoma with hyperthyroidism were two distinct diseases. Both syndromes had common symptoms caused by increase in the basal metabolic rate. Because similar symptoms followed the administration of large doses of thyroxin and as the only known effect of thyroxin was to cause an increased basal metabolic rate, symptoms produced by a hyperfunctionating adenoma were fittingly designated hyperthyroidism. Exophthalmic goiter, while it had these same symptoms that were dependent upon an increased metabolism, yet had in addition definite typical symptoms which characterized the disease and yet could not be produced by an excess of thyroxin. There was an increased metabolic rate in acromegaly and a decreased rate in hypopituitarism. An alteration in the pituitary gland might change the metabolic level but there was no evidence that it acted as an oxidizing or catalyzing agent. He deprecated the tendency to parcel out to each ductless gland a certain definite function entirely hypothetical such as was evinced in much of the current literature on endocrinology. Exophthalmic goiter was differentiated from adenoma with hyperthyroidism by the fact that in exophthalmic goiter there was the thrill and bruit, a tendency to gastric crises, and also a peculiar type of nervousness. There was a difference in the mode of onset, the clinical course, the physical signs, and a difference in the pathology of the thyroid gland. To account for the difference the theory had been advanced that in exophthalmic goiter the thyroid cells were producing not only an excess of the thyroid hormone but that the secretion was so formed that it possessed some peculiar property different from normal thyroxin. Kendall had suggested a slight alteration in the thyroid molecule. Aside from the academic interest attaching to the question the differentiation of the two diseases was important because the operative procedure was different in exophthalmic goiter from that in thyroid adenoma. In adenoma the operation was directed to the removal of the tumor while in exophthalmic goiter it was directed to the reduction of the over-activity of the gland by successive steps, as the injection of hot water, ligation, and one or more partial thyroidectomies. In exophthalmic goiter the benefit from ligation was usually quite marked. In adenoma simple enucleation of the adenoma was usually sufficient to effect a cure, but resection was necessary to reduce the hyperplastic parenchyma of exophthalmic goiter within normal limits, and sometimes a second and a third partial resections were necessary before the cure was complete. They had been unable to prove that the x-ray influenced the natural course of exophthalmic goiter. It was obvious that a sharp distinction could not be drawn between mild cases of exophthalmic goiter and effort syndrome on a clinical basis, but here the basal metabolism was useful if small errors were carefully excluded inasmuch as the basal metabolism was not elevated in the effort syndrome if other conditions were excluded, since the thyroid hormone was not increased. The adrenalin re-

action Dr. Boothby considered of no aid in differentiating hyperthyroidism since it was present in a large percentage of individuals not suffering from hyperthyroidism and even in cases of myxedema.

Determinations of the Basal Metabolism as an Aid to Diagnosis and a Guide to Treatment in Various Diseases (Lantern Demonstration).—Dr. JAMES H. MEANS of Boston read this paper. He stated that indirect calorimetry, thanks to the work of Du Bois and Benedict, had come into wide use in American clinics as an important test of function. The importance of accuracy of technique could not be too greatly emphasized. Like any functional test it had its limitations. These should be constantly borne in mind. In the differential diagnosis of hyperthyroidism from neurasthenia, effort syndrome and afebrile tuberculosis, in the detection of myxedema and more particularly atypical hyperthyroidism, a knowledge of hyperthyroidism was very helpful. It was useful also in the differentiation of toxic from nontoxic goiters. There were differences in metabolism not explained on the basis of size, weight, form, etc., but these differences were slight as compared with the changes that were found in disease. We were familiar with a number of constants which were relative constants. The blood was one of the most important of these constants. Other constants were body temperature, pulse rate, respiratory rate. We were all familiar with the normal variations in pulse rate; the same reasoning that applied to variations in pulse rate applied to variations in metabolism, though the basal metabolic rate was more constant than the pulse rate, and therefore it was a more accurate means of determining function. In interpreting the significance of the basal metabolic rate one must correlate it with the physical findings exactly as one interpreted laboratory findings, the x-ray, blood sugar, phtalein excretion, etc. In warning against inaccuracy of technique, Dr. Means said that instrument makers were exploiting various forms of apparatus for the estimation of the basal metabolism and saying that the clinician needed an apparatus for the estimation of the basal metabolism quite as much as he needed a stethoscope. He had frequently been asked by practitioners if they should set up a metabolism laboratory. He told them he could not see that they were under any obligation to do so, that it depended upon their needs. The up-to-date clinician made a Wassermann test, but he could not see that there was the same necessity for the estimation of the basal metabolism. To him the determination of the basal metabolism was less important than the determination of the temperature in typhoid fever; it was better not to make it than to make it inaccurately, though if one had the facilities for making it a knowledge of the basal metabolism would often be a help. In the differentiation of borderline cases it was often very valuable, and as an aid in directing the treatment of hyperthyroidism. Here the metabolic chart had a value comparable to that of a temperature and pulse chart in typhoid fever or pneumonia, the difference being that it extended over months instead of over weeks or days. In exophthalmic goiter cases the metabolic rate ran parallel with the pulse rate and body weight. A gain in weight and a fall in pulse rate was accompanied by a fall in the basal metabolism. With the use of the x-ray just short of an erythema dose, and no other treatment except rest, there was in many cases of exophthalmic goiter a fall in the basal metabolism. This, however, did not occur in all cases. In cases of hypothyroidism the basal metabolism could be raised to normal by the administration of thyroid. The basal metabolism outside of the thyroid states did not play a large role in clinical medicine at the present time, but was valuable in research. One other direct clinical application was in obesity. In simple obesity the basal metabolism was normal, that was where the obesity was due to food intake. The administration of thyroid in such cases produced hyperthyroidism and its effect was pernicious; it relieved one fault by substituting another. He had been impressed by the use of thyroid in obesity by the laity. It should never be given except in the presence of a low basal metabolism. In tuberculosis without fever and neurasthenia the basal metabolism was not elevated.

The Basal Metabolism of Fever.—Dr. EUGENE F. DuBois of New York presented this contribution, in

which he stated that there was a striking similarity between the phenomena of heart regulation in malarial paroxysms and in the chills which followed the administration of foreign protein. In the acute infectious diseases with equal degrees of fever the basal metabolism was increased about the same percentage. In chronic fevers such as tuberculosis the basal metabolism was not as high as in acute infections. As causes of a high metabolism increased temperature, toxemia, and abnormally high protein metabolism must be taken into account.

Dr. GEORGE W. CRILE said it had seemed to him in listening to the papers that these sections had established an epoch in the application and correlation of the best science of medicine and surgery. It must be very gratifying to Dr. Lusk, Dr. Benedict, and Dr. Atwater to know that their work was so highly appreciated by the leaders in medicine and surgery. Dr. Crile confined his discussion to three points: First, Dr. Boothby had made the statement that in his observation he was not able to say that the x-ray controlled exophthalmic goiter. He gave his entire assent to that statement. He had seen no great benefit from the x-ray, and where there appeared to be a temporary improvement it was followed by a recrudescence as a rule. He did not believe the x-ray was the permanent answer to the question of treatment of exophthalmic goiter. Second, he did not think that at the present time we had data sufficiently accurate upon which to base a classification of exophthalmic goiter. He did not think the basis of classification was safely placed upon the histology of the thyroid gland. He did not think that in early cases or exceptional cases it was possible to make a classification on the basal metabolic rates. In their clinic they had operated upon quite a few cases of exophthalmic goiter that did not show an alteration in basal metabolism and yet they had obtained good clinical results. He believed the most important thing was still careful history and physical examination, and after that it was of great importance to consider the basal metabolism, but it should not be considered as pathognomonic. A third point was that he was glad to hear Dr. Boothby say that the basal metabolic rate was not the true guide upon which to project an operation. He thought the best guide was the judgment of the surgeon and the physician. For example, one might know the basal metabolic rate but that did not give information with reference to the reserve in the myocardium, or the liver, of the central nervous system. Finally, if surgery was to avail its effect upon the patient must be minimized. One could always ligate one thyroid artery with local anesthesia, with quinine hydrochloride and urea, and thus block the patient into semi-consciousness. The fact that their mortality rate was one in 250 ligations, and that they had a series of 225 ligations still unbroken spoke for the value of this procedure. Then after three months the patient might return for a second ligation or a sub-total thyroidectomy if he was a bad risk for a primary operation. Their operative mortality without taking basal metabolic rates was 1.2 per cent. Upon those grounds he urged surgeons to be more careful and to do the work much more gradually and then the reaction upon the patient would be less than the reaction upon entering the hospital, and if he lived through his entrance into the hospital he ought to live through litigation.

Dr. PLUMMER emphasized the point that one should avoid the error that the metabolism rate was an index of operability. It merely indicated the status of the patient. It was merely a form of measure which told us something of the patient's condition.

Dr. CHARLES MAYO said the program of the morning had been very interesting and profitable as presented by the men who had "put metabolism on the map." It had been interesting to hear the theory and development of metabolism for a hundred years. It had taken more than fifty years to devise the apparatus with which accurate observations could be made. Twelve hundred doctors had listened during the morning because of their interest in metabolism and to find out what applications it had in those chronic diseases which had been discussed, and particularly to those of the thyroid. He went on to show that the discovery of thyroxin by Kendall and his subsequent

work had shown that thyroxin was not only a causative agent of combustion in the body but it was the most important one we had. It concerned old age and youth and the decades between. Without the thyroid we would have no development, or at least we would revert to a myxedomatous state. With thyroxin one could bring the myxedomatous individual to normal and carry him beyond. Dr. Kendall's work had enabled them to know just the amount of thyroxin that the body burned and the exact amount needed to bring various degrees of efficiency up to normal, and just how long it took for a certain amount to burn out. Having found thyroxin it might not be far to travel before they would be able to subject other glands to the same searching processes. Dr. Mayo said he would rather operate on a patient newly come down with hyperthyroidism, who had not lost weight with a metabolic rate of 76 than upon one with a metabolism of 46 who had been continually using up his tissues, since the degree of disease was not told by the metabolism, but by the degree of burning. Thyroid conditions and exophthalmic goiter had gotten well without treatment and without operation, and he had seen two cases of cancer of the neck due to x-ray used in the treatment of thyroid conditions. Those things could be avoided by remembering that the x-ray was something we could not regulate. The idea of operation was to remove the over-active thyroid or a part of it. Some operations failed because of not having sufficient tissue removed to bring the metabolic rate down. Dr. Mayo deprecated bringing in the neuroasthenic. He thought enough was known now to employ epinephrin, since the changes it brought about indicated the degree of stability or instability of the nervous system and if one operated on a case in which hyperthyroidism was diagnosed on that basis he was operating on a psychoneurotic condition, which was on a parallel with going back to the use of Hunter's method of dilating the lower ureter or the removal of the left ovary for a neurotic condition.

Dr. J. C. AUB of Boston stated that unquestionably thyroxin increased the metabolic rate and as Dr. Plummer had expressed the idea, it increased the metabolic rate because it increased the oxidation of the cells. He and his co-workers had been trying to find whether increased muscle tonus increased the metabolic rate. To determine the influence of muscle tonus they had found the metabolic rate in anesthetized and non-anesthetized subjects and they had found that the metabolic rate was the same in both. The basal metabolism was not under the control of the peripheral nerves because if the peripheral nerves were cut it did not fall. These facts indicated that it was the thyroxin that did the work of increasing the basal metabolism and that it was not produced by the tremor often found in hyperthyroid conditions.

Dr. FRITZ B. TALBOT of Boston said that although the discussion had been confined to metabolism as it related to adults he felt that it was in place to bring out of two points in regard to basal metabolism in childhood. First, it seemed that the true basal metabolism could not be obtained in children under two years of age with a mouth and nose piece. It surely could not be obtained in a child of six years, and consequently he would warn against any interpretation of findings from an apparatus using a nose and mouth piece on young children and in older children with the exception of those who were thoroughly trained or where there was no element of excitement and the child was absolutely quiet. The interpretation of the results was fraught with many more dangers in children than in adults for the reason that childhood and infancy was the period of change and the standards used must be changed accordingly. There was an increased metabolism during the first one and a half or two years of life. Another point in regard to malnutrition; malnutrition in infancy was quite different from malnutrition in the adult. Two or three of the speakers had said that in malnutrition one must expect a lower metabolism; in malnutrition in infancy the basal metabolism was increased, sometimes 50 to 60 per cent above normal. In regard to the subject of hypo- and hyperthyroidism, Dr. Talbot stated that he had studied two infants who clinically were early cretins; one had a metabolism of minus 18 and the other had a normal metabolism. He was unable to explain it except that

theoretically the mother might give enough of the thyroid element to supply the infant for a time and the clinical evidence of the condition appeared before the metabolism changed. The statement had also been made that there was no change in the basal metabolism at puberty. Two or three of Benedict's and his cases showed an increased metabolism at puberty. He had the idea that of the children who had palpable thyroids at puberty two-thirds of them would be found to have increased metabolism.

Dr. BENEDICT said that being untutored in matters medical he was particularly interested in Dr. DuBois' work. He would like to know in his remarkable correlative of temperature of the body and heat production whether the temperatures used were rectal temperatures or the whole average body temperature.

Dr. BOOTHBY said in regard to the discussion on surface area, they had found that exceedingly accurate in their clinical work. They had found that of normal people coming to the clinic a great proportion fell within five per cent of variation of the normals published by Dr. Lusk. In 21,000 estimations done by them they hardly ever found a case with an abnormal metabolic rate that did not have a reasonable clinical explanation. In regard to Dr. Crile's statement about the cases of exophthalmic goiter with normal metabolic rate, it was obvious that some other factor beside the exophthalmic goiter entered in and influenced the rate.

Dr. MEANS said with reference to estimation of body surface and heat production, he had recently completed a comparative study of the different calorimeters in use and it did not seem to him that it made much difference which one was used. As to the x-ray treatment he did not wish to enter into a discussion of that subject except to say that they believed that in certain cases under x-ray treatment there was a more rapid fall in the clinical symptoms and also in the metabolic rate than one could expect in the course of a spontaneous recovery. As to the matter of recrudescences, there were recrudescences seen after other modes of treatment; recrudescences were seen after surgery, and after fairly complete operation. So that he did not believe that the fact that a recrudescence occurred meant that the x-ray should not have a place in the treatment of hyperthyroidism. The x-ray had been objected to on the ground that it produced myxedema in some cases. That was proof that the x-ray was effective, and if myxedema was produced it was an easy matter to administer thyroid. It might also be mentioned that myxedema had been known to occur following surgery, so one could scarcely give that as a reason for not using the x-ray; as a rule the myxedema followed the use of the x-ray was only temporary.

Dr. DU BOIS spoke of the body temperature. He said that practically we never could tell the exact body temperature. However the variation from the exact temperature was very small excepting at periods when there was a very sudden rise of temperature. The correlation was made with the rectal temperature.

Dr. J. E. ELSE of Portland, Ore., stated that during the last year and a half he had reviewed cases in which these three methods of estimating the basal metabolism did not coincide. He had grouped the cases with an approximately normal metabolism into (1) those who had a small goiter and very mild symptoms but had some other condition as, for instance, tonsillitis. Here he would take exception to the statement that the estimation of the basal metabolism was not necessary; (2) A group of cases in the stages of remission. During remission one might find the basal metabolism about normal but here the clinical findings and pathology did not coincide with a basal metabolism; (3) a class of toxic goiters which were rather severe and in which the patient recovered so far as the thyroid gland was concerned, but a permanent lesion remained in the heart. In these cases the tumor might remain and there might be mental irritability, but the metabolic findings would be normal because there was no longer a toxic goiter present.

Dr. ALBERT ROUSSEL of Philadelphia disagreed with the speaker who had minimized the value of estimating the metabolic rate. He thought that many cases of hypothyroidism were unrecognized. The estimation of the basal metabolism was as essential in these cases

as a study of the blood chemistry in the various forms of nephritis. A study of the basal metabolism was an important adjunct to the practice of medicine as were other methods of precision, and, like other methods of precision, it had its limitations. He had been particularly interested in the decrease of metabolism under the x-ray. He had reported marked improvement and cure in cases of toxic goiter that had persisted for four or five years as the result of treatment by intensive doses of x-ray. Perhaps the lighter doses had the opposite effect. The fact that x-ray treatment might produce myxedema was the best evidence that the x-ray treatment of toxic goiter was effective.

Dr. PLUMMER emphasized the point that it was a fallacy to try to associate the degree of thyroid activity with pathological pictures. In exophthalmic goiter the hypertrophy might vary all the way from the vanishing point to a most intense hypertrophy. In the human being one did not see the same hypertrophy of the thyroid gland that he had seen in animals with the slightest provocation. In no instance could they associate exophthalmic goiter with puberty or pregnancy or other conditions; it was a distinct entity, though there were borderline cases that could not be definitely differentiated. In some borderline cases the metabolism was normal whether the condition was hypo- or hyperthyroid. In all their series there were some exceptions to the rule. There were cases of exophthalmic goiter in which the basal metabolic rate dropped nearly to normal. It was possible to have perversion in the gland without disturbance of function, or hyperthyroidism might be present and other factors might be holding the metabolism down. In closing, Dr. Plummer brought out the point that to one who saw many of these cases they naturally fell into groups without forcing the grouping, though what the meaning of the grouping was he did not know.

Third Day—Friday, June 10.

Truer Standards in the Diagnosis of Heart Failure: A Hitherto Unemphasized Form of Arrhythmia.—Dr. HARRY WIEL of San Francisco made this presentation, in which he said that many men meant different things when they spoke of heart failure. There was a distinction between heart disease and heart failure. Dr. Alfred Cohn's definition of heart failure boiled down was that it was a condition in which the heart and circulation failed to support the individual in that condition of life which he led. The paper was based on six months' work in a cardiac ward. The writer's impression before undertaking the study was that nearly if not all heart failures showed abnormal rhythms. He had endeavored to find out if close analysis would confirm this. In watching cases as they came into the hospital, it could not be emphasized too often or too strongly that the crux was "what was the myocardium capable of doing?" The function of the myocardium was the thing to be studied mainly from the clinical standpoint. Heart disease did not necessarily involve heart failure nor did myocardial involvement necessarily involve heart failure. In this study it was soon observed that the cases fell into four groups: Heart disease other than failure; out and out failure without question; so-called cardio-renal cases; cases presenting symptoms of heart failure and classed as such because no pathology was found elsewhere. The first group did not fall within the purposes of the present discussion. The second group were those having auricular fibrillation, and in this group the most striking thing was the behavior of the edema. He thought we were getting over the idea that there was no edema in heart failure. One of the patients falling in this class presented an enormous amount of edema and another presented none at all. He recalled several patients with enormous edema who, as they progressed to death, lost their edema and became emaciated. On the other hand some who came into the hospital without edema died with a pitiful anasarca. It had occurred to him that in these cases one must look elsewhere than in the mechanical factors for the production of edema. It seemed that for the explanation of the edema they would have to look along the lines of blood chemistry and metabolism. Taking the third group, the so-called cardiorenal cases, he thought this term was very loosely used. The cases with characteristic urinary findings, low functional

tests, an excretion of phthalein below 20, hypertension, rapid pulse, and arteriosclerosis, commonly had a failing myocardium and should be handled accordingly. The last group were those cases which presented the so-called cardiac trilogy, edema, cyanosis and dyspnea. They could be divided into two groups: (a) Cases simulating heart failure, but not such; (b) cases showing on ordinary examination no arrhythmias, but on closer study an interesting arrhythmias not readily detected. To illustrate the first group he cited a case presenting the usual symptoms of heart failure in which the patient was later found to be suffering from carcinoma of the stomach. The second group of cases showing no arrhythmias at first but if electrocardiographic tracings were taken might show a regular time rhythm but an irregularity of amplitude. The suggestion was offered that this might be due to a serious defect in contractility though he did not wish to make this statement in a dogmatic way. The point he emphasized was that heart failure when well established must not be predicated from findings other than in the heart itself. The situation was different with beginning heart failure.

Dr. PAUL WHITE of Boston pointed out certain features in the electrocardiograms which led him to believe that they did not show a true pulsus alternans but a pseudo pulsus alternans. It was possible that the variations in pressure due to the respiratory phase had not been taken into consideration. He did not think one could draw conclusions as to the condition of the myocardium from such tracings as were shown, as the myocardium might be irritable without being diseased; such tracings gave evidence of irritation of the myocardium but not of disease.

Dr. WILLIAM D. REID of Boston emphasized the importance in the diagnosis of heart failure of going back of the structural lesion.

Dr. W. S. PLUMMER called attention to an interesting relation between auricular fibrillation and edema in hyperthyroid states. Temporary auricular fibrillation was common in hyperthyroidism. It was a common occurrence to have a heart fibrillate for three or four hours, or even for a half hour, with evidence of increased basal metabolism. That might occur immediately following operation. It was not at all rare to see cases fibrillate for two or three months and then thoroughly recover. More interesting still was the fact that a case might fibrillate for two years and then cease to fibrillate. He had seen hearts fibrillate for a few hours following the administration of thyroid. Another interesting observation in regard to the edema was being made in a large series of cases of hyperthyroidism with high basal metabolism. There was a large amount of work opening up in these directions. At the present time they were only on the periphery of what was opening up in these directions. In the presence of a high basal metabolism the heart was doing more work than it was called upon to do under moderate stresses and under these conditions it was easy for edema to develop. The demand made upon the heart in hyperthyroidism even when the patient was at rest in bed was far greater than that made upon a normal individual in bed.

Dr. WIEL, in closing the discussion, stated that their records had made due allowance for the variations due to difference in the respiratory phase.

Observations on the Heart in Diphtheria.—Dr. S. CALVIN SMITH of Philadelphia read this paper, which was based upon a study of 242 cases of diphtheria in the Philadelphia Hospital for Contagious Diseases, in 1920. If this series of cases 72 per cent. progressed without evidence of cardiac disturbance; the other 28 per cent. exhibited heart irregularities. Of these pulse abnormalities, 65 per cent. consisted of sinus arrhythmia and of a condition called sino-auricular block, both of which were probably without pathologic significance; 20 per cent. consisted of premature contractions, those of auricular origin predominating; the remaining 15 per cent. consisted of high grade heart block of sudden inception about the seventh day, which rapidly deepened into coma, death promptly resulting within thirty-six hours. Heart block was the only cardiac abnormality which resulted in death; in this series of cases it invariably terminated fatally. All other types of irregularity recovered. The four factors

which led them to expect heart block in diphtheria were: 1. Constitutional inferiority malnutrition, depletion following infectious disease, etc. 2. The amount and time in hours between the onset of the disease and the administration of antitoxin in therapeutic doses. 3. The degree of toxicity at the time of the administration of antitoxin. 4. The prolongation of the initial tachycardia over several days. The heart block coming on at about the seventh day was characterized by sudden onset. The patient was conscious, showed great pallor with a peculiar blanching around the mouth, the pulse was of low volume, the precordial impulse was low, Cheyne-Stokes respiration was more often absent than present. There was a precipitate fall in the pulse rate and the appearance of the patient was that of pronounced circulatory urgency. In the heart block of diphtheria digitalis was distinctly contraindicated. In the minor irregularities the drug might stimulate ventricular contraction but it decreased the cardiac reserve so that the heart might be in danger of attack by the diphtheria toxins still in the body. Heart abnormalities in diphtheria were usually manifested in disturbed conductivity reflected in the pulse rate. Acute heart block was not observed once in the early course of diphtheria and there was every reason to believe that if antitoxin were administered early this complication would not occur later.

Dr. E. H. PLACE of Boston stated that the paper had clearly and very concisely shown the disturbances of the heart in diphtheria. He disagreed, however, with a statement made regarding the factors predisposing to heart block, that was that the constitutionally inferior child was more liable to develop heart block in diphtheria. In his experience it was the superior individual who had been injured by diphtheria, and the same he had found true in most of the acute infections of childhood. One of the peculiarities of heart block following diphtheria was the suddenness of its onset usually from the seventh to the twenty-first day and the completeness with which recovery occurred in the cases that did not die was likewise striking. Death almost always occurred but there were a few cases that recovered. If the child survived for two weeks after the symptoms of heart block developed its chances for recovery were good. Recovery undoubtedly occurred even in marked cases, though unfortunately this statement was open to question since they had not had the facilities for making electrocardiographic tracings at the City Hospital. Even where very marked changes had been present recovery was complete, the electrocardiogram showing no abnormality. Their experience in the treatment of heart involvement in diphtheria coincided with that of the reader of the paper so far as digitalis was concerned. The only help could come from an attempt to lighten the work of the heart. The best treatment was that which kept the patient at his minimum of metabolism. He should be given nothing by mouth, but should be given water by rectum. Morphine should be used in small and often repeated doses to keep the patient quiet and comfortable. In their service the mortality from heart complications was from 50 to 85 per cent. Some series ran lower. Dr. Place said he wished to emphasize the point brought out by Dr. Smith that treatment was of little avail and that prevention was easy if they got the case early and administered antitoxin in large doses within twenty-four hours. Those patients who had had diphtheria two or three days or longer were likely to suffer from this complication during convalescence. The clinical manifestations gave as reliable indication of the presence of this complication as did the electrocardiogram.

Dr. ALEXANDER LAMBERT said he would like to ask Dr. Smith and Dr. Place with reference to a type of irregularity seen in adults following diphtheria oftener than in children; that was that the pulse ran at a fairly normal frequency when the patient was quiet, but mere rising would send it up to 160 or 170 per minute. He saw that many years ago before the introduction of antitoxin, and recalled an instance in which in one family there were four children between the ages of sixteen and twenty years who had this form of tachycardia, and all recovered. He asked whether the vagus was injured or whether the injury was to the contractile system rather than to the conductive in heart block in diphtheria.

Dr. MILTON H. FUSSELL of Philadelphia emphasized the time relation and dose of antitoxin to heart failure in diphtheria. He said they were all prone to put off the time of the administration of antitoxin. It was better to administer the antitoxin when the diagnosis was uncertain than to wait until the diagnosis was certain when the delay in the administration of antitoxin might lead to fatal cardiac complications.

Dr. PAUL WHITE of Boston said that in view of the work that had been done in the study of cardiac complications in diphtheria he thought we must make a place in the classification of heart disease for the heart disease of diphtheria, and that one must occasionally make the diagnosis of diphtheritic heart disease.

Dr. JOHN H. BLODGETT of Bellows Falls, Vt., asked what the significance was of the symptom known as *bruit de gallop*, and what the dose of antitoxin Dr. Smith was giving.

Dr. WILLIAM H. BLOCK of New Orleans emphasized the point that it was extremely important that an early diagnosis should be made in diphtheria, and that antitoxin be given as early as possible. He asked the essayist what relation the time of the administration of the antitoxin had to the outcome of the cases in this series.

Dr. CALVIN A. SMITH in closing the discussion, said he had evidently created the impression that all cases of heart block in diphtheria terminated fatally. The cases in his series had all died but he did not mean to say that there were not some cases that might recover. Dr. Lambert had spoken of the pulse being quiet when the patient was at rest and then upon standing a sudden tachycardia would appear. He had been unable to select records of cases of that kind. As to the ordinary dose of antitoxin given in the Municipal Hospital, it was from 15,000 to 30,000 units given intravenously in cases severely or moderately ill. Sometimes in the mild cases the antitoxin was given under the skin, but in the severe cases always intravenously. The *bruit de gallop* he had never succeeded in identifying; it might be a bundle branch block but he had never succeeded in identifying it by the tracings.

Principles Underlying Treatment of Heart Disease by Exercise (Lantern Demonstration).—Dr. THEODORE B. BARRINGER of New York presented this contribution. He stated that the idea prevailed that the chief cause of heart disease was physical overstrain with the result that exercise had been almost completely banished as a therapeutic measure in the treatment of heart disease. In an analysis of 154 cases of heart failure in which there was valvular or muscular involvement or both there were but three cases in which there was any evidence of severe sudden strain being a causative factor. In 151 cases there was fever and polymorphonuclear lymphocytosis. Fever and leucocytosis in patients with heart failure had generally been considered to be due to pulmonary congestion or to general venous congestion. This idea was at variance with the teachings of the newer circulatory physiology and with clinical experience, but in addition, a study of this series of cases gave grounds for the belief that fever and leucocytosis were evidences rather of an infectious process in the heart itself which had caused the heart to fail. A study of the circulatory physiology showed that during physical work the heart increased its output, the splanchnic vessels were restricted and the blood pressure rose. Both the coronary flow and the flow in the general circulation increased during exercise; it might be increased even to six times its normal rate. This increased blood flow must have an effect upon nutrition, and an improvement in nutrition improved the contractile power of the muscle tissue, including the heart. Hence, as a result of the exercise the cardiac reserve was increased. In a normal man after exercise the blood pressure would go up, but it subsided very quickly afterward. Interpreting that in physiological terms, the rise in blood pressure was due to the heart contracting more energetically and causing an increased output while the splanchnic vessels were constricted. In a case of cardiac disease with a large cardiac reserve the results were the same. If there was a small cardiac reserve the reactions would be different, there being a delayed rise in blood pressure, a prolonged fall and pulsus alternans. When that phenomenon occurred it furnished evidence that the

heart had been overtaxed. They had found that patients with a limited cardiac reserve were able to work for shorter periods of time and could not work as rapidly as normal individuals. There were a number of indications by which the exercise tolerance could be determined. Of these the form of the systolic blood pressure curve was the most reliable. A rise of not more than 20 mm. of mercury indicated an energetic and favorable response provided there were no indications of overtaking the heart. In regard to exercise for patients convalescent from heart failure, they should have no exercise other than sitting up in bed until the temperature had been normal for two weeks. The exercise was then limited to the heart's capacity and the limit of tolerance should not be approached. The exercise should be of such a kind that it could be prescribed in definite amounts. Exercise for cardiac patients was of two types, the energetic type and the mild. Of these the energetic type was the more important. In the milder grades of heart affections where the energetic types were used fatigue and overtaking must be avoided, though in his experience one or two overtakings had not led to any untoward results. The mild forms of exercise were those which stimulated over a long period of time and was suited to patients with a low cardiac reserve. Walking was perhaps the best mild exercise. The patient could begin by walking a very short distance and then resting. As progress was made croquet and setting up exercises might be added. The importance of exercise as a therapeutic agent lay in the fact that it is increasing the power of the heart to withstand or overcome infection and improved the general condition of the patient. Exercise was one of the most important therapeutic agents against heart failure that we possessed.

Dr. ALEXANDER LAMBERT of New York expressed the opinion that this paper was very timely. Three points were worthy of emphasis: 1. That it was the infections of the body that poisoned the heart and not ordinary exercise and exertion of men in ordinary active life. 2. The necessity for keeping the patient in a quiescent state during the period of active infection, which was a most important factor in avoiding heart failure. 3. The value of keeping the heart after an infection within its ability to act, and its improvement when so treated. He did not believe that it was yet accepted, judging from discussions to which he had listened, that septic infections were liable to injure the heart muscles and lead to all sorts of heart involvements. There was no doubt, and Mackenzie and Da Costa had emphasized the fact, that a small passing injury might seriously damage the heart. As to how long a cardiac patient should be kept in bed after rheumatic fever, he should be kept in bed as long as the temperature showed any rise. A temperature between 99° and 100° F. showed a still active process in the heart muscle. As to the value of exercise, when properly used, there was no doubt. Dr. Lambert related that he had been asked to stop and listen to the hearts of the bicycle riders after the week's race in Madison Square Garden, after the men had been riding for four or five days, riding three hours and resting three hours. Those hearts were extraordinarily quiet; they were all about 4½ to 4¾ inches out from the mid-sternal line. The pulse was not higher than 80 in any instance; in one man it was 76; in most of them it was in the sixties. The heart sounds were very faint, the pulse full and strong. The cardiac sounds were particularly lacking in amount. One had a reduplicated first sound and one a reduplicated second sound, but they were intensely pure and going on well within the physiological limit; the sounds were those of a heart with myocardial degeneration. One had to judge by the patient each time as to the possible value of exercise. The value of exercise lay in making the organ increase its health by increasing its function. Exercise trained the heart to better and more easy contraction.

Dr. MILTON H. FUSSELL of Philadelphia said that Dr. Barringer's paper emphasized not only the necessity of the normal individual keeping up a certain amount of exercise during life, but that one could keep up a patient with cardiac disturbance by properly regulated exercise, but he feared we might be over-impressed by the value of exercise and forget the impor-

tance of complete rest after infection. Certainly a safe rule was that an individual with an infection of the heart must remain quietly in bed until the temperature had remained normal fourteen to twenty-one days and then exercise must be taken very tentatively. The patient must first be observed before trying any exercise to see if there was any undue acceleration of the pulse on sitting or standing up in order to be sure that he was not taking exercise too soon.

Dr. ROBERT H. BABCOCK of Chicago said that many points had been so excellently said that it seemed a work of supererogation to attempt to add to what had been said, but he wanted to emphasize the necessity for prolonged rest after acute infection of the myocardium or endocardium. Most physicians were apt to allow the patient to get up too soon, partly because they thought the process had ceased when the temperature came down and partly because it was difficult to keep the patient in bed and to make the family see the necessity of it. Exercise was of great value to many damaged hearts. It might be remembered that the great Stokes insisted on the aortic cases exercising in order to develop hypertrophy of the left ventricle. He allowed the patient to take any form of exercise that did not produce distress, but he rarely allowed the patient to do much swimming. He regarded swimming as dangerous because just as soon as the patient became chilled and cyanosis appeared there was capillary paresis and when capillary paresis took place the heart muscle was subjected to great strain. Exercise was of great benefit not only in stimulating nutrition but the improvement of the coronary circulation called into effect those accessory factors that kept up the circulation and improved the venous return in the course of deeper respiration and muscle contraction.

Dr. GREENE of Boston thought the time for keeping the rheumatic cardiac in bed could not be decided by his temperature but should be influenced by the symptoms during the febrile attack. A patient who had had a mild febrile attack lasting only a few days and a questionable heart murmur—a so-called mitral regurgitation—might be allowed out of bed sooner than one who had had severe symptoms.

Dr. PHILIP MARVEL of Atlantic City asked whether the diastolic pressure after exercise was taken and if so whether it was variable.

Dr. CARROLL E. EDSON of Denver, Colo., feared that in our enthusiasm for exercise in heart disease we might not be discriminating enough in all cases as to what the fundamental trouble was. It made great difference whether a patient had a myocarditis which was toxic and simply needed time enough for a natural restoration or whether he had an infective endocarditis in which, though the heart was quiet and the temperature normal, over exertion might light up a latent infection. It was important to decide whether the heart trouble was due to the condition of the muscular system as a whole or to a senile heart, whether the patient was old in years or not, for one was not going to help that heart by calling upon it for increased exertion. Unless one discriminated carefully he was going to get into trouble in applying exercise to cardiac cases.

Dr. SMITH of New York expressed the opinion that the influence of the Association should go out in favor of physical training in the public schools. A thorough physical examination should of course precede the teaching of physical training. He said he mentioned this matter because a bill to abolish physical training in the public schools was brought before the Legislature of New York State during the last year. His daughter had been instrumental in having that bill amended to read that all schools having over twenty teachers should have a specially trained physical training instructor, while in all schools having under twenty teachers physical training might be left to the regular teachers. Now the regular teachers were not trained, and he felt that the Association should let its influence go but as opposed to the teaching of physical training by those who were not trained and should encourage the employment of a special teacher of physical training in all towns and insist upon physical examination of all children taking the training. He thought they should not encourage excessive training in athletics but that every doctor should be interested in physical training of a kind that would be beneficial.

Dr. BARRINGER, in closing the discussion, said that the discussion had shown that the profession was distinctly alive to the lack of handling of cardiac cases in the past. They had all seen cases of valvular and muscular heart disease come back time and time again and apparently not much progress had been made in their treatment of cardiac cases in the last fifty years. The incidence and the mortality from heart disease was increasing. As to the suitable cases for treatment by graduated exercise, there were the angina cases at which they had all looked askance. Most of these were ambulatory cases; for them it was dangerous to prescribe any but the simplest exercises. They had eliminated the cases of coronary disease. Regarding the cases suffering from recurrent endocarditis or heart failure, which some regarded as the same disease practically, in giving exercise one must be guided by the case. For instance, if one had a child in bed three months with myocarditis, when the temperature had remained at 99° F. for three days the child might be allowed to sit up one hour, then two hours, then he might be allowed to walk around the bed, then fifteen or twenty feet, the amount of exercise being determined by the circulatory reactions, and he should cease if there were signs that the heart was overtaxed. The cases of cardiac failure, whether from muscular or valvular disease, must be treated differently. The patient who was short of breath and his exercise tolerance decreased and who showed temperature up to 100 for four or five days was treated with digitalis and when his temperature became normal might be treated rather early by means of graduated exercise. With regard to the age of the patient, young people undoubtedly had a better exercise tolerance than older ones—those 60 or 70 years of age who might have senile myocardial degeneration; the latter, however, were much more improved by exercise than by being kept in bed, in his experience. Our conceptions of heart disease, regarding its etiology, pathology, physiology, and treatment, were going through a transition and there was going to be a great deal of discussion and experiment before any new ideas were adopted, but he felt the incidence of cardiac failure would be lessened provided attention were given to exercise and to the removal of foci of infection. The truth of that assertion only time would bring out, but he had had enough experience to believe it pointed the road we must travel if we were going to improve our treatment of heart disease which was most lamentably deficient at this time.

Intermittent Hydrarthrosis.—Dr. WALTER L. BIERING of Des Moines, Iowa, presented this paper, in which he stated that he had reviewed the literature on this subject and had found 76 cases of intermittent hydrarthrosis recorded. It was but natural that malaria should have been considered as an etiological factor by some; others maintained that it was a phase of other arthritic lesions, and there was a strong tendency on the part of some to regard it as a vasomotor disorder. The patient reported in the present communication came under observation in 1916. He had passed through the usual diseases of childhood, and gave a history of malaria, rheumatic arthritis and typhoid fever. He first noticed occasional painful swelling of the left knee in the spring of 1909. He became impressed with a certain periodicity of the swellings but kept no records of them. He finally kept a record of them and found that they recurred in cycles of six days at an interval of twelve days. During the interval between attacks the knee appeared normal. No form of therapy had influenced the attacks. The right knee then became involved, the cycle being five days and the interval eleven days. The x-ray examination was negative in both instances. The general examination showed nothing insignificant. The Wassermann reaction was negative, the urine normal; the basal metabolism had never been high. The tonsils were removed after which frequent attacks of suppurative tonsillitis ceased. A devitalized tooth was removed and an operation for hemorrhoids was performed. He had had many forms of treatment including iodine injections, elastic supports, arsenic, quinine, and the iodides, without benefit. The periodicity had now lasted for five years. The uniformity of the clinical symptoms had been noted by all observers which had estab-

lished these symptoms as a definite entity, but so far as the etiology was concerned there was not the same uniformity of opinion. The records of reported cases showed one or both knee joints involved in every case recorded. A periodicity of twelve days prevailed in most cases. The general health of many of the patients was apparently normal. Pregnancy seemed to bring about a remission of symptoms. It occurred in those decades of life in which stress was greatest. In regard to the pathogenesis, the tendency to recur periodically was in accord with the vital phenomena of pathogenic organisms. Bacteriological investigations had been unsuccessful probably because of the tendency for bacterial to localize in the tissues rather than in the fluid in the joint. In none of the cases did the condition seem to be associated with trauma. While there was much in the condition suggestive of a bacterial origin the true etiology remained to be explained. These were also those who tried to explain it as a vasomotor disorder akin to the psychoneurotic functional disorders.

Dr. RALPH KEMPerton of Philadelphia said he was not familiar with the detailed history of the case, but there was always room for such clinical observations. The more one saw of arthritis and the more he studied it the more he felt that the various phenomena tended to be referable to a single basis rather than to different factors. In our classifications of arthritis we had been over-clinical and under-pathological. It seemed to him that this condition was really a part of the picture of the arthritic syndrome at large. The periodicity was difficult to account for; but the periodicity was possibly overemphasized. It was interesting to note that of the sites most involved in over 400 cases studied by them the knee was the most frequent. He had sometimes suspected that effusion was compensatory. He had been interested in the respiratory function of the blood and had come across a rather interesting observation. Whether the arthritis was acute or chronic there was a distinct departure from the percentage of saturation of the blood with oxygen. There seemed to be no real chemical change in the blood but a high percentage of oxygen saturation not referable to the circulatory mechanism. With improvement in the condition there was a drop in the oxygen saturation which they had not come across with the same frequency in other conditions. With regard to the effect of quinine in hydoarthrosis it might be recalled that quinine was regarded by some as of value in arthritis, and it might have some value in reference to oxygen saturation. The chief point to be emphasized was that Dr. Biering's suggestion as to a possibility of the circulatory mechanism being involved in the etiology seemed to have some corroboration.

Dr. E. C. ROSENOW of Rochester, Minn., referred to his experimental work that seemed to show the selective action of certain microorganisms, particularly streptococci, when injected into animals intravenously. In acute arthritic rheumatism the localization was multiple and non-suppurative; the organisms tended to locate in the heart muscle and pericardium and to give reactions characteristic of rheumatic arthritis. In their study of the different types of arthritis it was shown that different strains of organisms showed different selectivity in their localizations. With some strains there would be marked exostoses and there was usually suppurative lesion in the joint; in others this did not occur and the lesion was periarticular. In regard to localization in the knee joint, the knee joint in animals as in man was particularly liable to insult. A point which might account for the circulatory disturbances was that in most chronic forms of arthritis the organism did not have the power to locate in the joint but located around the joint and in the tendons around the joint so that the lesion was associated with endothelial proliferation and cut off the vascular structures, interfering with the growth of the organisms but producing lesions somewhat similar to those produced by the living microbes.

Dr. JOSEPH ROSENTHAL of Brooklyn asked as to the incidence of heart involvements in this series, and whether there were any blood changes during the attacks, particularly with reference to the lymphocytes. He also asked with reference to the tuberculous history in these cases.

Dr. BIERING, in closing the discussion, said that in reference to the blood examination, at no time was there a leucocytosis and at no time a disproportionate increase in the lymphocytes. The coagulability of the blood was normal. There was no abnormality in the sugar or other blood elements. There was no instance of tuberculosis in the history of the patient or his environment. With reference to the blood changes, Barker had called attention to a change in coagulability, but this had not been corroborated by other observers. However, that there might be blood changes was quite possible. He recognized the tendency to associate this peculiar swelling with arthritis particularly because it was connected with arthritis in the beginning. There were in most of the cases no other symptoms of arthritis. Because of the peculiar circulatory supply, to which Dr. Rosenow had called attention, there was a close association with the nervous system and a close association with the joint and one could appreciate that a low grade organism might locate there and the reaction would not correspond to the usual response to an infective organism but might simply lead to a transudate and might also account for the periodicity, it taking a certain time for the fluid to accumulate and to disappear.

The Acute Element in Chronic Nephropathies.—Dr. CHARLES P. EMERSON of Indianapolis read this paper in which he asserted that two processes were usually associated in the production of a chronic nephropathy; the acute injurious element, the infection, intoxication, tissue starvation, etc., and the process of tissue repair. The tendency of the injured kidney was always toward recovery. If, therefore, a neuropathy continued unimproved it was not because of the initial lesion, but because the injurious factor continued to inflict new injuries. That meant that chronic nephropathies consisted of a succession of slight attacks of acute nephritis, each adding its injury to the kidney. As evidence of the acute process, we had often a slight fever and an inflammatory exudate of albumin, casts, and various cells in the urine. In the intermissions between these acute attacks the urine might become quite clear, although the kidney might have become greatly injured. During the intermissions the permanent injury might be evaluated by renal test meals, the functional renal test, etc., but during the acute attack these dominated the picture.

Dr. CHANNING FROTHINGHAM, JR., of Boston said that testing the nitrogen and the albumin during the intermissions in nephritis in the way Dr. Emerson had described would be a distinct advance. He could not help wondering whether this increase in nitrogen meant any actual fresh injury to the kidney, but he had been impressed by the difficulty of making up ones mind from a study of the urine as to what was going on in the kidney. There were no tests that allowed one to decide what type of kidney disease was going on. Our inability to determine the type of pathology from the clinical symptoms was to be regretted because it made a difference in handling a case. Some lesions would heal up without leaving permanent scars and some left permanent lesions.

Dr. E. C. ROSENOW of Rochester, Minn., spoke of experiments which he had conducted that had a direct bearing on diseases of the kidney. During a course of experiments with various microorganisms, streptococcus chiefly, these organisms were successively passed through animals and it was found that as they were brought from a low virulence there was a certain point where localized focal lesions in the kidney were the result. In a series of cases of kidney lesions, not many, some chronic, others acute were produced by the intravenous injections from foci of infection such as the tonsils and the teeth. The organisms from seemingly harmless foci in this series of experiments showed a tendency to localize in the kidney. The type of lesion was such that it made one think very strongly that it might be the cause of exacerbations of the kidney disease. In their experimental work the interesting fact that the kidney had great recuperative powers had been noted. The tendency to exacerbations in the chronic forms of nephritis strongly indicated that there was a foci of infection somewhere in the body which was feeding the kidney process. They had recently infected the pulp chamber of devitalized teeth in

dogs with organisms having the power to localize in the kidney when injected intravenously. The results seemed to show that the continuous feeding in of small amounts of an organism having a tendency to localize in the kidney would result in pronounced and advanced lesions of nephritis.

Dr. EMERSON, in closing the discussion, urged active treatment of the original acute attack of nephritis with removal of the foci of infection and emphasized the importance of looking out for the little flare-ups which were evidenced by a rise of a half or one degree in temperature and an increase in the albumin and nitrogen.

SECTION ON DISEASES OF CHILDREN.

First Day—Wednesday, June 8.

Dr. FRANK C. NEFF of KANSAS CITY in the CHAIR.

Chairman's Address: The Section on Diseases of Children.—Dr. FRANK C. NEFF of Kansas City delivered this address, in which he urged that an effort be made to create a complete roster of the membership of the section so that its work might be made available to all those interested in questions pertaining to children. At present only a limited number of the papers read before the section could be published in the official Journal and thus many valuable papers were lost to the members which might reach them if they were enrolled with the section; all those thus enrolled would receive reprints of papers read before the section. Such a list of the members of the section would enable the officers of the section to gain more information as to the work being done throughout the country which would make it possible to provide more interesting programs and to avoid the repetition of subjects unless some definite progress had been made in those particular lines. Papers should be sent to the section officers at least three months before the time of the annual meeting. This would permit the officers to make a selection and the papers returned could sometimes be presented at a future meeting. Guests from foreign countries interested in child welfare work and diseases of children should be invited to contribute to the program. There were now many young men capable of doing research work who had too little time and money to permit of their following such lines of work. In order to give such men an opportunity for doing research work that would be of value to the pediatrician and to the profession at large Dr. Neff said there was a project under consideration of establishing a fund to be known as the Abraham Jacobi pediatric fund. It was proposed that subscriptions to this fund be voluntary and that an executive secretary should be custodian of the fund. This fund should also be used for the publication and dissemination of reprints of the proceedings of the section.

The Relation of Posture to the Health of the Child.—Dr. FRANK DICKSON of Kansas City, Mo., read this paper in which he said that good health was necessary for the proper development of the individual. The physically unfit child was the backward one mentally. Any factor which limited or prevented the child from engaging in normal activities was a menace to health. A child might conform well to the standards of height and weight and yet fall below normal as regards health. Dr. Goldthwaite said that to stand erect and move with ease was desirable for very much more important reasons than those purely esthetic, namely, that one might use the body with less expenditure of energy and with greater efficiency. A considerable proportion of the large number of our young men who were found unfit for military service was so because of defects due to bad posture. The correct posture of chest up, abdomen in, and feet straightforward furnished the conditions for the greatest activity with the least expenditure of energy. The opposite posture, sunken chest, protruding abdomen and flat feet was conducive to muscle fatigue. A large proportion of children had a sufficiently bad posture to cause symptoms. Dr. Dickson quoted statistics to show that postural defects were sufficiently frequent among children to demand attention. The present paper was based on 48 cases, ranging from 1½ to 14 years in age. Postural defects might be divided into congenital and

acquired. The congenital type were those with lax muscles loose joints and a tendency to enteroposis—the long slender type of child with lordosis and round shoulders. In the acquired type there was an increased accentuation of a tendency to lordosis and prominence of the abdomen, the feet were pronated; in a word, the body was out of balance, which necessitated a readjustment so that the center of gravity might support the body. Of the 48 cases studied in this series 12 were the result of congenital conformation; in 21 cases rickets was present; in 5 the glands of internal secretion seemed to be at fault; in 5 syphilis was the cause of the defect. The muscle fatigue resulting from bad posture expressed itself in such symptoms as legache, kneeache, backache, restlessness, irritability, and in older children in lack of concentration and failure to get on in school. A considerable number of children having these deformities acquired them as the result of rickets. The long slender type of child with a ptosed stomach which failed to empty itself normally and dragged on the duodenum and gall bladder was liable to suffer from recurrent attacks of gastrointestinal upsets. These attacks frequently occurred about once a month. Talbot and Brown had explained that bad posture might explain cyclic vomiting together with a certain degree of fat intolerance. Functional albuminuria was often seen in these cases. Arthritis was occasionally seen associated with poor posture. Dr. Dickson said he did not claim that all symptoms from which these children suffered were due to bad posture alone, but the presence of one or more of these symptoms suggested that a consideration of the body posture was indicated. The treatment of these children consisted in training in proper postural habits, regulation of the diet, correction of deformities and exercise, each of which was equally important. In conclusion it was suggested that bad posture might even furnish the explanation of some acute conditions, hence a careful examination of every child in reference to body mechanics was of importance. In the handling of these cases there should be cooperation between the pediatricist and the orthopedic surgeon. Attention to posture was important because of its effect on the later life of the child.

Dr. BORDEN S. VEEDER of St. Louis stated that for a number of years he had taken considerable interest in a group of underweight and thin children with no striking pathological condition, most of them coming from homes of good economic circumstances so that lack of proper food seemed not to be the cause of the malnutrition. For a time he was inclined to attribute the condition to heredity, characteristic traits or something of that kind. But he found that this did not seem to furnish the explanation of the condition. He observed two or three of these cases in the home and it seemed that the basis of the condition lay in fatigue and treatment based on that theory had given prompt results. If one watched these children it was found that they became tired in their play, and forgot to relax. The causes of fatigue might be multiple; it might be due to bad posture, to overwork or overplay or overstudy. The complex lives of many modern children, too many parties, too many movies, too much excitement, and too little rest and relaxation might be found the explanation of the condition presented by these children who were simply under weight and under par and in whom there was no definite pathologic condition. The removal of physical defects was not the entire solution of the problem of handling these children; one must study the environment in which the child was living and among other things see that he was getting the amount of sleep he required. Published statements in regard to the amount of sleep needed by the growing child were very indefinite. These had been analyzed and a record of sleep in a group of malnourished children had been made in an attempt to determine the importance of this factor. The amount of sleep required was an individual matter but there was a minimum of sleep which every child must have. Such a minimum he had worked out. It was as follows: A child of 1 to 2 years required 13 hours sleep in twenty-four hours; one 2 to 4 years of age required 12 hours; from 4 to 6, 11 hours; from 6 to 10, 10 hours, and from 10 to 14, 9 hours. It must be remembered that this was only a minimum to be used as a basis for judging

of the amount of sleep necessary for each individual child. In order to ascertain how great a part insufficient sleep played in malnutrition, Dr. Veeder studied a series of 80 children, 15 to 20 per cent. of whom were underweight, checking up the number of hours of sleep they were getting. He found that 40 per cent. of these children fell below the minimum requirement as regards sleep. Then, too, the conditions under which they slept played a part, such as whether there were one or two in a room, two in a bed, the size and ventilation of the room, etc.

In closing, Dr. Veeder said that the more he had studied this matter the more he had been impressed with the importance of rest and relaxation in relation to the general health of the child and the problems of malnutrition. Propaganda directing attention to the need of restricting the activities of these malnourished children was needed as much as that setting forth the need of proper clothing, bathing, care of the teeth, and proper diet. Modern life interfered seriously with the growth and development of a great many children.

Dr. FRITZ B. TALBOT expressed the opinion that these two papers had dealt with two very important factors in the well-being of children. The question of fatigue and the question of good posture so interlinked that they formed a vicious circle; fatigue made poor posture and poor posture made fatigue. When poor posture was corrected the fatigue ceased. It was important to remember that in connection with mechanical devices used in the correction of improper posture. In the reports he and his associates had made on extreme cases of improper posture with extreme symptoms he thought they had shown how important posture could be in severe cases. Dr. Dickson's paper emphasized the same thing in reference to the milder cases. It was a rather common experience for those who were taking posture into consideration to find that when the posture and fatigue were corrected lines under the eyes, lack of appetite, and constipation disappeared and efficiency increased. Dr. Talbot emphasized the point that in cyclic vomiting one must always bear in mind that he was dealing with a potential appendicitis. One must always remember that the underlying basis of cyclic vomiting might be not posture but chronic appendicitis. That had been the after history of two cases that improved when the posture was corrected but did not become entirely well, so one should not be carried away by enthusiasm in the correction of posture defects and forget that there might be a surgical condition back of it. However, the results of correction of postural defects were sometimes brilliant.

Dr. C. F. WAHRER, Fort Madison, Iowa, brought out the point that many of these children had malposition and malnutrition because they were constitutionally inferior. If one looked at the parents of these children he would see that the parents had these same defects and that we had to break in on a vicious circle. The parents must be taught that they must not permit such positions in their children. The family physician must draw attention to this matter and the poor school teacher who had been made responsible for everything must be asked to help and a paternalistic government must take a hand. The matter of posture was indeed no small thing. A proper carriage was an important matter in the self-respect of the individual, aside from any question of pulchritude. Perhaps when the family physician brought the matter of posture to the attention of the parent he would be told that it was none of his business but he should not be disconcerted by that but should be proud to be the instrument in making a better, a greater and a prouder mankind.

Dr. JOHN A. FOOTE of Washington, D. C., said that Dr. Dickson had made the statement that deformities or mechanical defects produced malnutrition, he thought it important to mention that malnutrition produced mechanical defects, and while it was proper to say that these conditions were due to muscle strain and maladjustment in the acquired types we did not know as much as we should know. Dr. Schroeder of New York, who was doing work of this kind for the Association for Improving the Condition of the Poor, had investigated some 2,000 children and her observations according to age grouping were worthy of attention. She found in the children from two to six years of age, the pre-school group, a very startling number

of orthopedic defects. The orthopedic defects ranged between two and three per cent. in all the children of all ages, while in the children between the ages of two and six years 24 per cent. showed orthopedic defects. In the children from six to twelve years there was a drop to less than eight per cent. Further analyses of the observations made in this series of children showed these defects to be due to deformities of the long bones and deformities of the thorax and bony spine. It would seem that in a study of this kind one could find some of the reasons for muscle fatigue. The posture habits were formed in childhood when the child was trying to correct defects of the long bones and in that way he acquired certain habits of muscle imbalance which persisted after the original orthopedic defects were cured. In the prevention of rickets we had a means for the prevention of orthopedic defects, and this could be done by encouraging maternal feeding and providing a suitable diet to children.

Dr. C. H. JOHNSTON of Grand Rapids said the books stated that poverty, malnutrition and tuberculosis went hand in hand, and he did not have statistical data to deny that statement, yet the observation of a large number of malnourished children showed that this condition was more common among the children of the rich than among those of the poor. In a district inhabited by the rich 40 per cent. of the children were found to be malnourished, while in a poor district only from 20 to 25 per cent. of the children were found to be suffering from malnutrition. He thought they were going to find that there was some other cause of malnutrition in children besides poverty and tuberculosis. Next year he would like to have someone read a paper showing the specific part malnutrition played as a cause of tuberculosis.

Dr. E. J. HEUNEKENS of Minneapolis, Minn., emphasized what had been said in reference to malnutrition as a cause of bad posture and as to the benefit of rest in malnutrition in children. After listening to the paper of Dr. Talbot and Dr. Brown last year, Dr. Heunekens said he spent two weeks in Dr. Goldthwaite's clinic and then went home and applied what he had learned in his clinic for pre-school children. The first thing was to get the child started in the Goldthwaite position and then much could be done by systematic exercise to develop that position. When the physical defects were corrected it was found that there was faulty diet and faulty home environment in at least a large proportion of the cases. In a fairly large number of cases there was a neurotic atmosphere and treatment had to be directed to the parents.

Dr. DICKSON, in closing the discussion, said he did not intend to convey the impression that he thought postural defects explained all the things they had found in this series of cases. There were other elements. Of the 48 cases 21 showed evidence of rickets. For that reason he never consented to handle one of these cases unless he had a pediatricist with him, because it was only by the close cooperation of the pediatricist and the orthopedist that the best results could be obtained. Those in orthopedic work were in a little better position to correct postural defects than the orthopedist and he was sure that when it came to regulating the diet the pediatricist could do better than the orthopedist. He thought they should get together and train the children and give them a fair start in life.

Dr. S. BORDEN VEEDER of St. Louis said that they all recognized that malnutrition was a complicated subject. Up until last year in their work all the attention had been directed to diet and the correction of physical defects, such as carious teeth and bad tonsils, but it had been his experience that these things would not cure a large percentage of cases and hence he wished to emphasize the importance of rest.

(To be continued.)

Syphilis and Diabetes.—Pinard and Violnet in 1,000 miscellaneous cases found twenty-three with glycosuria or diabetes, and of this number fifteen had contracted syphilis, or were heredo-syphilitics. This frequency of a syphilitic factor will explain certain symptoms common in diabetes, as areflexia, ocular paralyses, and monoplegias.—*Gazette des Hôpitaux*.

Books Received.

The MEDICAL RECORD is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.

INFEKTION UND IMMUNITÄT. Von M. LOEWIT, M.D. 550 pages with illustrations. Published by Urban & Schwarzenberg, Berlin and Vienna.

EDEMA AND NEPHRITIS. By MARTIN H. FISCHER, M.D. 922 pages with illustrations. Published by John Wiley & Sons, Inc., New York.

TRANSACTIONS OF THE AMERICAN SURGICAL ASSOCIATION. Volume 38. Edited by J. P. JOPSON, M.D. 709 pages with illustrations. For sale by Wm. J. Dornan, Philadelphia.

THE EARLY STAGES OF TABANIDÆ (Horseflies). By WERNER MARCHAND, M.D. 203 pages with illustrations. Published by the Rockefeller Institute for Medical Research, New York.

DISEASES OF THE SKIN. By J. M. MACLEOD, M.D. 1307 pages with illustrations. Published by Paul B. Hoeber, New York.

COMPLETE INDEX TO KEEN'S SURGERY. Volumes I to VIII. 182 pages. Published by W. B. Saunders Company, Philadelphia.

PRACTICAL CHEMICAL ANALYSIS OF BLOOD. By VICTOR CARYL MYERS, M.D. 121 pages with illustrations. Published by C. V. Mosby Co., St. Louis.

SURGERY, ITS PRINCIPLES AND PRACTICE. Edited by WILLIAM WILLIAMS KEEN, M.D. Two supplementary volumes. Published by W. B. Saunders Co., Philadelphia.

INJURIES TO JOINTS. By Col. Sir ROBERT JONES. 195 pages with illustrations. Published by Henry Frowde, Hodder & Stoughton, London.

THE NEW POCKET MEDICAL FORMULARY. By WILLIAM EDWARD FITCH, M.D. 470 pages. Published by F. A. Davis Company, Philadelphia.

DIAGNOSIS AND TREATMENT OF INTUSSUSCEPTION. By CHAS. P. B. CLUBBE, M.D. 91 pages. Published by Henry Frowde, Hodder & Stoughton, London.

ELECTRO-THERAPEUTICS FOR PRACTITIONERS. By FRANCIS HOWARD HUMPHRIS, M.D. 300 pages with illustrations. Published by Henry Frowde, Hodder & Stoughton, London.

TRANSACTIONS OF THE AMERICAN GYNECOLOGICAL SOCIETY. Edited by GEORGE GRAY WARD, Jr., M.D. 482 pages with illustrations. W. J. Doran, Printer, Philadelphia.

TEN YEARS OF INDUSTRIAL SANITARY SELF CONTROL. By GEORGE M. PRICE, M.D. 63 pages with illustrations.

HANDBOOK OF ELECTROTHERAPY. By BURTON BAKER GROVER, M.D. 420 pages with illustrations. Published by F. A. Davis Company, Philadelphia.

THE MEDICAL CLINICS OF NORTH AMERICA. March, 1921. Volume 4, Number 5. 1637 pages with illustrations. Published by W. B. Saunders Company, Philadelphia.

A PHYSICAL INTERPRETATION OF SHOCK, EXHAUSTION, AND RESTORATION. By GEORGE W. CRILE, M. D. 232 pages with illustrations. Published by Henry Frowde, Hodder & Stoughton, London.

PUBLICATIONS FROM THE DERMATOLOGICAL RESEARCH LABORATORIES OF PHILADELPHIA. Volume 2, 1921. Collected Reprints.

INJURIES AND DISEASES OF THE BONES AND JOINTS. By FREDERICK H. BASTJER, M.D., and CHARLES A. WATERS, M.D. 349 pages with illustrations. Published by Paul B. Hoeber, New York.

BIRTH STATISTICS FOR THE BIRTH REGISTRATION AREA OF THE UNITED STATES, 1919. Fifth Annual Report. 315 Pages. Government Printing Office, Washington.

THE TECHNIQUE OF PSYCHOANALYSIS. By SMITH ELY JELLIFE. Second Revised and Enlarged Edition. 191 Pages. Published by Nervous and Mental Disease Publishing Company, New York and Washington, D. C., 1920.

L'ANNÉE THÉRAPEUTIQUE. Par le Dr. L. CHEINISSE. 144 pages. Masson et Cie., Editeurs, Paris.

Miscellany.

NEW BOOKS AND OLD.

VIII. PUSCHMANN'S HISTORY OF MEDICAL EDUCATION.

BY JOHN RUHRÄH, M.D.,

BALTIMORE, MD.

EVERY medical library should possess a copy of this work, either in the original or for the benefit and comfort of the American students, in the English translation of Evan H. Hare. This is not a new work, and the translation dates back thirty years, but it is an extremely interesting series of essays of considerable length, dealing with the progress of medical science. It is not only a history of medical education, but a history of medicine as well. The earlier ages are dealt with very much more fully and very much more entertainingly than the later periods, and the consideration of medical education as it was at the time the book was written is very sketchy and well worth amplification. But Puschmann did his work well, and the volume is a tribute to his interest in the history of medicine and of his understanding of it.

He begins far back in the beginnings of civilization in the East and from the days when Charaka and Susruta composed the Ayur-Veda. Charaka's name is connected with the study of the history of medicine in this country, as the New York organization devoted to this purpose bears his name. Among his other recommendations was the intercourse with other doctors.

For conversation with a colleague increases knowledge, confers pleasure, enlarges experience, imparts readiness of speech, and induces consideration. Whoever is uncertain about something learnt, will have his doubts removed by repeated instruction; whoever has no uncertainty or doubt, will be able to fortify his opinion. Thus often a man comes to hear what up to that time he never knew. Often a teacher can seize the opportunity of a conversation of this kind to fully and at once impart to his pupil some information partially or entirely withheld hitherto.

Susruta outlined the requirements that a man should possess before choosing the profession of medicine. Among other things he remarks that he should be sixteen years of age, should show a respectable behavior, should possess a love of cleanliness, kindness, and bodily strength, understanding, a good memory, and the desire to learn and to reach the ends he has in view.

He must have a clean tongue, small lips, regular teeth, a noble countenance, well-formed nose and eyes, a cheerful spirit and good bearing and be prepared to undergo weariness and pain. And whoever possesses the opposite characteristics should not be admitted to the doctor's calling.

The writings of these two old worthies often read like the addresses so often given to medical students on the day of their graduation, showing that we have not gone far in the relation between doctor and patient.

Going Westward, medical teaching in Egypt is briefly touched upon, and one of the passages translated by Chabas is as follows:

Let not idleness overtake thee, else shalt thou be severely chastised. Hang not thine affections upon pleasures and take care that the books fall not from thy hand. Exercise thyself in conversation and speak with thy superiors in learning. When thou shalt grow older thou wilt recognize how important this is: whose is dextrous in his craft achieves power and fame.

As Puschmann states, the medical student of those days was not unlike those of ours. Up to the date of the great drouth, you find one of the teachers reproving a pupil in the following quotation taken from Lauth:

It has been reported to me that thou neglectest thy studies and seekest only thy pleasure, wandering from tavern to tavern. But what profiteth the odour of beer? Avoid it; for it drives people away from thee, impoverishes thy wits, and likens thee to a broken oar upon the deck of a ship.

Medicine among the Jews, among the Parsees, in Greece before Hippocrates, and later during his era receive due attention. The Roman teachers are pictured in a satisfactory manner, and the tricks of the trade to which the profession of medicine often descended are commented upon sufficiently to permit us to learn that quackery is no new thing. His account of Soranus does not seem to me to give one of the greatest of the ancient physicians his due meed of praise. The author goes on with a discussion of the influence of Christianity on medicine, then passes again to the East to comment on the Arabian civilization and upon medical science among the Arabs.

One is surprised at the size and importance of the hospitals of this time, which in many cases served as institutions of medical teaching. After the medical rounds the students seated themselves on carpets in the courtyard and were lectured often for many hours by the various professors. Such were the hospitals at Ray, the birthplace of Rhazes, at Ispahan, and Damascus. Perhaps the most remarkable of all was the great Mansurian hospital at Cairo, built by the Sultan, whose name it bears. He took the residence of one of the princesses, tore it down, and used the material to rebuild. All the skilled workers of Misr and Cairo were made to work steadily upon it until its completion, and the Sultan himself visited the hospital daily until it was completed. Fortune favored him, for in making the excavation a box filled with gold and precious stones was found, which paid for the cost of construction. The hospital served as a center of some other activities, as a mosque in which the Koran was constantly read, and there was also a library for the medical students which was under the care of six eunuchs.

Among the wise teachers among the Arabs was the Jew, Isaac Israel, reputed to be the author of "The Doctors' Guide." Puschmann makes several quotations from it, which have been subsequently used a great deal, and doubtless old Isaac got them from someone else.

The most important problem for the doctor is, how to avert illness.

The majority of diseases are cured by the help of Nature without the aid of the doctor.

If you can cure the patient by dietetic means, forbear to order drugs.

Never rely upon magic in the treatment of a patient, since they mostly rest on folly and superstition.

Hold forth the prospect of recovery to patients, even when you are not assured of it yourself; so shall you at least second the efforts of Nature to cure them.

If a doctor has come from afar, and speaks a foreign language, then the multitude think him a clever man, come to him in crowds, and seek his advice.

Never speak unfavourably of other doctors; for everyone has his successful and his unsuccessful

times. Let your deeds speak your praises, not your tongue.

Visit your patient when he is at his worst. At that time come to an understanding with him about your fee; for if the patient is well he takes no thought of the matter.

Make your fee as high as possible, for what is done gratis is considered of little value.

Bestow the greatest attention upon the cure of princes and rich people; for after their recovery they will be munificent to you, will always value and love you, whereas common people when they are cured hate you if they think of the fee.

Puschmann passes rapidly along to the teaching of medicine among the Germans and in the monastic schools. That specialization is no new thing is evidenced by some of the early writings. Thus in Alcuin's poem on Charlemagne, "One let the patient's blood, another mixed herbs in a pot, that one cooked some pap, while this one prepared a drink." The school of Salerno, of which I hope to write more fully at a subsequent time, comes in for an interesting chapter, as does, also, the medical school at Montpellier. One would like to linger longer over this and over the ancient academies of Italy and France, and the other universities of Europe.

The teaching of anatomy, of medicine, and pharmacy are detailed at some length, as are also surgery and midwifery. One of the most fascinating is the account of medical examinations, and the various titles. One reads with joy a few paragraphs and laughs in his sleeve, when we consider the growing tendency of American physicians to add a string of letters after their names. Listen to Puschmann:

When people began to distinguish between the Doctores legentes et non legentes,—between those who made a practice of teaching and those who neglected to do so—the custom arose of calling the former Professors.

This expression also draws its origin from the ancient times; it comes from Proflteri "to practice or teach publicly an art or science." At the German universities the title "Professor" came first into vogue in the 16th century and only those academical teachers were designated by it who were commissioned to hold lectures and for the instruction they imparted in this way drew a salary or remuneration. They were in fact members of the College of Teachers, called, at an earlier time, Doctores legentes.

The change in the significance of titles and forms of politeness, which is effected in course of time, has its foundation for the most part in human vanity. At the present time it is the case with the title of Professor as it formerly was with that of Doctor; it is bestowed on members of the medical profession who hold themselves quite aloof from the function of teaching whereas many academic teachers are already less inclined to bear the title of Professor than such titles as Geheimrath, Hofrath, or Regierungsrath.

Further I cannot go, but I hope I have given a sufficient account of this book to make whoever reads this wish to possess it, and they will not go wrong if they are fortunate enough to pick up a copy.

Theodor Puschmann began a "Handbuch der Geschichte der Medizin" which was subsequently completed by Pagel and Max Neuburger. His name will go down in the history of medicine perhaps for a long time, inasmuch as his widow endowed the Institut für Geschichte der Medizin, at Leipzig, in 1909, by leaving an endowment of five hundred thousand marks. The admirable work of Sudhoff, the director, I hope to comment on at some future time.

Visit of Edinburgh Students to Paris.—Recently a body of seventeen students from the University of Edinburgh sojourned a month in Paris for the purpose of attending the obstetrical clinics of the metropolis. At a reunion which they attended the Dean of the Medical School, Professor Roger, made an address of welcome during which he dwelt on the ancient friendship of France and Scotland. It was more than a friendship, for the two races sprang in part from a common stock. The same megalithic monuments occur in both countries. The trip was the result of a conference between the Dean of the Faculty of Edinburgh University and Professor Bar, the senior obstetrician of the Paris Faculty. The courses were conducted by Bar, Brindeau, Couvelaire, Faure, and Lequeux. The visiting students were quickly formed into three classes to be assigned respectively to the Baudelaire and Tarnier clinics and the clinic of the La Pitié Hospital. The latter, as is well known, is used particularly for the instruction of midwives. The instruction was conducted in the English language. The movement is not the first post bellum attempt at medical rapprochement, for Spanish students have been receiving instruction for some time in their own tongue in various metropolitan clinics. It is not denied that these adventures are a part of a system of French propaganda. France does not propose to be caught napping by the Teutons again, and will see to it that her good things receive the best sort of publicity.

Evolution of Modern Diagnosis in France.—In an inaugural lecture to his faculty course on internal pathology reported in *La Presse Médicale*, April 30, 1921, xxix, 35, Professor Renon briefly sums up this subject. Some of the older authorities had some knowledge of physical diagnosis, for we find mention of auscultation in Ambroise Paré and of percussion in Tagault. But the new science practically dates from 1803 when Corvisart translated the work of Avenbrugger on immediate percussion. In 1823 Piorry introduced mediate percussion and in the meantime Laennec, in 1819, had published his treatise on mediate auscultation. In 1841 Gruby was the only expert microscopist in France and among his discoveries was a trypanosome in the blood of a mare. He was so far ahead of his time that nothing further in this direction was done until the time of Davaine, the immediate forerunner of Pasteur. In 1847 Duchenne de Boulogne made his earliest contribution to the art of electrodiagnosis. Some time later came the great revolution incident to the introduction of bacteriology. In 1892 Louis Martin independently differentiated diphtheria from other anginas. Talamon discovered one of the pneumococci, Laveran the *Plasmodium malarie*, etc. In 1896 Widal introduced serodiagnosis and a few years later cytodiagnosis. Marie isolated acromegaly and Babinski discovered his reflexes. Bordet and Gengou introduced diagnosis by complement deviation and Richet the conception of anaphylaxis. Widal has been identified with innovations for more than a quarter century. Among them is the relation between the chlorides and edema, and quite recently the hemoclastic crisis.

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Original Articles.

THE MORAL CENTER IN THE BRAIN.

(CORTICAL REGION FOR CONTROL OF MORALS)

ITS LOCATION AND SIGNIFICANCE.

By WILLIAM BROWNING, M.D.

BROOKLYN, N. Y.

(Concluded from page 1048)

Analysis of Cases.—In considering these focal brain troubles the custom will be followed of recognizing two classes of symptoms, the general and the special (general and special localization). The present cases are reported for their value on the general side.

Cases of this clinical type are seen now and then at all our large care institutions. State hospitals, reformatories, truant homes, prisons, and the like all prove to be occasional landing places for these unfortunates. But cases that are demonstrative in the present sense are far rarer, and so scattered that no one evidently has seen enough to recognize their bearings.

The cases above related are from a number of known observers. To an unusual degree the personal element of a single reporter is thus excluded. This serves the further purpose of verification of material. Half the cases have also been examined by the writer.

Five of these were in families of means, making the delinquencies all the more flagrant. And all were, so far as determinable, from families of good repute. A history of the immediate relatives was obtained in eight of the cases. Possibly in Case VIII the sexual phase may have been influenced by remote heredity, but, even so, that does not account for the case as a whole.

To imagine that primary unmorals are specially disposed to acquire right frontal injury is too absurd to need argument. Doubly decisive in this regard are Cases V, X, and XI, where a normal changed to a low-grade moral.

As American, English, Irish, Hebrew, Italian, and German are represented, even in this limited number, it is clear that neither race, sect, nor previous condition is a factor. Though these are all Caucasian, no race has a monopoly of virtue, nor is any minus a frontal lobe; each, therefore, can claim a moral center, or potentially "something just as good."

In each of these cases, considering their respective walks in life, a moderate degree of intelligence was preserved; on this score they might all pass as average persons. And three (I, IV, VII) were intellectually well above question.

In three (I, III, VI) there was a history of convulsions for a time, not a chronic epilepsy. It is

not apparent that this affected the relation of either case to the present question.

In two cases the scar extended a trifle across the middle line (VI, VII). But in these there was no evidence of subjacent damage on the other side; at most, it could have been but minimal.

Five of the cases were due to forceps injury at birth. While this speaks for regional accord, it does not prove exact identity of site nor equality in the size of the lesions.

Three of these were in left-handed persons, and in each the injury was in the left instead of the right frontal region.

The evidence in each of these ten cases points to injury chiefly and for the most part exclusively of the recessive (usually the right) frontal lobe. In two (VIII, IX) the external scar may have extended farther back. But as in these two there was no motor involvement, it is certain that the brain injury was forward of the central region. In Case III there was some involvement of the arm center, but more of that for conjugate deviation, situated forward of the arm center. And so long as the damage was limited to the right hemisphere the present contention is not materially affected.

As the damage in each was caused by external violence, and as there was a localizing scar in each (except Case III, in which the clinical evidence was to the same effect), it is certain that in each there was some degree of cortical involvement (as by trauma, pressure, or scar).

Whether shock and contusion effects, short of gross lesion, can disjoint such a center sufficiently to disable it permanently is a question that does not specially concern this discussion.*

What is meant by morals? It is not necessary to discuss old definitions, but only to speak for present purposes. The delinquencies found are of two kinds:

On the positive side: Stealing, forgery, bribery, deceit, reckless greed yet improvidence, extravagance and profligacy, gambling, "pathological lying," obscene language, impersonation (imposter), running away, breaking parole, expulsion from school, vagabondage, runaway marriage, over-excitability, violence actual or implied, instability, drunkenness, hypersexuality, prostitution, bad associates, roguery, cruelty, restlessness.

Recorded observations of others include also, as products in some cases, drug addiction, pyromania, suicide, homicide, "frightful cruelty," "a universal badness," poisoning, swindling, fraud promotion, desperadoes, trickery, borrowing and pawing, cunning, "wayward and self-willed," "tendencies to ex-

*Cf. Specht Sagenannte Naval Insanity nach Gehirnerschütterung, *Med. Klinik*, 1918, xiv.

cesses of all kinds," selfishness, yet a care withal to clothe these acts "skillfully in legality." Gehry (*Correspond. f. Schweiz, Aerzte*, 1913), speaks of a criminal impulse (Trieb). Practically this covers the whole gamut of immorality and criminality.

On the negative side: Loss of the sense of fear, shame, remorse, misgiving, responsibility, duty, obligation, honor, the proprieties, regard for "the feelings and rights of others," lack of normal humane instincts or altruism, "utterly incapable of telling the truth or understanding why they should do so," incorrigible. "The constitutional unmoral is extremely suggestible," yet "These persons apparently learn no lesson from experience." "No sense of the necessity for property rights" (Bolsheviki by nature just as are all mere animals—with apologies to the dog and horse!) They crave excitement, change, adventure, self gratification. "They want gaiety, which leads them into dissipation." "Vice. All its innumerable forms are derived from inordinate self love" (Rush). Not all these acts and sub-moralities hold, of course, against every case.

On the other hand, they are not stingy, tight-fisted, or miserly: are often "very popular" even outside of their pals; show "a cheerful adaptability to the inevitable"; and are sometimes capable spontaneously of a bravery and heedless generosity, a nobility of conduct, to which ordinary mortals are less disposed.

The absence of timidity, fear, and forebodings makes an excellent ground-work for success in criminality. They can be far more successful as criminals than can the upright. Risk, doubt, consequences, chances, possibilities of harm to themselves or others do not arise to unnerve and unsteady. Psychically dare-devils and steeple-chasers must be closely akin.

In none of the above cases do the histories preserve more than illustrative items of the many anti-social acts of the individual. Such a multitude of transgressions have been related, even in less frank cases, that whole articles might be filled if that phase as such were the present topic of study. Suffice it to note that each has been serious enough to require medical or institutional care. Were it only a medical matter it is time to have some principles worked out for both their understanding and management.

While actual personal violence (assaults and attacks on life) is less in evidence in the above cases, it is implied in several. Both logically and by association it belongs in the unmoral picture. Such deeds, however, soon land the doer in prison, and cases from that source have not been secured.

These ten cases then have two large features in common: On the one hand a history and evidence of injury in the right frontal region, of a character that necessarily involved some portion of that frontal lobe; on the other a record of subsequent immoral anti-social and variably criminal acts. That the relation of these two is that of cause and effect hardly needs argument. Details may remain to be determined, but regarding the main questions the evidence seems conclusive.

So far as known, there is no like list of cases involving this or any other limited portion of the brain. Of course anyone of experience has seen occasional cases of excitement, alienation, and even

violence from injury to various parts of the cerebrum. But such cases are not to be confused with the present group; nor are they of sufficient uniformity to have any localizing significance.

As in nearly all principles of cerebral localization a start has to be made with material that is approximate rather than exactly determinative of the location. Instead of post-mortem and histological examinations we are here able to cite injuries, scars and histories as proof of the site of the lesion. A single instance can be easily picked to pieces. But from a series of such cases, to the extent that they show uniformity, approximate localization is warranted and veritable conclusions of value can be reached. For greater exactness of detail it is desirable to have anatomic descriptions of like cases; but this need not prevent the clinician pointing the way. It is hardly a field for animal experimentation. But as the conditions in these cases were all acquired, each represents a human experiment.

Though Broca's work is over 50 years old, there are still queries about the character extent and relation of his conclusions. The present is hardly less incisive. It opens the right hemisphere which has so long been but a puzzling balance wheel. It also indicates that the higher mentality* is responsive to physiologic law.

A Psychic Inhibitory Center.—Next in importance to the facts is the presentation of a working theory for their proper understanding. How is this impairment of morals consummated? In point of fact none of these unmorals is at every instant criminal or even bad in his actions. Much of the time and when under favorable surroundings they act just as morals do. It is only at times and under certain conditions (as excitement, temptation, craving for adventure, sudden impulse, absence of restraint) that anti-social conduct develops. There is consequently no actual loss of any function requiring motor activity for its expression, but only a failure at times to keep such functions within proper bounds.

To follow the matter concretely, two items will be selected (lying and forgery) from the category of their iniquities. As these acts are executed by centers in the left or dominant hemisphere, and as this can be done quite as perfectly after damage to the right frontal lobe, it is certain that the primary source of the impulse thereto does not reside in that lobe, but only the power of controlling or restraining these acts for moral purposes.† This shows the control of morals to be identical with the well-recognized form of nerve-function called inhibition.

The truth of this interpretation is fully corroborated by the character of the unmoral acts. As fear, duty, remorse, etc., are all restraining influences, and consequently inhibitive in character, their loss or impairment means that there has been a corresponding loss of normal inhibition. And in the same manner the unmoral aggressive acts show

*"The moral sense is the highest faculty of man," B. Sachs, in "Legal Medc.," 1894, II, 201.

†The same facts and reasoning make it also clear that these cases do not prove the existence of a sexual center in the right frontal lobe (as might at first be imagined), but only that sexual activities are under the inhibitive control of that lobe.

the loss of inhibitive control. Therefore, all the aberrations can best be attributed to a loss of normal psychic inhibition.*

A point comes up here that is not necessarily involved in this discussion, but is so much related as to have an important bearing. This refers to the source of initiative that starts motor activity. When the motor stimulus originates in the motor center itself, we get only cortical or Jacksonian spasm, *i.e.* non-purposive unmotivated action. Hence per contra all purposive action must originate at some higher point in the cerebral scale. Such higher sources of initiative constitute supermotor or psychic-emissive centers.

From this it is evident that the supermotor centers are functionally of two types, the activating and the inhibitory. In the present instance the two are not only not identical in site but appear to be in opposite hemispheres.

On the basis of these facts and conclusions we see that here, just as in nerve action generally when normal, stimulus and inhibition working together make action effective. That such is the standard type of emissive cerebration in general has long been recognized theoretically as correct; but it does not appear to have been applied very concretely. We see now that it holds for the large class of activities in the moral field. Of course, the moral does not preclude other lines of restraint.

CLINICAL CONCLUSIONS

1. These cases are evidence that a brain injury can invalidate the moral control, and practically be a cause of criminality.
2. There is a limited region in the brain that acts as controller of the individual's morals.
3. This region is sufficiently restricted in extent to warrant terming it a center. As it must be largely cortical it can be so designated.
4. This center is in one hemisphere, hence unilateral in type, as are certain other brain centers.
5. It is situated wholly in one frontal lobe.
6. It is always on the so-called silent or recessive side, *i.e.* in the right frontal lobe if the person is right-handed, and vice versa.
7. This center is inhibitive in action, emissive in type, and supermotor in the functional scale.
8. It also carries certain restraining mental attributes, such as fear, conservatism and the humane instincts.
9. Destruction or impairment of this center leaves the individual morally unguided.
10. As loss of the moral qualities can occur without loss of the intellectual, it can be concluded that the latter are centered elsewhere in the cerebrum.

In all this, one general fact stands out, supported by eleven consecutive cases (for No. XI see below), *viz.*, that lesion of the brain can cause loss or impairment of the individual's morals, and that such lesions are regularly on the right or recessive side.

This is, so far as known, the first considerable attempt to give an independent status to the right or inactive cerebral hemisphere. An additional case can here be given, which, while not in itself decisive regarding the frontal lobe, does give cor-

*Barr, *Med. Times*, 1912 p.199, says of such a girl: "She evidently had no inhibitive control of herself and frankly acknowledges that she yielded to every impulse."

roborative evidence on two important points. It shows immorality in a right-handed person, following extensive lesion of the right hemisphere, and also that this was acquired after normal maturity. The writer's attention was kindly called to this case by Dr. R. E. Blaisdell now of the Kings Park State Hospital, and the history has been most courteously supplied by Dr. Charles G. Wagner, Superintendent of the Binghamton State Hospital.

Case XI.—L. S. H. Age 22, single, admitted June 2, 1910. His personal history shows no abnormality, other than that he appeared a little backward in school, having reached the ninth grade at the age of sixteen. His morals, habits, and disposition were said to have been good. On Nov. 18, 1907, while handling a 38 calibre revolver he accidentally shot himself, the bullet entering the head through the tip of the nose and leaving the head on the upper right side of the occipital bone. The bullet was removed by operation. Paralysis of the left side of the body developed and still persists. Following his recovery from the accident he was quite peevish and childish, but was not suspected of being insane until about two years after the accident. He developed kleptomaniac and delinquent tendencies, would steal, lie, and abuse his father and mother, both of whom were very fond of him. He drove off a horse and wagon that did not belong to him. At one time he passed a forged check. It was because of these criminal tendencies that he was examined and later committed as insane.

Since being in this hospital he has at times exhibited sexual perversions. At all times he has answered questions readily and talked freely, has been oriented and his memory has probably been good. No delusions, peculiar ideas, hallucinations, or odd behavior. At times he has evaded answers to questions concerning his criminal or mischievous acts, or has denied having any knowledge of wrongdoing, whereas later it would be found that he had told some of the other patients that he had lied to the Doctor when being questioned. He could not account for his bad acts.

A summary of his physical examination shows a scar on the tip of the nose, a depressed scar on the right posterior vertex, both of which were due to the bullet wound and subsequent operation for its removal.

Subjective Sensations: Feels well, but complains of pain, numbness, and tingling of left arm and leg. Taste, smell, and hearing are normal. Pupils regular, equal, react normally.

Cutaneous Sensibility: Numbness and tingling with slight hyperesthesia and slight hypalgesia of the left arm and leg.

Motor functions: Tongue protruded to the left—movements somewhat restricted, due to short frenum. Motility of facial muscles unimpaired. Following his injury he was unable to whistle, but can do so now. Left hemiplegia. Slight atrophy of the left forearm and leg. Reflexes: Deep—or the right side normal—of left side knee jerks exaggerated—ankle clonus; Babinsky and wrist clonus; left elbow exaggerated; superficial and organic reflexes normal. Tremor: At times there is a coarse tremor of the left hand and forearm, increased upon fatigue and sudden grasping of the arm. It is not present when the arm is at rest and does not appear to be influenced by motion.

He was normally right handed.

So far, the conclusions reached are positive. The next step would be to define with exactness the location of this center in the frontal lobe. For this purpose the present material is not well suited.

The foot or posterior extremity of the three frontal convolutions has in part an assigned function, as the conjugate deviation of head and eyes. This was an early symptom in Case III, but was not known in the others. Delavan of New York, back in the eighties, "filed a claim" for the third right frontal as the center for swallowing, but it

does not appear to have been "worked" lately. In a case by Dercum (*J. N. & M. Dis.*, 1905, 106-111) the posterior portion or foot of the second right frontal was involved, with no mention of relevant symptoms (whether a right or left-hander not stated). Nor in the present series, barring Case III, is there evidence of implication of the post-frontal border.

There remains the frontal lobe forward, including convexity, orbital gyri, and mesial cortex. This is the largest remaining "silent" field in the brain. As there is no existing knowledge regarding this, approximate determinations should be timely.

The anterior pole (prefrontal as noted by Tilney and Riley) has at times been involved, according to various reports, by accidents and sinus troubles, without amoral sequence—though few cases have been followed sufficiently. This small area appears to have been included in only three (Nos. V, VI, and X) of the present cases, and in each the injury was severe enough to involve the lobe much further. It can at least be concluded that lesions of this anterior pole do not entail violence of conduct.

How much or what particular parts of the remaining major portion of the right frontal lobe are included in the promoral centers cannot be stated with exactness. Participation by the orbital gyri is not excluded. The marked anosmia on this side in Case XI (doubtless due to pressure or other direct involvement of that olfactory bulb or tract) is about the only evidence, except that from the direction and character of the primary injury in some of the other cases the orbital cortex might well have been included.

As cases of other type, involving this lobe to some extent without registering unamoral sequences, have been reported, it can be concluded that the promoral part does not include every vestige of the remaining frontal area.

In a number of such negative right-frontal cases that have come within the writer's notice, the cause was in the albas with little or no cortical involvement. In fact, of the four chief chronic processes here, tumor, abscess, hemorrhage, and trauma-scar, only the last is apt to involve the cortex directly to any extent. This also might account for some of the negative cases. To cite any exceptions in detail, whether new or from the literature, is not necessary. The positives are sufficient to outweigh any count of negatives. Nor is it necessary to decide between various explanations, but only to suggest as above a couple that may be adequate.

The middle portion of the second right frontal convolution has apparently been most often involved in the present series. Doubtless the promoral region is made up of relative subcenters, somewhat as the motor region comprises several subsidiaries.

The present cases suggest that lesions of the middle and lower right frontal incline to the quiet unamoral type, while those of the upper right frontal (Nos. II, VI, VII) are more apt to exhibit irritability and violence. But the apparent difference may depend on the severity and irritant form of the lesion.

This view of the purpose of the upper frontal convolution and the mesial cortex is strengthened by the history of two cases related to the writer by Dr. Amos O. Squire, the physician of Sing Sing State Prison. In each there was implication of the

apposed portions of both frontal lobes. Each had a record of gross criminality including murder. Neither of them (one a professional man) exhibited intellectual defect, or if any it was not sufficient to make them judicially of "unsound mind." While these two cases are irrelevant as to side, they confirm both the frontal region as a morals dominator and its inner cortex as a violence controller.

Discussion of the position of the center in the lobe can be summed up to this effect, that the middle portions of the three main convolutions have the most definite claim, with the surrounding parts next in question: the superior frontal region having perhaps a closer relation to violence.

Prospective Sources of Error in the Interpretation of Handedness.—1. The possibility of rare cases of uncrossed tracts—if there are such.

2. Cases where the primary Anlage is known only to a relative or nurse who had quietly trained the left-handed infant to be the reverse. The writer has met with two cases (not in the present series) where even the parents did not know of this.

3. There is a possibility, where the evidence shows left-sided trauma, that coincident damage may have been done to the right frontal.

4. There is nothing to prevent an occasional criminal acquiring secondarily a left-frontal lesion.

5. As persons with nominally intact brains may become criminals, it follows that in at least equal proportion persons with left-frontal lesions may develop amoral tendencies.

For these several reasons it is certain that in any very large collection of these cases there will be a few that appear to be exceptions. But this fact can in no way invalidate conclusions based on the large balance of cases, cannot count against the evidence of the great majority. It is merely a matter of good fortune that no such exception has so far been encountered.

Whether an actual left-handedness ever develops secondarily, in consequence of early injury to the dominant hemisphere, is not material to the present inquiry, though experience speaks against this as a postnatal occurrence.

Definition and Adaptation of Terms.—For the Condition: Some special designation for this condition and its subjects is desirable. Barr speaks of "amoral," and others of "unmoral." The form, *Moramentia*, from *mora* and *amentia*, is suggested as well suited to the purpose. It is applicable, intelligible and has been approved by scholars to whom submitted. A morament, then, would be one whose moral mentality is organically disabled. The derivative, *moramented*, seems also permissible.

For the Center: Character or conduct center is unsuited, as these personalities depend partly on other things. It doubtless conserves some function of a character not perfectly covered by our ordinary concept of morals. Yet the designation is likely to prevail. It might better be termed the promoral center, as this form would serve not only more definitely to label it, but would tend to avoid confusion from the various senses in which the word, moral, is employed. (The use of a term like moral suggests philosophic instead of physiologic nomenclature—or it may lift the philosophic to the dignity of the physiologic!)

For the Lobe: As this lobe, though usually the right frontal, is sometimes the left, a functional

name for it is in order. It is not the sinful lobe, but rather the antisinful. It may not be entirely a moral lobe. Nor can it longer be termed altogether silent or inactive. Whether it can properly be christened "recessive" is a question. "Psychic inhibitive" is lengthy and the lobe carries other functions. The choice can perhaps be left open, as between moral inhibitive, recessive, conservative, or some other selection.

Treatment.—Some of these cases admit of improvement. And a few can be brought to lead normal lives, whether organically cured or not. This fact is attested by several observers,* and is noted in two of the above cases. When the damage is not too great, the patient is still young, tact and care is employed, and surroundings are favorable, the prospect of accomplishing something is good.

Possibly the other hemisphere is directly substitutive. Or, the imperfect right frontal is trained to do its duty. Or, the patient (after the manner of many who in youth have sowed "wild oats") gradually feels the wisdom, as a mere utilitarianism, of conducting life the way the general public demands.

From watching the course of such cases it seems probable that there is an additional factor of eventual importance, other parts of the brain, under favorable circumstances, coming in time partially to the rescue. In the young the intellectual faculties and reason are merely developing. But as the individual gains in maturity these qualities of the intact portion doubtless become an important support to the moral side if there is enough remaining of the moral center for them to act effectively. This gain, which we can expect from the normal growth of reason, gives some ground for hope and indicates a useful line for therapeutic development.

The need of sexual control abates automatically in later years. Rarely a satyriasis then develops from damage to the moral center, or, as heretofore supposed, from irritation of a hypothetical sexual center.

The management of these cases in youth, whether private or institutional, should aim to include:

1. Environment: Life away from cities with their excitement and temptation. Discipline that depends at all on fear or physical suffering is useless and likely to do harm, besides blocking the way for other methods. Forced restraint they must sub-

*The famous case of Wigan in his "Duality of the Mind." London, 1844, does not identify the location of the offending spicule of bone. It is an early case showing that limited focal irritation can be so situated as to cause a reversal of the strongest affections, and induce suicidal and homicidal tendencies. It also registers a cure.

Spanbock, "Ueber die günstigen Erfolge der Craniectomie in einem Fall von Schwachsinn und moralischem Irresinn," *Neurol. Ctbl.*, 1895, 802. Operation chiefly on right and over the parietofrontal region.

Also Meynert v. Bogdan, *Wien. med. Wchnschr.*, 1897). Man of 20 years; injury in boyhood; later recovery.

Pachantonius, "Ueber d. Prognose d. Moral Insanity (Mit Katamnese)," *Arch. f. Psychiat.*, 1910, 47, p. 27.

Ratto, "Profilassi e terapia delle malattie morali," *Arch. di antrop. crimin.* (Turin), 1916, 4 s., VIII. 365.

Many naturally think the condition hopeless, and only manageable in institutions (Näcke, 1895; Wholey, and others). It is, of course, a matter of degree of age, and of facilities.

mit to and bear well, but it counts little more unless utilized.

2. Physical Training: Activities in the open, perhaps more of the left side of the body or even of bilateral type. Ambidexterity seems a desirable aim here, at least it is certain that motation has a beneficent influence on cerebral activity, and presumably it has more effect on the side of the brain in which the motor centers are active.

3. Mental Training: To have regard for the feelings and welfare of others. To develop suitable ambitions. The adoption of accepted standards of conduct as necessary to any success in life. If religious instruction is employed, it can be of service by emphasizing the supreme importance of personal conduct.

4. Surgery: The diagnosis in simple cases is clear, surgical approach is easy, and there is little to lose, whatever the result. It consequently becomes an inviting field for the neurosurgeon. If there is a chance that the lesion is relievable it is worth taking. Where the incision is along the supraorbital line the scar will disappear in the eyebrow, or, if it can be made above the scalp line, it will be covered by the hair. But the limits of surgical repair in brain cases, and the rarity of these with surgical indications do not promise any great relief of this class by operative means.

5. Medical Care: Anemia, inanition, or other indication should be met. Recently S. J. Morris of West Virginia reports (*MEDICAL RECORD*, 1921, I, p. 438) finding a persistent thymus in each of 20 criminals autopsied. This suggests a field for both x-ray and extracranial surgery. But the matter may not be so simple. A number of the present cases were examined for thymus, but gave no evidence. And many other unmorals have been likewise negative. It is, therefore, possible that less than 100 per cent. of criminals are thymics, or that Morris' material was unusual. On the other hand, there are some reasons for thinking that in the young the developmental form may be benefited by prolonged use of thymus.

Literature.—Some references on the theoretical side have been quoted above.

The well-known crow-bar case of Harlow & Bigelow (*Am. J. Md. Sc.*, 1851) was essentially a left-frontal injury; nor is right or left-handedness stated. While the man suffered a great change of character, it does not appear from the original account to have directly involved his morals.

Extensive studies have been made in Italy, France, Austria, etc., to determine a criminal type of brain conformation (such as "splitting of the foot of the second frontal convolution, and to a less extent of the first and third," sometimes on both sides), but as yet without general acceptance. Such methods of approaching the question are so widely different from the present as to merely call for mention, except that they recognize the importance here of the frontal region. Somewhere in that literature there may be cases available for the present purpose, but as yet none have been noted. Nearest to useful are references like the following:

In Case XI of Landor (*Brit. M. J.*, 1857, I) the man was "one-eyed," but it is not specified which.

LeGrande du Saule (*Gaz. d. hôpit.*, 1878) speaks of a shocking facial asymmetry in one case.

"Moral insanity may be the outcome of apoplexy, or of a blow or other damage to the brain" (Blanford, "Quain's Dicty.," 1894).

Bogdan (*Wien. med. Wchschr.*, 1897, 1382): "We must . . . hold with Meynert, as the only right standpoint, that an ethical defect can only be considered pathologic when it can be proven a sequence of a clinically established disease of the brain, especially of the fore-brain."

Ziehen (*Neurlog. Cntbl.*, 1910, 389): Boy of 15 years, when one and a half years old he struck his forehead against a bedstead, and was over an hour unconscious. Scholarship and intelligence good. Ziehen blames both accident and heredity.

Tredgold (*Practitioner*, 1917): "Many undoubted moral imbeciles are so cunning, so plausible, and so seemingly intelligent, that mental defect, as ordinarily understood, would appear to be, and in truth, is quite out of the question."

The only previous suggestion found regarding the location of such a center referred it conjecturally to the left frontal lobe. This was made by a German writer, and appears also in Archambault's article (*Alb. Med. Annals*, 1915, xxxvi, 201), who claims that both the intellectual and moral attributes deteriorate from left frontal lesions. However, no cases are given.

While this type of case is well recognized at many of our institutions, and there are numerous references to it in articles, there is a dearth of detailed reports, and, in fact, little bearing on the particular phase of interest here. Of course, it is possible to find reported cases of injury of the left frontal lobe, more such apparently than of the right. But so far not one has presented the unmoral type. In other cases, and that show such manifestations, it is only stated to be in the frontal region, without mention of the side.

Negative cases of right-frontal lesion can only count against the positive when and to the extent they show that there are portions of this lobe, which can be injured without unmoral manifestations. Bad conduct must always be in part a matter of circumstances. In a well-managed hospital ward, for instance, there is little occasion for incidents of this character.

Naturally it is as yet only the more pronounced cases, with gross moral and anatomic defect, that find their way now and then into the literature. Slight forms with limited lesions are likely to prove more instructive, and practically these minor cases must come from private rather than institutional observation. The world necessarily has to wait for the physician to open up this field and point out its significance. He alone has the combination of training and access to the requisite material (cases, references, advisers). No one else is circumstanced to take the initiative. When the basic outline is made out, the findings become generally available and can be taken up by others for detailed application (to be briefly considered in a subsequent paper).

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supplied drawings. Dr. Winfield of Brooklyn aided with material. To these colleagues, to others mentioned in the text, and to many friends the writer wishes to express his profound indebtedness.

54 LEFFERTS PLACE.

SUPRAPUBIC PROSTATECTOMY: A SIMPLIFIED METHOD.

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THE essential features of prostatectomy are two-fold. First, the complete removal of the obstruction to urinary flow; and second, the restoration of complete and perfect bladder function. Any operation which fails in either of these two essentials cannot be considered as successful.

By the perineal approach the complete removal of the obstructive prostate can be readily accomplished, but by this method, the second essential, that is, the restoration of perfect bladder function, fails in a much larger percentage of cases than after the suprapubic operation. Why this should occur is readily seen when one considers the various structures that must be traversed in the approach to the prostate and which to a greater or less degree become traumatized in the manipulations.

For this reason it may be prophesied with reasonable certainty that the perineal operation must eventually give way to the suprapubic, at least in the hands of the great majority of surgeons.

The operation of suprapubic prostatectomy is conveniently discussed in four divisions. (1) The preparation of the patient, (2) The cystotomy, (3) The prostatectomy, (4) The postoperative treatment.

1. *The preparation of the patient* is of no mean importance and a close observation to details will aid in establishing a smooth convalescence and in some instances will save life. It is wise in all cases to make a routine x-ray examination of kidneys and bladder; it acquaints the surgeon with conditions present and is of great importance in prognosis. Calculus in the upper urinary tract demands correction after the cystotomy and before the prostatectomy. Rest in bed for a period of three to five days with an in-dwelling catheter is a good procedure, or what is preferable, when it can be done, is catheterization every two or three hours. This reduces the amount of residual urine, permits the bladder to resume its normal tonicity, and relieves back pressure upon the kidneys. This alone often has the effect of restoring strength and well-being to the patient and sometimes removes the indication of delay between the cystotomy and the enucleation of the prostate. When cystitis exists the catheterization should be accompanied with daily irrigations of a mild antiseptic solution until the day of operation. If there is no cystitis, there is little to be gained by irrigation.

Some functional test of the kidney efficiency should be performed. As an indication for or against operation much reliance need not be placed upon the result of this test for two reasons, first, because the operation is usually an imperative one and must be done even in the face of poor efficiency;

and second, because the efficiency frequently improves subsequent to the operation. A carefully determined daily urea output on a mixed diet is perhaps as good as any indication of the joint efficiency of the kidneys.

A cystoscopic examination should be made as a routine measure. It is sometimes impossible in the presence of stricture or acute retention with hemorrhage. The examination acquaints the operator with the configuration of the enlargement and the degree of the vesical or urethral encroachment, and in some cases will place him on guard in the presence of carcinoma. Not that carcinoma can be diagnosed from its appearance through the cystoscope, but that in the absence of endovesical enlargement and with no median lobe to account for, the obstruction, carcinoma will not infrequently be found. Twice I have seen the endoscope reveal indications of inflammation in the prostatic urethra in old patients with long-standing obstruction. Misinterpretation of these indications led to an attempt at prostatectomy, when a chronic prostatic abscess was found.

The use of large quantities of water and the administration of urotropin or one of its analogues is generally considered advisable. Heart and arterial tonics may be of some benefit, but the mortality in these cases depends rather upon the condition of the kidneys.

2. *The Cystotomy.*—Various questions arise in the minds of workers in this field as to the wisdom of this or that variation in the technic, any one at times giving good results. The patients, however, who are to be relieved by prostatectomy are all past middle life and many of them are old and feeble; that technic is best which best meets the needs of the individual. The cystotomy is very easily accomplished under local anesthesia in most patients, and in patients in whom it is decided to perform the operation in two stages it is distinctly the one method to be preferred. If, however, the patient is very corpulent or is nervous and irritable or gives the impression of lacking so far in self-control that it is believed that he will strain and force down the peritoneum and make tense the recti muscles, a general narcosis is much to be desired. If the complete operation is determined upon, the general narcosis is better given at once.

Before beginning the operation a catheter is placed in the bladder, and the bladder is washed. The bladder is permitted to empty itself through the catheter, and the catheter is left and fixed in place. To the distal end of the catheter is attached a simple inflating apparatus, consisting of an atomizer bulb and a glass connecting-piece.

The incision is median, beginning about half an inch above the symphysis and extending about two inches or a trifle more. The recti muscles are separated and prevesical fat presents in the wound. The anterior fold of peritoneum will sometimes present in the wound and is readily stripped back. The fat in the space of Retzius is sometimes abundant and at others almost deficient, and is to be treated much the same as perinephric fat; it is carefully separated over the bladder and when veins present they are clamped and ligated. An assistant now slowly inflates the bladder with air until the inflated organ is distinctly felt to rise in the wound beneath

the finger of the operator. Air distention has the decided advantage over water distention, as no flooding of the wound occurs. It has also the advantage of no distention as practised by some, inasmuch as it makes the operation easier and less liable to be attended by the complication of opening the peritoneal cavity. If the peritoneum is opened it should be at once closed with a tight catgut suture and the operation continued after protecting the suture line with gauze. It is the practice of some operators to lay gauze packings about the bladder, protecting the prevesical space and the line of incision before opening the bladder. This has been found entirely useless, as no infection of this space occurs unless undue trauma is inflicted. The use of anchorage sutures as tractors for the bladder wall has been abandoned by deft operators, but in the hands of the less skilled is a safeguard and had better be employed. The incision in the bladder should be made at a high level for the reason that when the bladder is contracted the incision will be dragged downward, and if planned too low, will contract behind the symphysis and to some extent interfere with drainage. If no anchor sutures are used the point of the knife is rapidly passed into the distended bladder and an incision is made about an inch downward; the index finger of the left hand is quickly passed into the opening before the knife blade is withdrawn. If this manoeuvre is not dextrously performed, the bladder will collapse and much difficulty may be encountered in finding the opening.

The opening in the bladder can readily be stretched to admit two fingers of the right hand. A stretched or torn wound in the bladder heals more rapidly than an incised wound. The reason for this is that the bladder is a musculofibrous organ, in which the muscular fibers determine the direction of the tear, and their subsequent contraction hastens the closure of the wound. I am thoroughly convinced of the importance of this small point in technic and believe that several weeks can often be saved in the convalescence if the wound in the bladder is extended by tearing instead of by cutting.

If it is desired to wait before performing the prostatectomy a large gauge rubber tube surmounted by a snugly fitting collar of larger sized tubing is inserted into the bladder, care being exercised that the lower end does not impinge on the bladder wall. The tube is fixed in place by means of a single suture through the collar of the tube to the aponeurosis. No sutures are placed in the wound. Gauze packings are placed lightly above and below the tube in the wound and a dressing is applied.

3. *The Prostatectomy.*—If it is decided to proceed with prostatectomy, two fingers of the ungloved right hand are placed in the bladder. The general contours of the prostate are recognized with the finger, the size of the lobes, their location, their hardness, the presence of a median lobe, and the degree of dilatibility of the internal urethral orifice. Two fingers of the left hand are passed into the rectum and the prostate is firmly brought into reach of the fingers in the bladder. It will be found that the simple device of inserting two fingers into the rectum, instead of one, makes the enucleation very much easier and more thorough. With only one finger in the rectum, the prostatic mass cannot be

prevented from rolling away from the enucleating fingers, but the two rectal fingers secure it firmly.

Rarely is it necessary to incise the capsule with the knife or finger nail. The index finger is inserted into the internal urethral orifice, if the catheter has not yet been withdrawn it will serve as a guide to the orifice; the catheter is then withdrawn. With the finger in the urethra a firm but gentle pressure, usually downward, sometimes laterally, will find a path of lesser resistance. The prostatic capsule is always thinned out and weakened in this region, owing to the growth of the gland in a vesical direction. This path of lesser resistance will guide the finger to the capsule of the gland, and then bearing in mind the anatomical structure of the gland, the cleavage is continued to the median line anteriorly. It is sometimes possible to follow this same layer of cleavage across the median line, or else it may be necessary to find a new point of entrance. The entire prostate should be removed. The gland can sometimes be removed *en masse*, more frequently in large lobules, and sometimes in numerous small masses. The ease with which enucleation is accomplished is very variable and depends upon various factors. The normal prostate and the carcinomatous prostate are practically impossible to remove by enucleation. They can be avulsed, usually in small pieces, but there are no distinct and separable layers of cleavage to guide in their removal. The so-called hypertrophied prostate is an adenoma of the prostate. This adenoma may be either pure or fibrous, or any admixture of the two. The more nearly purely adenomatous, the easier is the enucleation; the more purely fibrous, the more difficult.

The enucleation of the prostate necessarily inflicts laceration and other injury upon the urethra. The injury sustained by the urethra is not always the same, and may be slight or severe according to the nature of the case and the manner in which it is handled. Nature treats beneficently almost any injury to the prostatic urethra, so long as the triangular ligament is not injured. It is ordinarily stated that the floor of the prostatic urethra is firmly held down by connective tissue and that only that portion behind the veru montanum comes away with the gland. This may be usually the case, but it is certainly not true of all cases. It happens not infrequently that the veru montanum and lateral sulci can be distinctly seen upon cutting the removed gland. When this happens the patients make a complete recovery with perfect bladder function.

After the enucleation is completed, the rectal hand is withdrawn and the glove removed. Meanwhile the fingers of the right hand remain in the capsule of the gland. A long strip of gauze is guided on a dressing forceps and packed into the prostatic capsule, and maintained there until active bleeding is pretty well controlled. If the bleeding is checked, this packing may be allowed to remain, or a fresh one may be inserted and left in place. Active bleeding comes from one of two sources: (1) from the free edge of torn mucous membrane, or (2) from portions of retained gland tissue. The prostatic plexus lies outside of the capsule and does not contribute to the bleeding unless there remains unre-moved gland tissue, acting in much the same way as does retained placental tissue. The chief source

of hemorrhage is from the torn edge of mucous membrane; this bleeding, except in rare instances, can be controlled by packing held well in place for a few moments. After the bleeding is controlled the packing can be removed and left out, but it seems an additional safeguard to leave it in place, with one end of the gauze issuing out of the wound. Just how long this gauze serves as an efficient packing is difficult to answer, as it soon becomes urine soaked and is likely to become dislodged. A tightly placed packing is the cause of considerable post-operative pain and also delays the contraction of the prostatic capsule, which ensues at an early date.

A tube is inserted as in cystotomy and no irrigation whatsoever is employed. Usually no sutures are applied to the bladder wound unless the opening is unusually large. Small gauze drains are inserted above and below the tube in the abdominal wound and a dressing is applied. In bed the tube is connected to a bottle as after the operation of cystotomy. Complicated syphon drainage has long been discarded as unnecessary and harmful.

Usually a fair amount of oozing of blood occurs which shows mixed with urine in the receptacle alongside of the bed. The sanguineous character of the urine disappears usually after the second or third day, but sometimes persists until the fifth day.

The fibrous capsule which has undergone undue distention from the growth of the prostate is prone to speedy contraction after the removal of the gland. It has seemed to me on several occasions that I could detect an immediate contraction while my fingers still remained in the empty capsule. In the course of the first week or ten days the contraction is very marked, and can sometimes be measured by means of the catheter.

There is no doubt that the source of many of the complications formerly seen was faulty technic both inside and outside of the bladder. The gland should not be avulsed, it should be enucleated, and no great force is necessary. Outside of the bladder, there should be no laceration or stripping of the mucous membrane from its extravescical attachments. The suprapubic wound should be guarded from any unusual and unnecessary trauma. The anterior bladder wall can be very easily stripped from its loose adhesions in the space of Retzius and from the symphysis and cause pocketing that will become infected and may lead to serious consequences.

4. *The postoperative treatment* in an uncomplicated case is very simple. Gentle irrigation through the suprapubic tube once or twice a day, in order to remove any loose clot or exudate, is all that is necessary for the first and second day. Usually on the third day the tube and the capsular packing may be removed and the bladder irrigated through the wound. If the urine is still markedly sanguineous the packing may be left in place for a longer period. A loosely applied strip of gauze is placed in the wound and a dressing of any absorbent material. The dressing will require frequent changing. No urethral instrumentation is necessary at any time. The wound may be expected to be completely closed in three weeks.

After prostatectomy, even though no cystitis had previously existed, the urine remains turbid for a number of weeks. This turbidity gradually disappears with or without any medication.

After the complete contraction of the capsule of the prostate, the true sphincter reassumes its function; this usually occurs some time along the second week following operation while the suprapubic wound is still open, and at first is accompanied by some pain.

Although carcinoma of the prostate will be suspected from the rectal feel of the gland in most cases, at times the revelation will only be made at the time of attempted enucleation. If the neoplastic deposits have become at all extensive, the hard shot-like feel must at once give warning. A carcinomatous prostate, if at all advanced, is so thoroughly cemented to the pelvic walls, and layers of cleavage are so obliterated, that its removal becomes a most difficult and oftentimes dangerous procedure. This, together with the fact of the increased rapidity of growth after a partial removal, should urge the surgeon to desist from forcibly removing a prostate after being convinced of its malignant nature.

35 WEST 51ST STREET.

WHY NOT ELIMINATION?

By GEORGE L. SERVOS, M.D.,

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EDITOR, "WESTERN MEDICAL TIMES."

EVERY now and then we pick up some medical journal and read an account of a case of influenza, encephalitis lethargica, or some other acute infection, and when it comes to the matter of treatment we see physicians going back to the time-honored and time-worn technic of meeting symptoms.

We hear much of diagnosis, although in some instances it is rather frankly admitted that an "unknown infection" is at the bottom of things. We also hear much of the severe intoxication accompanying such infection, known or unknown, but when the matter of treatment is reached all these things are apparently forgotten, and the doctor meets and endeavors to combat symptoms, allowing the cause to go merrily on, with the production of further effects. In a very large percentage of instances the endeavor seems to be, in some way or other, to kill the bacteria. Were this possible, it might be likely possible that the host might perish, as well.

During the influenza epidemics of 1918-1919 and 1919-1920 we gave considerable heed to the various lines of treatment suggested and the results attained from each. There were some men who gave no attention to the cause, but rather endeavored to overcome the symptoms, through masking them. Febrifuges were given that the fever might be lowered, opiates were administered, sometimes along with the coal tars, that the pains might be alleviated and numerous antiseptics were exhibited, with the hope that at least some of the bacteria might be destroyed.

It was a noticeable fact that where symptom treatment was employed the mortality rate was high, in some instances very high.

There was another set of doctors who did little or nothing. They insisted that medicinal agents were worthless, so why give them. They told their patients to go to bed and stay there until well. In a way they, to our mind, excelled some of the meeters of symptoms to a certain extent. They at least

did not check normal elimination through the use of opiates, nor did they lower the vitality of their patients by the exhibition of the coal tars. But they did not hasten elimination, and their death rate was altogether too high.

Subsequent to the epidemics mentioned it was noticed that the patients of both of the above-mentioned classes of physicians showed a considerable number of sequels. We who make many insurance examinations have been encountering heart and kidney lesions in quite considerable numbers, as well as some of the lungs, and many of these among the young.

There was another class of doctors who ignored symptoms, excepting as signboards to designate to them whether or not improvement followed in the wake of their endeavors. They recognized the fact, at a very early date, that they had a virulent infection with which to deal. They recognized the fact that the toxins piled up with great rapidity and those toxins were retained within the economy through the stoppage, to a greater or less extension of normal function, this being due to a lowered vitality. They also discovered that a very considerable number of their patients were carrying an acidosis to greater or less degree. To their mind it was not a matter of knowing the exact bacterium causing the disease; of giving more than passing attention to symptoms, or doing little else than clearing the system of both cause and effect at the earliest moment possible. These men began employing eliminants; carefully at first, but later in what have been called heroic doses. They began seeing satisfactory results immediately and, as a rule, their patients did not remain bedridden for long periods, and after the subsidence of the acute stage of the disease, few if any showed a single sequel.

This latter class paid but scant attention to symptoms and exhibited not one single drug to directly remove or relieve a single one of them. They simply removed the toxins and as much of the cause as possible, alkalinized the system to a very considerable extent, and the disease "died aborning," as might be said. Those symptoms simply quit of themselves, for there was nothing left to cause them.

Now comes encephalitis lethargica, and we see the same seeming error in the treatment of symptoms entering—a few are using the eliminants and obtain the same results as occurred in influenza. The symptoms are met and alleviated in spite of the fact that those who follow such technic admit that they are dealing with an infection, or at least a something, that is the cause of a marked toxemia. But still they give bromides, chloral, coal tars, opiates, and the host of other alleviators of symptoms, or antiseptics of one sort or another, hopeful that their patient will recover; but from reports it is rather apparent that the mortality rate is considerable under such technic and that the patients are left with uncomfortable sequels even if they do recover from the acute stage.

Another set of men considered encephalitis lethargica similar to influenza in many of its manifestations. Anyway, it was apparently an acute infection with a pronounced intoxication, and it was likewise apparent to them that the toxins were not being eliminated. Profiting by their experi-

ence with influenza, these men employed eliminants of an alkaline nature, pushed to the limit, and with the same happy experience as in influenza. Their patients recovered quickly and with few, if any, sequels.

A few days ago a doctor said to us that lobar pneumonia would not be such a horrible thing if we could only lessen the toxemia. We suggested alkaline eliminants to him, they to be exhibited in sufficient dosage, and he intimated that we were foolish, for what did we do about the high fever, the heart condition, et cetera. We admitted that we would probably disregard all symptoms, in so far as they might be indications for treatment, and that it was our belief those symptoms would occasion little worry, were the cause, the toxemia of which he spoke, promptly removed.

The theory of enforced elimination in acute infection accompanied by toxemia and more or less acidosis may be all wrong, but after seeing the ease and comfort given patients through such procedure in our own practice and that of others, we feel that we can afford to be called fools, or worse, by those men who will not seemingly mix some common sense with medicine and who apparently will not accept a single hint, unless it arises from the lip or pen of some so-called authority.

WASHOE COUNTY BANK BUILDING.

SOME CASES OF DIPHTHERIA WITH THEIR TREATMENT.*

BY LESTER CURTIS, M.D.,

CHICAGO, ILL.

I AM presenting the following facts on the advice of friends, who consider it my duty to make the report. I am in no sense opposing antitoxin, the great value of which I fully appreciate, but I believe the method here described is an addition to our armamentarium and in a large proportion of cases is all the treatment needed. A bit of history may make clear what I have to say.

In the Autumn of 1890 I was called to a mother and two daughters, one about thirteen and the other nine, down with diphtheria. On the tonsils of the mother and of the younger girl were patches of membrane about the size of a nickel. These two cases did not seem serious. But the condition of the older daughter was quite different. Her pharynx and tonsils were entirely covered with a greyish putrid membrane which filled the nasal cavity and protruded from both nostrils.

Thirty years ago antitoxin was still unknown and the methods of treatment in use were unsatisfactory. Cases of diphtheria with membrane in the nasal cavity were not new to me. I had used the best methods then known to the profession in treating such patients but they had all died. The prospect in this latter case therefore was not flattering. Some better treatment must be devised. At that time the Klebs-Loeffler bacillus had already been shown to be the cause of diphtheria. It had also been shown that the disease in the beginning was purely local, the serious after symptoms being caused by absorption of poisons produced by the growth of the bacilli. If that were the case destruction of the bacilli ought to arrest the disease. The fault with the former treatment then, must have been that the disinfection had not been thorough enough. I resolved to make it more thorough. Accordingly a solution of bichloride of mercury, 1/2000, was applied to the throats of all three of the patients with a syringe having a long nozzle, which

would reach far into the mouth, close to the membrane. Some force was used in making the injection. In the case having the more extensive membrane in the nasal cavity, in addition to the throat treatment, the tip of the syringe was inserted into each nostril and the pressure continued until the fluid appeared behind the soft palate. The applications were made every two hours night and day. The results of the treatment were immediate, and in all the cases eminently satisfactory. In the two milder cases the membrane melted away and the next day showed only a few scattered dots. These patients passed rapidly on to recovery.

The severest case was more obstinate. But the third day there was expelled from her nasal cavity a mass of membrane, in size and color, resembling a small oyster. After this occurrence, the nose and pharynx were clear, except for a deep ulcer on one tonsil, which required stimulation before healing. As might have been expected, this patient progressed more slowly than the others. Fortunately her heart's action remained normal, but in a week or ten days disturbances of accommodation appeared in both eyes. Then followed difficulty in deglutition and a peculiar husky voice in speaking, and shortly afterwards, weakness and lack of coordination in the muscles of the legs. These symptoms, without much treatment, gradually improved and by the end of five or six months they all disappeared and the patient regained her usual health except that her throat remained sensitive.

Before going further I would like to call attention to the technique of the treatment. This technique is of prime importance. You will notice that a spray was not used. Much experience with the spray had shown me that it was ineffectual in such cases. A spray spreads over the membrane only a minute quantity of the solution, which does not penetrate below the surface and is diluted and immediately washed away by the fluids of the mouth. The deeper parts in the meantime are untouched by the solution, and the bacilli there remain alive and continue their evil work. The same objection holds against gargles and swabs, as also against a syringe with a pepperbox nozzle; they are not thorough enough. On the contrary, the narrow stream from a syringe with one opening held near the surface, and projected with force, penetrates the membrane and searches the deepest parts, reaching even into the follicles. No bacillus can escape repeated injections of this sort.

Soon after my experience with these three cases I was called to a young girl who had a small greyish patch on each tonsil. The case was diagnosed as diphtheria, and the bichloride solution, 1/2000, was applied to the throat with a syringe every two hours, in the way above described. On my second visit, five or six hours later, in place of the patches on the tonsils, only a few white dots were seen. The next day there was no trace of membrane and the patient had every appearance of convalescence, but as a matter of precaution the applications were continued at longer intervals and two or three more visits were made, before the patient was discharged as entirely recovered. No sequelæ followed.

Since then I have been in charge of many cases of diphtheria. Though I have been on the watch for better methods, my patients have all improved so rapidly on the treatment described that I have never felt justified in changing to something which seemed more cumbersome and gave no better results.

The method has been unsuccessful in one case only, that of a vigorous boy of about fifteen. When I first saw him he had been without medical treatment for about four days from the beginning of the disease. I found the tonsils and back of the pharynx entirely covered with a greyish, putrid membrane. There was in addition, swelling and tenderness of the glands of the

*Read before The South Side Branch of The Chicago Medical Society, February 24th, 1921.

right side of the neck and a friction sound over the right lung. A gland in the neck was opened the next day and discharged nearly a teacupful of putrid pus. By this time there were clear indications of an abscess of the lung. The bichloride solution was applied to the throat and the membrane speedily cleared up, and the throat became entirely clean. The abscess however continued to develop. The consultant who was called in, advised no essential change in treatment. The boy finally died, as I believe, from the lung abscess which had begun before I saw him, and as a consequence of neglect.

One more case and I have finished. About a year ago (Oct. 13, 1919), I was called to a young woman, a teacher in one of the public schools of Chicago, twenty-four hours after the first symptoms had appeared. When first seen she had a temperature of 104° and a greyish adherent patch of membrane on each tonsil nearly the size of a quarter of a dollar, with the other usual symptoms of diphtheria. The throat was at once syringed with a 1/2000 bichloride solution and directions left for repeating the syringing every two hours. Six hours later the membrane had gone, leaving only a few small points over the follicles. The temperature had sunk to slightly under 101°, swallowing was easier and the patient was feeling much more comfortable. The treatment was continued. The next morning, twenty-four hours after my first visit, the throat was entirely clean and the temperature slightly subnormal. The following morning the temperature was normal and all traces of the disease were gone.

A few minutes after the first treatment, I wiped the patches with a wisp of absorbent cotton, which was conveyed to the Board of Health, and reported as being from a case of suspected diphtheria. On the third day afterwards notice was received from the Board of Health that no diphtheria had been found in the specimen. This means in my opinion, that all the bacilli had been killed by the first application.

The School Inspector, said to be a man of large experience with diphtheria, called the second day, in my absence. He examined the patient and inquired into the treatment, which seemed new to him. His opinion was that the case undoubtedly had been diphtheria but was not then. He did not quarantine the house. He allowed the sister, also a teacher, who was living with the patient, to go back to school on the third day; after disinfection and change of clothes. The patient herself returned to work on the tenth day after I first saw her.

These few cases will, I trust, make the method or treatment clear. The other cases that I have seen are so nearly identical with these that to give more would be superfluous.

I think these cases show that the bichloride is effective. It is quite possible that at a critical time antitoxin may be out of reach or obtainable only after ruinous delay. Bichloride may be always at hand and ready for immediate use, an important consideration where time is precious. It is prompt in its action. It is safe; it is not to be swallowed, but, in the strength used, if a little should slip down no harm would result. It may also be well to remember that there is no danger from contamination or faulty preparation. It has no unpleasant taste and causes no irritation or inconvenience of any kind. Even children do not object to it.

I should like to have the subject discussed, and should be glad to have the method tried by others. I believe that if used in the way described it will be equally successful in other hands.

1031 EAST 50TH STREET.

Immunity to Measles in the First Six Months of Life.—Weill and Bocca relate an episode in which thirty-three infants were simultaneously exposed to measles and but twenty-two infected. The eleven immunes were all under the age of six months, while the victims were all above that age.—*La Presse Médicale*.

A CONCEPT OF X-RAY PATHOLOGY.

XV. X-RAY LITERATURE.

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IN the preparation of the articles of this series, the works below enumerated and the studies supplied by the roentgenologists whose names have been mentioned were freely consulted and in many cases quoted verbatim. In addition Osler's "Practice of Medicine," Barker's "Monographic Medicine," Norris and Landis' "Diseases of the Chest and the Principles of Physical Diagnosis," and Speed's "Fractures and Dislocations" were consulted freely and quotations made therefrom on subjects dealing with x-ray.

ARCELIN, F.: "L'Exploration Radiologique des Voies Urinaires,—Lithiases et Projectiles de Guerre." Masson et Cie. Editrices. Paris, VI, 1917.

THIS book deals with the x-ray exploration of the urinary tract. Its first chapter is historic. The second considers the material discussed in the remainder of the book. The third and fourth chapters enter into a consideration of the technique of the x-ray examination. The fifth chapter treats of the general interpretation. Chapter six discusses the roentgenography of the kidney or renal silhouette; and also the ureters and the bladder as outlined by pyelography. The seventh chapter enters into an elaborate discussion of kidney stones and their x-ray diagnosis. The book closes with chapters eight and nine in which projectiles and foreign bodies are studied.

ARTHUR, DAVID, and MUIR, JOHN: "A Manual of Practical X-Ray Work." Published by Reiman Company, New York City. Second Edition, 1917.

ARTHUR and MUIR's book may be divided roughly into three parts: The first, a discussion of the technique of the investigation in so far as apparatus and photography are concerned. This occupies more than one-half of the book. The second part is devoted to x-ray diagnosis. This section is moderately illustrated with diagrams and reproductions of roentgenograms. Most of the pictures are exposed from underneath rather than from above, a custom more commonly practised abroad than in America. The principles of diagnosis, unnecessarily brief, are reasonably well presented. The last eighth of the book is devoted to x-ray therapeutics. This section is not as full as the subject of x-ray therapeutics imperatively demands.

BARCLAY, ALFRED: "The Alimentary Tract—A Radiographic Study." Second Edition, 1917. Published by The Macmillan Company, New York.

FOLLOWING an introduction Barclay successively discusses the technique, the routine examination, diagnoses of affections of the esophagus, the normal stomach, the pathological stomach, gastric ulcer and hour-glass stomach, carcinoma of the stomach, various gastric conditions, the small intestines, the etiology of gastric and duodenal ulcers, the large intestines, some conclusions and a tabulation of cases. Several excellent thoughts are advanced, more especially the studies dealing with the ileopyloric reflex. A remarkably full bibliography is included at the end of the book. The bibliography points to papers of general pathological interest as well as to papers and books dealing especially on gastric intestinal studies. Some American roentgenologists are quoted in the bibliography, but not as many as merit would demand.

BÉCLÈRE, ANTOINE, COTTENOT, PAUL, and LABORDE, Mme.: "Radiologie et Radiumthérapie, xxxii, Traité de Pathologie Médicale et de Thérapeutique Appliquée." A. Maloine et Fils, Paris, 1921.

THIS is a general textbook on roentgenology to which there is added a section on radiumtherapy. In general the illustrations are poor and few; although the text is in every way modern and presents sound principles of roentgen ray diagnosis. The roentgenologist thoroughly familiar with French would be interested in this work; but its character is so general as to pre-

clude the necessity of adding this book to the library of one already supplied with English texts of standard authorship.

BRAGG, W. H., and W. L.: "X-Rays and crystal structure." Third Edition, 1918. Published by G. Bell and Sons, Ltd., London.

This excellent book is of little value to the x-ray interpreter. It presents some exceptionally keen studies in x-ray physics, more particularly on x-ray spectrometry, crystal structure, x-ray spectra, the analysis of crystal structure, and the analysis of Laue photographs. It is a useful text to those interested in the technical aspect of roentgen ray possibilities.

BYTHELL, W. J. S., and BARCLAY, A. E.: "X-Ray Diagnosis and Treatment.—A Text-Book for General Practitioners and Students." Published by Henry Frowde, Oxford University Press, and Hodder & Stoughton, London, 1912.

This book is a sort of atlas. There is first a general discussion of the principles of roentgen ray diagnosis of a particular region; and following the discussion a number of excellently reproduced photographs illustrate the more important conditions. The last section of the book deals with x-ray therapeutics. This section is entirely too scanty for x-ray therapists. The book is considered more valuable for its store of general interpretative information, than for its therapeutic applications.

CARMAN, RUSSELL D.: "The Roentgen Diagnosis of Diseases of the Alimentary Canal." Second Edition, Revised, 1920. Published by W. B. Saunders Company, Philadelphia and London.

CARMAN's text on the gastric intestinal tract requires little comment. It is excellently prepared and contains valuable and authentic information presented in a most readable form and illustrated with pertinently applicable reproductions. Each chapter closes with a list of carefully selected references. It presents an exceptional bibliography. The book should form a part of every x-ray library, not alone because of its intrinsic merit but because of the compiled bibliographic references.

CHRISTIE, ARTHUR C.: "A Manual of X-Ray Technic." Second Edition, Revised and Enlarged, 1917. Published by J. B. Lippincott Company, Philadelphia and London.

CHRISTIE's "Manual of X-Ray Technic" is a splendid elementary introduction to roentgenology. It presents the fundamental basic principles of roentgenologic investigation and discusses briefly and with authority general interpretation. The manual is exceptionally useful for those who are just beginning the study of roentgenology.

DWIGHT, THOMAS: "Variations of the Bones of the Hand and Foot.—A Clinical Atlas." Published by J. B. Lippincott Company, Philadelphia and London, 1907.

DWIGHT's Atlas is the only authoritative American treatise that deals with any degree of minuteness on the variations of the bones of the hands and feet. Variations in the bones of the hands and feet are not only interesting but are in many instances important for the roentgenologist. This is true especially in medicolegal cases, as in deciding whether an apparent solution of continuity of a carpal scaphoid is the result of trauma or is a congenital bipartite variant. The roentgenologist should be familiar with the usual variations discussed by Dwight. Dwight's references to the literature are fairly complete. The atlas is most valuable in the library of the roentgenologist.

ELY, LEONARD W.: "Diseases of Bones and Joints." Published by Surgery Publishing Company, New York, 1914.

This book, while not essentially an x-ray book, presents one of the most lucid discussions of bone pathology anywhere obtainable in the English language. In the article on osteopathy, of this series, the bone pathology described is in many instances taken verbatim from Ely's "Diseases of Bones and Joints." The discussion of the subject is exceptionally clear, concise, and authoritative. It is imperative that the roentgenologist be thoroughly familiar with this book, if a proper conception is to be gained of the changes affecting bones and joints in disease.

GAGE, HAROLD C.: "X-Ray Observations for Foreign Bodies and their Localization." Published by C. V. Mosby Company, St. Louis, Mo., 1920.

This little manual deals with the localization of foreign bodies by the use of the x-ray. Various standard methods are discussed and in addition the author elaborates on the method of cross-section localization by three intersecting lines. The use of bromide paper in the place of x-ray plates for recording daily the x-ray progress of fractures is mentioned. The book is valuable for the military roentgenologist and also for the industrial roentgenologist who has to do with the localization of foreign bodies.

GREEN, A. A. RUSSELL: "An X-Ray Atlas of the Skull." Published by Longmans, Green and Company, London and New York, 1918.

This atlas of the skull affords a very brief discussion of the apparatus involved in the technique of cranial roentgenology. The plates that are reproduced are good. Some of the plates are colored, different colors indicating different anatomical levels and landmarks of the skull. The book is of some value to the roentgenologist concerned with the study of the cranium.

HIRSCH, I. SETH: "The Principles and Practice of Roentgenological Technique." Published by the American X-Ray Publishing Company, New York, 1920.

HIRSCH's text on the principles and practice of roentgenological technique is the most complete treatise available dealing entirely with the technique of roentgen ray examination. It is divided into two parts, the first dealing with the principles of technique, including a discussion of electricity, induction apparatus of various types, portable induction apparatus, the discovery of the x-ray, Crooke's or gas tubes, hot cathode or electron tubes, the cathode discharge, the x-ray and its properties, the production of x-rays and the measurement of x-rays. This is followed by the second part of the book which treats of the applications of these principles, discussing fluoroscopy, radiography, radiographic methods, the silver bromide plate, postures and position, standard positions, exposure, the development of the plate, the examination of the plate and the general organization and administration of x-ray laboratories. The book is profusely illustrated and is everywhere exhaustive in its discussion of the subject matter. It is indispensable to the x-ray library of every roentgenologist.

HOLMES, GEORGE W., and RUGGLES, HOWARD E.: "Roentgen Interpretation.—A Manual for Students and Practitioners." Published by Lea & Febiger, Philadelphia and New York, 1919.

WHAT Doctor Hirsch accomplished in his textbook on the principles and practice of roentgenological technique, Holmes and Ruggles, in a similar way accomplished in their text on roentgen interpretation. There are several unusually creditable features of this work. First, the briefness yet authoritative in exposing the fundamental principles of roentgen ray interpretation; then the well-chosen bibliographic references that conclude each chapter, finally the clearness with which the pictures reproduced portray the particular type of pathology under discussion. The volume is small and handy. It is useful to the beginner in roentgenology for the x-ray essentials of interpretation that are expounded; and for the advanced roentgenologist, for the full and carefully selected bibliographic references. This book should form a part of every x-ray library.

IVY, ROBERT H.: "Interpretation of Dental and Maxillary Roentgenograms." Published by C. V. Mosby Company, St. Louis, Mo., 1918.

This book is useful from which to gain a general conception of dental roentgenology. Since this book was published many important advances have been made in the technique of dental x-ray examinations, more particularly with reference to the types of dental machines and dental x-ray tubes now used. This book is moderately useful but not indispensable.

KAYE, G. W. C.: "X-Rays." Second Edition, 1917. Published by Longmans, Green and Company, London and New York.

KAYE's book is an exposition of x-ray physics both experimental and applied. It has no immediate practical value for the roentgenologist interested only in cultivating an ability in interpretation; but it pre-

sents many facts that stimulate thought in connection with the elaboration of physical x-ray apparatus. This book is only of general interest to the roentgenologist who is desirous of completing his information in the possibilities of the physical exploitation of x-rays.

KNOX, ALICE VANCE, and ROBERT: "General Practice and X-Rays." Published by A. & C. Black, Ltd., London, 1921.

THIS new book is for the English profession what Holmes and Ruggles is to the American profession. Its general scope is practically similar, excepting that it includes a part on x-ray physics and x-ray apparatus. The interpretative section leans more toward an elementary presentation of the essentials of the usefulness of x-ray diagnosis in various diseases. It is a good book, one with which the roentgenologist should be familiar, but not indispensable to an x-ray library.

KNOX, ROBERT: "Radiography in the Examination of the Liver, Gall Bladder, and Bile Ducts." Published by C. V. Mosby Company, St. Louis, Mo., 1920.

KNOX's monograph on radiography in examination of the liver, gall bladder and bile ducts is a useful thesis with which roentgenologists should be familiar. Much of the subject is already familiar to American investigators through the works of Cole, Niles, Case, Pilcher (J. T.), Pacini, Carman, Pfahler, George, Gerber and others. The book is concluded with a section that deals on historical notes and abstracts from the literature of the radiography of the liver, gall-bladder and bile-ducts. This section is important to the investigator who desires a review of the work done in this field. The book is good and might well be included in the x-ray library.

KNOX, ROBERT: "Radiography and Radio-Therapeutics. Part I, Radiography." Published by the Macmillan Company, New York, and A. & C. Black, Ltd., London, 1921.

THIS work, in two volumes, the first dealing with radiography and the second with radiotherapeutics, is too well known to require lengthy comment. For a general treatise on radiography and radiotherapeutics it would be difficult to excel these two volumes. The bibliographic references are few. It is an indispensable set for the roentgenologist.

LAW, FREDERICK M.: "Mastoids Roentgenologically Considered." (Annals of Roentgenology, Volume I.) Published by Paul B. Hoeber, New York, 1921.

UNDER the general editorship of Doctor Case, Doctor Law presents in the "Annals of Roentgenology" the first volume dealing with roentgenology in mastoid diseases. The general scope of the book includes a discussion of the technique for the production of mastoid plates. There is included an atlas giving photographic prints of master roentgenograms that are most skillfully reproduced. These actual photographs present practically all of the pathologic conditions observed by the roentgenologist. Each master roentgenogram is accompanied with an interpretation (in three languages, English, French, and Spanish) which affords not only a means for the proper study of mastoid plates but also a means for reporting the pathology visualized. Roentgenologists who have much to do with surgeons interested in mastoid trouble should be equipped with this preeminently masterful atlas.

MCCOY, JAMES DAVID: "Dental and Oral Radiography. —A Textbook for Students and Practitioners of Dentistry." Second Edition, 1918. Published by C. V. Mosby Company, St. Louis, Mo.

MCCOY's book is quite similar to Ivy's, which it resembles in many respects. In the light of present day dental x-ray technique it is doubtful if this book, like Ivy's, can be of great value to the roentgenologist.

MACKENZIE, WILLIAM COLIN: "The Action of Muscles, including Muscle Rest and Muscle Re-Education." Published by Paul B. Hoeber, New York, 1918.

MACKENZIE's "Action of Muscles" is not an x-ray publication; but it contains the principles of muscle action, a full knowledge of which is imperative for the roentgenologist who would interpret the significance of deformities attending fractures. In many instances it is not necessary that the surgeon depend upon the x-ray alone for the diagnosis of fracture; but the roentgenogram interpreted in the light of deformity due to muscle action affords the surgeon invaluable information that is not otherwise gained from the ex-

amination. Modern roentgenologists should become thoroughly familiar with Mackenzie's book.

OVEREND, WALKER: "Radiography of the Chest, Vol. I, Pulmonary Tuberculosis." Published by C. V. Mosby Company, St. Louis, Mo., 1920.

THERE is described first an unpathological chest as it appears on the x-ray plate. The technique in producing the plate is discussed, and agrees, in general, with that usually advocated by workers in this country. The author then ventures a classification of pulmonary tuberculosis, which condition he divides into the following types: I. Tuberculous disease of the bronchial glands. II. Disseminated nodular phthisis. III. Disseminated nodal phthisis. IV. Bronchopneumonic pseudo-lobar tuberculosis. V. Chronic attenuated phthisis. V. Fibroid phthisis. VII. Pneumonic phthisis. VIII. Miliary tuberculosis. Each class is discussed, x-ray reproductions are given and case histories included in order the better to make for a clear conception of the entity. A chapter is devoted to a study of the complications of pulmonary tuberculosis; and the author concludes the book with a discussion of the radiographic diagnosis. An interesting paragraph is that entitled Pulmonary Tuberculosis in the Great War. It reads:

"Both the French and Italian authorities have attacked the serious problem of the tuberculous soldier in a comprehensive and satisfactory manner. The latter—fortunately able to take some time in preparation—installed diagnostic centres (*Reperti di accertamento diagnostico*) to investigate all cases. Caccini (MEDICAL RECORD, 1918) describes that established at Rome. The Italian medical boards employed rigorous methods for the purpose of admitting men into the armies. They rightly rejected those with a history of past pleurisy, including interlobitis, with pleuritic thickenings and adhesions, the relics of past disease. At first it was thought that such men might be utilized in the auxiliary services; but inasmuch as they are only able to give a minimum of work, and are liable, under the periods of excessive mental and bodily strain imposed by military necessity, to recrudescence or to new manifestations, it was considered advisable to reject them, except under special conditions of urgency. The logical deduction is that recruits after admission must be considered free from tubercle, and that all cases of tuberculosis arising subsequently must be regarded as caused by the vicissitudes and by the fatigue of warfare. The x-rays were preferred to tuberculin, and radiography fortunately took precedence over radioscopy. Stereoscopic pictures were taken in the sitting position, with the tube behind. The data were divided into (a) positive, and (b) presumptive. Positive evidence was arranged in four categories, viz., (1) tubercle bacilli +; (2) larynx +; (3) Tbc.—; signs +; X-ray +; (4) Tbc.—; signs —; X-ray +. Examination of the larynx is indispensable, since tuberculosis may be active in this situation and clinically latent in the lung. The radio-signs in the fourth category include bronchopneumonia and pleurisy, followed to their possible consequences; evidence, however, which should be considered presumptive, or in which a final decision should be postponed (Author). The presumptive evidence falls under three sections, (1) Tbc.—; signs +; symptoms —; X-ray +; (2) Tbc.—; signs —; symptoms +; X-ray +; and (3) Tbc.—; signs —; symptoms —; X-ray —. Under section 3 the X-ray signs of peribronchitis and bronchoadenitis are included; signs which may be inconclusive and not necessarily tuberculous (Author). Soldiers exhibiting presumptive evidence were given 4-12 months' leave and then re-examined. Those with minimal signs of presumptive proof were detached for sedentary service. The French Government also established a probation centre for each army (*centre du triage*), and certain of the results have already been published. The examinees consisted of soldiers who had undergone military service and had been subsequently sent back on account of obvious or presumptive tuberculosis. Emile Sergent and Delamoure, of the Paris centre, reviewed 600 cases admitted into hospital for further observation (*Journal de Médecine*, 1916). After complete examination (repeated

clinical, radioscopical and radiographical, investigation of sputum, and tuberculin reactions, temperature charts, blood pressure and pulse), 14 per cent. were found to be nontuberculous. Among these were cases of simple anaemia, emaciation, dyspepsia, of mitral disease, bronchitis, and emphysema. About 5 per cent. exhibited nasal lesions, with emaciation, anaemia, cough, the absence of pyrexia, of increased vocal vibrations, and of fixed adventitious sounds, with the possession of normal arterial tension. One had a foreign body in the lung, another a hydatid cyst. Many cases of nasal disease, including ethmoiditis, antral disease, hypertrophy of turbinates, the presence of spurs and deflections of the septum, are accompanied by a chronic coryza which gradually spreads downwards, leading to granular pharyngitis and bronchitis. There was a bacillary sputum in 15 per cent. which was confirmed by physical and radioscopic examination. Occasionally the latter showed intrapulmonary foci and cavities which the stethoscope was unable to disclose on account of their central and deep situation, or on account of accompanying bronchitis and thickened pleura. In 70 per cent. of the suspects the changes were apical, and in about 50 per cent. tuberculosis was active. The presence of parenchymatous apical changes was shown by dullness on percussion, increased vocal vibrations, crepitations, haemoptysis; the apical opacity being unchanged by cough, and being accompanied on the plate by the presence of striae and small foci. Pleural adhesions were shown by dullness on percussion, diminished tactile fremitus, pleural friction sounds, diffuse opacity with some illumination on cough. Sergeant also gives two signs in addition, viz., inequality of pupils (affected side usually dilated) and supraclavicular adenitis due to the pleural affection. The various items of the pleural syndrome are far from being always contemporaneous, and their duration is as variable as their frequency. 'Les frottements sont très précoces et très fugaces; ils traduisent la présence d'exsudats perméables aux rayons X et caractérisent la période initiale, purement stéthacoustique de la pleurite apicale . . . les voiles qui résultent de l'organisation des adhérences conjonctives sont plus tardifs et plus persistants; ils caractérisent la phase terminale, essentiellement radiologique, de la symphyse du sommet.' These statements lack anatomical verification. Delherm and Kindberg (*Journal de Radiologie et d'Electrologie*, 1917), made observations on one thousand cases at a probation centre in France, but their results are scarcely reliable, since they considered that it is necessary in every case to place in evidence the bacilli of tubercle, and by the fact that radioscopy alone seems to have been employed."

The bibliography and books of reference are quite general and accepted as standard in this country. The volume forms a creditable addition to the literature of chest roentgenography. It represents the European viewpoint and contains much that deserves commendation.

PRINCE, NORMAN C.: "Roentgen Technic (Diagnostic)." Published by C. V. Mosby Company, St. Louis, Mo., 1917.

For general x-ray technique, more especially for the posturing in x-ray exposure, this small volume is quite useful. If the roentgenologist's library is supplied with Hirsch's "Principles and Practice of Roentgenological Technique" the necessity for Prince's book is entirely precluded.

RAPER, HOWARD RILEY: "Elementary and Dental Radiography." Second Edition, 1913. Published by Consolidated Dental Mfg. Company, New York, and Claudius Ash, Sons and Company, Ltd., London.

RAPER's "Elementary and Dental Radiography" appears to have become the standard volume in connection with dental roentgenology. The illustrations are fair and plentiful. The section dealing on apparatus and technique is not entirely modern. Much that appears in this section has been superseded by more recent methods. The book should be included in every x-ray library.

SCHÜLLER, ARTHUR, and STOCKING, FRED F.: "Roentgen Diagnosis of Diseases of the Head." Published by C. V. Mosby Company, St. Louis, Mo., 1918.

THERE is no other book in English that deals with

diseases of the skull Schüller's book contains an exceptionally great amount of information. It presents many references, some of which are misquoted, making for great inconvenience to the roentgenologist interested in studying this subject. The reproductions of the x-ray plates are relatively few and not exceptionally good. Resort is had to sketches used to bring out the more important points of the roentgenogram. The book is useful and might well be included in the library of x-rayists.

SHENTON, EDWARD W. H.: "Disease in Bone and its Detection by the X-Rays." Published by Macmillan and Company, Ltd., St. Martin's Street, London, 1911.

This short monograph is delightfully presented and expounds the principles of the x-ray diagnosis of bone diseases in a manner that is forceful and authoritative. Every roentgenologist should read and practically memorize this exquisite and small volume.

THOMA, KURT H.: "Oral Abscesses." Published by Ritter and Company, Boston, Mass., 1916.

The roentgenologist interested in dental x-ray should be equipped with Thoma's "Oral Abscesses." This book is very general in scope but it provides some good reproductions of dental conditions as revealed by the x-rays, and in addition, it indicates certain secondary complications for which the roentgenologist should be in search of when obscure symptoms present that might be attributed to focal infection. The bibliography at the end of this book is rather general. It contains some references that are valuable to the specialist in dental work.

THOMA, KURT H.: "Oral Roentgenology.—A Roentgen Study of the Anatomy and Pathology of the Oral Cavity." Published by Ritter and Company, Boston, Mass., 1917.

In addition to the preceding volume the roentgenologist should be supplied with this atlas of oral roentgenology. It has excellent reproductions. It should be included in the library.

TOUSEY, SINCLAIR: "Roentgenographic Diagnosis of Dental Infection in Systemic Diseases." Published by Paul B. Hoeber, New York, 1916.

This is one of the earliest books that appeared in connection with the application of x-ray to the study of dental infection. The roentgenologist should have a reading knowledge of this book.

WENDELL, LEHMAN: "Systematic Development of X-Ray Plates and Films." Published by C. V. Mosby and Company, St. Louis, Mo., 1919.

EMPHASIS is laid on the important relations of photographic principles to roentgenology. The author briefly describes the functions and basic methods of development and fixation. He discusses the three methods commonly employed in development, namely, visual inspection, factorial, and tank or stand method, the latter, according to the author, being the most efficient. Reproductions of illustrations showing the effects of over, under and normal exposure, and showing also over, under and normal development are included. A chapter on the making of lantern slides concludes the book. This volume is useful and should prove of value to technicians who desire a compend dealing with x-ray photography.

WHITE, J. RENFREW: "Chronic Traumatic Osteomyelitis—Its Pathology and Treatment." Published by Paul B. Hoeber, New York, 1919.

WHITE's book is not essentially an x-ray one. The subject of osteomyelitis is extremely important to the roentgenologist and surgeon alike. The roentgenologist should be informed of the surgical aspect of osteomyelitis, of its pathology and associated phenomena. Much of White's book has been quoted verbatim in some of the articles in this series. It is important that the x-rayist procure a copy of this volume for ready reference in the more diligent interpretation of osteomyelitic changes.

UNITED STATES ARMY X-RAY MANUAL. (Authorized by the Surgeon-General of the Army. Prepared under the Direction of the Division of Roentgenology.) Published by Paul B. Hoeber, New York, 1918.

This manual is well known to doctors who have served in the United States Army, and to many others. Each section was prepared by a specialist. The book is authoritative. It deals with x-ray physics, with standard positions, with localization and with a brief yet

comprehensive discussion of important diagnoses in bones and joints, sinuses, teeth, thoracic viscera, urinary tract and gastrointestinal tract. There are some pages devoted to x-ray therapy, though this section of the book is quite scant. It is the most valuable book for roentgenologists.

ELEMENTARY PHOTOGRAPHIC CHEMISTRY. Published by Eastman Kodak Company, Rochester, N. Y., 1920. THERE is no necessity for discussing the value of a book on photographic chemistry when prepared under the expert direction of pioneer workers in photography. This book should be especially sought by those who are interested in developing a maximum efficiency in the photographic technique of the x-ray investigation.

X-RAYS. Published by Eastman Kodak Company, Rochester, N. Y., 1921.

THERE is much in this pamphlet of extreme value to the roentgenologist. This book is easily procured and well worth reading.

The above list does not exhaust all x-ray publications. It provides only a working library for the roentgenologist who is desirous of expanding his general store of x-ray information. In addition to these books the *Journal of the American Roentgen Ray Society* and the *American Journal of Electrotherapeutics and Radiology* should be added to every station. There are other periodicals that deal from time to time with x-ray topics.

Speaking generally, the roentgenologist should become familiar with the writings of the following contributors to x-ray literature:

Ashbury, Howard E.	Holmes, G. W.
Bassler, Anthony	Huntington, Philip W.
Baetjer, F. H.	Imboden, H. M.
Beck, Emil	Jaches, Leopold
Boggs, R. H.	Johnston, George C.
Borzell, F. F.	Law, Fred M.
Bowen, David R.	Leonard, R. D. (Deceased)
Brown, Percy	LeWald, L. T.
Carman, R. D.	MacKee, G. M.
Case, James T.	Manges, Willis F.
Childs, Samuel B.	Martin, J. M.
Christie, A. C.	Merritt, Edwin A.
Cole, Albert M.	Mick, W. H.
Cole, Lewis G.	Pacini, A. J.
Coolidge, W. D.	Pancoast, H. K.
Crane, A. W.	Pfahler, Geo. E.
Darling, Byron C.	Pfender, Chas. A.
Duane, William	Pirie, A. H.
Dunham, Kennon	Potter, Hollis E.
Edwards, H. Threlkeld	Quimby, A. J.
Eisen, Paul	Reu, Leonard
Evans, William A.	Ruggles, Howard E.
George, A. W.	Shearer, John S.
Goin, L. S.	Skinner, Ed. H.
Gorsline, C. S.	Stewart, W. H.
Gray, Alfred L.	Tousey, Sinclair
Grier, G. W.	Tyler, A. F.
Groover, Thos. A.	Waters, Chas. A.
Hickey, P. M.	Watkins, Wm. W.

Pallidus Syndrome.—The syndrome due to lesions of the globus pallidus is summed up by Monier-Vinard and Dalsace as follows: A man of sixty presented a pseudo-bulbar syndrome characterized by dysarthria, dysphagia, and spasmodic crying and laughter. There was a tendency of all attitudes, whether spontaneous or induced, to persist indefinitely. Automatic and associated movements were almost abolished. This automatic akinesia agreed throughout with that of Parkinson's disease, contrasting sharply with the freedom of voluntary motion. These motor peculiarities are said by Ramsay Hunt to indicate a lesion definitely limited to the globus pallidus.—*Gazette des Hôpitaux*.

Medicolegal Notes.

Necessity for Operation on Claimant for Compensation in Industrial Commission's Discretion.—The question whether an applicant for compensation under a workmen's compensation act is debarred from compensation because of his refusal to submit to an operation comes before the courts from time to time. A recent case in Illinois was one where the injury resulted in hernia. The Illinois act vests the Industrial Commission with the right to suspend the compensation of an injured employee if he "shall refuse to submit to such . . . surgical treatment as is reasonably essential to promote his recovery." The Illinois Supreme Court holds that whether the operation is reasonably essential is for the Industrial Commission to determine, based up the evidence submitted to it, and it would only be in a case where the commission had acted unreasonably or abused its discretion that the court could interfere with its finding. The Illinois Supreme Court in *Joliet Motor Co. v. Industrial Board*, 280 Ill., 148, 117 N. E. 423, held that where the evidence as to a claim for total loss of sight of an eye showed that such loss was caused by a cataract of slow growth, and that an operation could be performed which would cause little or no pain to the employee, and which would not endanger his life and would probably restore his sight, the Industrial Commission should not award compensation for total loss of sight of the eye, even though it could not compel the employee to undergo an operation. Of course the question to be decided is not that of compelling a party to submit to an operation. As was said in *Donnelly v. Baird & Co.*, 1 B. W. C. 95: "The question is whether a party who declines to undergo what would be described by experts as a reasonable and safe operation is to be considered as a sufferer from the effect of an injury received in the course of his employment, or whether his suffering and subsequent inability to work at his trade ought not to be attributed to his voluntary action in declining to avail himself of reasonable surgical treatment. If in such a case the sufferer, either from defect of moral courage or because he is content with a disabled hand and is willing to live on the pittance which he is receiving under the Compensation Act, refuses to be operated upon, I should have no difficulty in holding that his continued inability to work at his trade was the result of his refusal of remedial treatment and that he was not entitled to further compensation." The court cited to the same effect *Walsh v. Locke & Co.*, 7 W. B. C. 117; *Kricinovich v. American Car & Foundry Co.*, 192 Mich. 687, 159 N. W. 362; *Lesh v. Illinois Steel Co.*, 163 Wis. 124, 137 N. W. 539; *Enterprise Fence & Foundry Co. v. Majors* (Ind. App.) 121 N. E. 6. The court said: "Naturally each case must depend largely upon its special facts. The hernia here was caused by the accident, but it appears that an injury of this kind is not recovered from in the ordinary process of healing by allowing nature to take the ordinary course, as is the case with many wounds. On the facts as found in this record we think the findings of the Industrial Commission suspending the award, as stated above, were justified, and the courts are bound by the commission's finding." Judgment of the circuit court setting aside the award was therefore reversed and the commission's finding confirmed. It appeared from the record referred to by the court that the operation proposed involved "cutting through the skin, the subcutaneous tissue, the covering of the muscles, making a slit about 2½ inches long, an opening to be made reaching to the peritoneum or tunica vaginalis, depending upon the type of hernia, and involving some further manipulation of parts and surgical work in correcting the condition caused by the hernia."—*D. W. Rosenthal & Co. v. Industrial Commission* (Ill.) 129 N. E. 176.

Obesity Following Epidemic Encephalitis.—Livet calls attention to this sequence. The weight put on may reach 30 pounds. One patient showed a synchronous amenorrhea, which suggests that in this febrile condition the integrity of the endocrine glands is impaired. The hypophysis is the only one in which we might anticipate such implication.—*Gazette des Hôpitaux*.

MEDICAL RECORD.

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THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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MR. VOLSTEAD HEARS SOMETHING.

In his baccalaureate sermon addressed to the graduating classes of Harvard University on Sunday of this week, President Lowell insisted on clear thinking as the crying need of the day. To meet the urgent problems of the day, he said, we need not more organization or more machinery, but more personal thought, clear, far reaching, profound, and wide-spread as possible, for "in the multitude of the wise is the welfare of the world." It is a great pity that these words could not have been addressed to and taken to heart by the author of the so-called Volstead act, for he sadly lacks clear thinking. Not long ago he was quoted in the newspapers as saying that the medical profession was entirely satisfied with his restrictions on their use of alcohol, for only one physician had appeared before the congressional committee protesting against the provisions of the proposed new Volstead law. The medical profession simply, as is so often the case with it until too late, had not yet waked up. It is waking up now and Dr. Davin of New York who attacked the fanatics of the committee single-handed is probably beginning to feel less lonesome. Individual physicians do not yet appear to have overcome their shrinking modesty sufficiently to utter public protests, the only ones coming to our notice being eight New York physicians who wrote a letter to the Association *Journal* calling attention to the iniquities of the Volstead Act, but the American Therapeutic Society at its annual meeting in Washington protested vigorously against the intolerable restrictions on medical practice imposed by this law, and since then a great many local and county societies have passed resolutions of the same tenor.

An attempt was made to get the House of Delegates at the meeting of the American Medical Association to repeat its comedy of four years ago in declaring that there was no scientific basis for the therapeutic use of alcohol. More wisdom prevailed at this meeting, however, than at that of 1917, and the declaration was not reaffirmed but the question was referred to the Committee on Scientific Research, where it properly belongs and where it will rest for a year. The MEDICAL RECORD

has voiced its protest against this and other outrageous attempts by ignorant laymen to regulate medical practice, but the medical press in general, with a few exceptions, has been shy of expressing disapproval of this oppressive law. However, the American Medical Editors' Association has now come out with a set of preambles and resolutions protesting against "further undue regulation of therapeutic procedure" and calling for a revision of the existing statutes. The resolutions, we regret to say are wordy and weak, and the protest should be against not only "further" but also present regulation of therapeutic procedure, and since every such regulation by lay enactment, is "undue," it is unfortunate that this qualification should have been inserted. However, it is well that the Association has put itself on record, even if feebly, and it is probable the resolutions were intended to be more forceful than they are.

But it is not only medical men and their patients who suffer from this meddlesomeness of the W. C. T. U. and its congressional subservients; chemists and manufacturers are also beginning to wake up and to find that the Volstead act is destined to work irreparable injury to the chemical and other industries of the country if it is allowed to stand in its present or proposed shape.

We trust Mr. Volstead has learned by this time that the medical profession is not unanimously in favor of submitting to his prejudices in regard to the practice of therapeutics, although that would probably not trouble him, for "doctors" don't count politically, at least most politicians still think so; but now that the chemical and manufacturing industries are aroused we have some hope of reason penetrating to the committee room. If we are not to be allowed to help our patients by giving them alcohol when they need it, we shall at least be thankful if the drug manufacturers are permitted to get enough grain alcohol for use in making tinctures, fluid extracts, and other pharmaceutical preparations. Perhaps some day when the author of this outrageous bill rests in a teetotaler's grave, the country will wake to the fact that temperance can be promoted without killing the sick or ruining our manufactures.

THE CIRCULATORY SYSTEM IN DIPHTHERIA.

In diphtheria in children the morbid changes taking place in the heart are usually intimated only by the pulse, as myocarditis undergoes a latent evolution in the young. Careful auscultation will usually reveal nothing abnormal and this form of latent myocarditis is quite similar to that met with in children with typhoid fever. Being unsuspected it may be the cause of sudden death. In some cases, however, some disturbances may be detected. By palpation of the precordial area the hand only perceives a slight undulation of the thoracic wall or a few irregular cardiac shocks. The apex, when it can be perceived, is low and carried outwardly, while percussion may reveal

an acute dilatation of the cardiac cavities coinciding with an increase in the size of the liver. There is an arrhythmia and the heart sounds are distant and dull. When cardiac paresis is accompanied by albuminuria the work of the heart is made more difficult; there is a gallop rhythm with a superadded murmur extending far into the diastole, while a soft systolic blow at the apex is heard, due to dilatation of the ventricles rather than to valvular changes. In other cases there is more particularly a weak first sound at the apex—a bad prognostic sign.

Very often these data are not found, in which cases the state of the pulse becomes of first importance. Various changes have been described in convalescence from diphtheria, but these do not have an equal clinical value. They are acceleration, slowness, irregularity, and weakness of the pulse. For some observers acceleration with weakness is one of the best signs of diphtheritic intoxication. It is met with at the onset of the disease, with or without a rise of temperature, but subsides rather quickly after serum has been injected. This symptom has such great semeiological value that when it persists after serotherapy it can be regarded as one of the best indications of a serious form of the disease. If after having become normal the tachycardia reappears, although the temperature remains normal, it is a certain indication that there is an offensive return of the disease. It generally coincides with the development of paralytic phenomena and one of the early symptoms of bulbar accidents is a pulse of 160 beats or more.

An increased frequency of the pulse and a low blood-pressure are the result of diphtheritic intoxication and the frequency is in direct ratio to the degree of the intoxication. Therefore the old maxim is as true to-day as before the use of serum that death is the rule when the pulse goes above 150. That is to say, that although the tachycardia is practically constant in untreated cases, it becomes a more serious matter when it continues in convalescence after serum has been used.

A slow pulse is rare in diphtheria and its prognostic value is great. Some have maintained that this postdiphtheritic symptom is a good sign, while others equally competent uphold that bradycardia during convalescence from diphtheria is often accompanied by cardiac disturbances, dyspnea, and distress; syncope and death almost invariably occur in from three to four days. Less than sixty pulsations per minute in a child should be regarded as a sign of serious cardiac disturbance.

A weak accelerated pulse indicates an advanced degree of intoxication and a bad prognosis as it shows the unstable equilibrium of the primordial functions of the vegetative life of these profoundly intoxicated subjects, as well as a state of depression of the entire nervous system. The slightest jar or emotion are enough to induce fatal syncope.

The subject of the blood-pressure from the viewpoint of the prognosis is interesting and when it falls to 60 or 65 mm. Hg. in children the prognosis is nearly always fatal. The diphtheritic toxin exercises an unfortunate influence on the circulation through paralysis of the bulbar center of the vasomotor nerves resulting in tachycardia, irregular pulsation, and a fall in the blood-pressure. Numerous studies carried out in the past by Kolossova, Durand-Viel, A. Denis, not to mention others, have shown that only the more serious forms of diphtheria give rise to changes in the blood-pressure, the pulse then becoming soft and depressible at the onset of the disease, or during convalescence. When the radial pulse cannot be felt these changes in the blood-pressure almost invariably indicate an extremely serious prognosis.

TOXIC SECRETIONS OF WORMS.

THE prevalent view of intestinal helminthiasis up to within comparatively recent times was that, though unpleasant it was seldom dangerous, barring occasional accidents such as perforation or obstruction of the bowel. We have learned, however, that systemic disease and even death may result from the presence of worms in the intestine. Writing in *La Presse Médicale* of April 9, 1921, xxix, 29, Rouillard states that worms may injure the host in several ways—traumatic, reflex, or toxic. Formerly the latter activity was but little surmised, but of late our knowledge of it has increased so rapidly that we now place it at the head of the noxae of verminous origin. Phenomena due purely to exsanguination are not reckoned under toxemia, although often due to that cause, and the two types readily coexist. In Japan a small trematode worm, the *Clonorchis sinensis* is notorious for its toxic manifestations. It attacks through its toxins the muscles and causes a form of progressive muscular atrophy. Several worms cause urticaria and pruritus through mildly toxic secretions. Those who handle or dissect ascarides are sometimes subject to inflammation and itching of the fingers, conjunctivitis, and coryza or pharyngitis. That the peculiar blood formulæ in worm diseases are not due to secondary anemia from hemorrhage is well seen in the fact that worms which do not induce hemorrhage at all can cause notable blood alterations. Conversely the bothriocephalus which may cause intense secondary anemia does not cause eosinophilia, although nearly every other intestinal worm does produce more or less of this blood picture, so that the blood find of eosinophilia at once suggests some form of helminthiasis. Various worms may cause temperature rise and there is a clinical condition known as "lumbricoid typhoid." The bothriocephalus mentioned above causes at times a profound cachexia in which numerous toxic phenomena are recognizable. The ancylostoma can stunt children and cause women to abort.

But in order to make out a case for a toxic mechanism it is of course imperative to isolate

and study the toxic principle and set up diseases in laboratory animals. Among products specially studied have been the extract of the cephalic glands of the ancylostoma, the secretions of ascarides, and the excreta and ova of various other worms. In a large body of data accumulated some discordant results appear, so that only the more striking and constant finds can be given. The author mentions no fixed principle isolated in any of these experiments and the identity rests chiefly on the humoral reactions provoked. The toxic phenomena produced in small laboratory animals were somewhat unconvincing so far as any specificity was concerned, while in the dog the action was not marked save that a secretion or fluid obtained from a species of ascaris proved to be a powerful cardiac poison. Moreover it appeared that animals can rapidly acquire tolerance to these poisons. In fact a single injection of some of these substances causes immunity to further exhibition of the same substance. In concluding, the author doubts the existence of specific toxins, stating that the results obtained are those common to the injection of foreign protein in general. To this must be noted in the clinic the superaddition of microbial infections through the portals established by the worms. Despite the immunity which has followed injections in some cases there is also the converse tendency to sensitize and produce anaphylaxis. The most characteristic evidence of a toxic action in the clinic is the production of eosinophilia.

TREATMENT OF SLEEPING SICKNESS.

TRUE sleeping sickness, trypanosomiasis, is believed to be incurable, the only way to deal with the disease being to put into force drastic preventive measures. However, at a meeting of the Royal Society of Tropical Medicine and Hygiene, held in London on May 20, a paper was read by Dr. Claude H. Marshall on "A New Method of Treatment of Trypanosomiasis," embodying the results given in an article by himself and Dr. Vasallo and published in the *British Medical Journal* of May 28. A previous report on the treatment of sleeping sickness by combined intravenous and intrathecal injections of salvarsanized serum appeared in the same journal, May 22, 1920. Doctor Marshall and his colleague have treated 56 cases, the majority of them for a year or less. Eight of these are dead, of six there are no records, while all the remaining cases are doing well. The drugs tried so far have been neokharsivan, which has been employed most extensively, and atoxyl to a less extent, but all the cases referred to in the paper by Marshall and Vasallo were treated mainly by neokharsivan. It is claimed that the treatment is curative, and the investigators hold that this curative effect results from the formation and action of some form of trypanolysin. Moreover, if the theories of these authors are correct, there would appear to be no reason why animal serum should not be used for treatment, why some degree of prophylaxis and immunity to trypanosomiasis should not be obtained, and why early diagnosis should not be effected by

some form of complement fixation test. Although the president of the Royal Tropical Society, Prof. W. J. R. Simpson, expressed himself favorably with regard to the means of treatment and Prof. W. D. Halliburton congratulated the investigators in that they had found a material which was fatal to the parasite but not fatal to the host, the method was subjected to destructive criticism by two very distinguished exponents of tropical medicine, Dr. P. Manson-Bahr and Dr. G. C. Low. The value of the treatment rests on its action on the cerebrospinal fluid, and Bahr doubted whether the invasion of the cerebrospinal fluid was necessary to produce sleeping sickness. He held that it was not. Low did not think that a case could be regarded as cured until after a period of at least three years. It was therefore impossible to regard Doctor Marshall's cases as cured after only one year. However, the sense of the meeting was that facilities should be afforded for a thorough testing of the treatment.

News of the Week.

Public Health Committee of the New York Academy of Medicine.—At the meeting of the Public Health Committee on June 13, the medical aspects of workmen's compensation were discussed in connection with a report on the subject made for the committee by Dr. Ransom S. Hooker. The report points out that the compensation law of this State, though liberal, is yet deficient, particularly in its medical provisions, and that there has been no supervision of the medical and surgical care given to the injured workman. The right of the free choice of physician is denied to him under the law, and therefore it devolves upon the State authority to insure to him proper medical treatment. The report points out that the medical officers of the Labor Department are on full-time duty and that their compensation is inadequate for the task expected of them.

A second matter considered by the committee was the request from the health authorities of one of the large cities of the country asking for an opinion as to the type of ventilation to be installed in the proposed new schools of that city. The opinion of the committee was in favor of open air window ventilation. The studies made some time ago by the New York State Commission bear out the position taken by the committee.

Bubonic Plague in Tampico.—Thirty-seven deaths from bubonic plague occurred in Tampico during May, according to the bill of health issued by the Cuban Consul at Tampico to the American tanker *Albert E. Watts* which arrived in the port of New York on June 11. One death a day from this disease was reported during the first week in June.

American Tuberculosis Association Adopts Resolutions.—At its annual meeting in New York City, June 15-17, this organization adopted resolutions calling on the United States Public Health Service to see that examiners specially trained for the detection of tuberculosis be stationed at all the ports of debarkation, and requesting the steamship companies to use greater care in accepting for passage immigrants coming from the regions of

Europe which are particularly infected with tuberculosis. Other resolutions expressed appreciation of the effort of the American Legion leaders to correct the defects in legislation regarding the rehabilitation of ex-service men. It was recommended that immediate material reduction be made in cases of those who refuse to make proper use of the facilities provided for their benefit, and that appointment of officers to care for tuberculous ex-service men be made for the welfare of the men and not out of regard to personal influence. Memorial resolutions on the death of Major-General William C. Gorgas, ex-Surgeon General of the United States Army, were also adopted.

Beer for Medicine Regulations Ready.—New beer regulations, legalizing the manufacture and sale to the public of "medicinal" malt liquors were ready for the signature of Revenue Commissioner Blair on June 14. It is officially declared that the threats of Representative Volstead to rush his anti-beer bill through Congress before the Government had time to put into effect rules authorizing the sale of beer will not deter the Treasury or cause further delay. It is expected that the new rules will be signed immediately. Dr. John E. Teeple, chairman of the New York Section of the American Chemical Society has announced that the Rules Committee is going to give the scientists of this country an opportunity to expose the so-called anti-beer bill in its true colors. The measure, he says, is nothing but a deliberate attack on American industry, hypocritically worded and advertised as a bill to prevent the use of beer as medicine. The bill does not mention the word beer, but assumes to restrict the use of chemicals, drugs, and pharmaceutical preparations recognized by all physicians as necessary for the treatment of disease.

Dogs for Experimental Purposes Well Treated.—A committee appointed by the Indianapolis Humane Society to investigate alleged cruel treatment of dogs in vivisection at the Indiana University School of Medicine, reports that on a recent unannounced visit to the school of medicine it was found that the dogs were being humanely treated.

Peking Union Medical College.—Plans are announced for the dedication of the new buildings of the Peking Union Medical College, erected by the China Medical Board of the Rockefeller Foundation. The ceremonies will fill the week from September 15 to September 22 and will include an international medical conference to which scientists from America and European countries as well as from the Far East have been invited. At the time will also occur the inauguration of the director of the college, Dr. Henry S. Houghton, and regular sessions of the institution's board of trustees, which is composed of representatives of the Rockefeller Foundation and of six missionary societies which had maintained an earlier medical college in Peking, will also begin then.

To'io Hospital Lauded.—At a benefit performance of the Japanese play "The Forty-seven Ronins" presented in Tokio, on June 11 for St. Luke's International Hospital, Viscount Eiichi Shibusawa, in an address, acknowledged the high service rendered in the cause of medicine in Japan by Dr. R. B. Teusler of Virginia. He referred to the hospital as an international institution, bound to promote

friendly relations between the United States and Japan, and said that men like Dr. Teusler would do much "to remove misunderstandings between the two countries and to establish friendship on a firm basis."

Rural West Virginia Needs Doctors.—According to the authorities of the School of Medicine of the University of West Virginia there is a pressing demand for physicians who will practise in the rural communities of that State. They state that Summersville, the county seat of Nicholas County, does not have a doctor, and Clay County has only one to look after the people living in its 332 square miles. In some of the other counties many people live from fifteen to twenty miles from the nearest physician, and in some of the mountain counties it is almost impossible to get doctors to make visits into the country districts.

Base Hospital Burns.—The base hospital at Fort Niagara and seven connecting buildings were burned on the morning of June 11. The loss, including hospital equipment, is estimated at \$200,000.

New Hospital for St. Louis.—The Imperial Council, Ancient Arabic Order, Nobles of the Mystic Shrine, announce that they are prepared to establish a hospital for crippled children of North America in St. Louis. A site has been purchased for \$150,000.

Home for Blind Children.—The Catholic Archdiocese of New York has purchased two four-story brown stone houses at 221 and 223 East Seventy-ninth Street for \$65,000, to be used as a home for blind children.

Sir Robert Jones of the University of Liverpool received the honorary degree of Doctor of Science from Smith College, at its commencement exercises on June 14.

Madame Marie Curie was made an honorary member of the Medical Women's National Association, at its meeting in Boston, June 11.

Dr. Crawford C. McCullough of Fort William, Ontario, was elected president of the International Association of Rotary Clubs at its annual session held in Edinburgh, Scotland, during the week of June 13.

Dr. Charles H. Mayo of Rochester, Minn., was made a Doctor of Laws at the commencement exercises of the Northwestern University on June 15.

Dr. Hugh Cabot has been appointed dean of the Medical School of the University of Michigan to succeed Dr. Victor C. Vaughan, resigned.

Dr. William T. Jenkins, formerly Health Commissioner of New York City, is seriously ill at the Hahnemann Hospital, New York.

Charitable Gifts and Bequests.—Under the will of Mrs. Ellen V. D. Hazelton of New York the following New York institutions are beneficiaries: New York Society for the Ruptured and Crippled, \$10,000; New York Eye and Ear Infirmary, \$10,000; Brooklyn Home for Consumptives, \$5,000. The residuary estate is to go to the Saratoga Hospital, Saratoga Springs.

By the will of the late Peter T. Hallahan of Philadelphia, the sum of \$1,000 is bequeathed to the St. Vincent's Maternity Hospital.

Commencements.—At the 165th Commencement of the University of Pennsylvania held on June 15

the degree of Doctor of Medicine was conferred upon 118 graduates, six of whom were women. The degree of Doctor of Public Hygiene was conferred on one graduate. The degree of Doctor of Laws was conferred on Dr. Hobart A. Hare, professor of *Materia Medica* and *Therapeutics* in Jefferson Medical College.

At the commencement of the Woman's Medical College of Pennsylvania held on June 15, the doctorate was conferred upon 16 graduates. The graduation address was delivered by Dr. Walter B. Cannon of Harvard University.

Philadelphia Medical Club.—A dinner and reception were given on June 13 in honor of Dr. W. Blair Bell and Dr. R. G. Rows of London.

New York and New England Association of Railway Surgeons.—The thirty-first annual session of this association will be held at the Hotel McAlpin, New York City, on Saturday, October 29, 1921. Dr. Charles Mayo, will deliver the oration in surgery. The symposium will be "the Surgery of the Stomach and Duodenum." Dr. J. Frank Black of White Plains, N. Y., is president. Dr. Geo. Chaffee, 170 Court Street, Binghamton, N. Y., is corresponding secretary.

Proposed Amalgamation of Medical Schools Opposed.—The General Alumni Association of the University of Virginia, at a special meeting on June 3, adopted resolutions protesting against the consolidation of the Medical College of Virginia with the University of Virginia, recently recommended by the Commission on Medical Education in Virginia. The text of the resolution states "That the General Alumni Association of the University of Virginia hereby expresses its unqualified opposition to the proposed removal to Richmond of the Medical Department of the University as a step opposed to the interests of the State of Virginia, as injurious to the cause of medical education, as destructive to the integrity of the University of Virginia, and as violative of those principles of higher education which, established by Thomas Jefferson, have received the sanction of time and of experience." Dr. Hugh H. Young of Baltimore presided at the meeting.

Obituary Notes.—Dr. WILLIAM J. BURGE of Edgewood, R. I., a graduate of the College of Physicians and Surgeons, New York, in 1853, died on May 28, at the age of ninety years. He was a surgeon in the United States Navy during the Civil War, a member of the Rhode Island Medical Society, and for three years president of the Providence Medical Association.

Dr. FRANK MASON, a graduate of the Ohio State University, died at his home in Milwaukee on May 14.

Dr. SAMUEL TANDLICH, a graduate of New York University Medical College in 1897, died at his home in New York City on May 28.

Dr. JACOB A. FIELDS of Giddings, Texas, died on May 14, at the age of sixty-nine years. He was graduated from the Medical Department of Tulane University in 1875.

Dr. MARTIN J. NEVINGER died at Philadelphia on May 26, at the age of forty-four years, following an operation. He was graduated from Hahnemann Medical College of Philadelphia in the class of 1898.

Dr. GEORGE R. SPRATT died at Coatesville, Pa.,

on May 22, at the age of eighty-two years. He was graduated from the medical department of the University of Pennsylvania in the class of 1864. He was for many years president of the Coatesville Board of Health.

Dr. ALBERT S. BLOUGH, formerly of Elizabethtown, Pa., died at Marietta on May 26 at the age of forty-six years. He was graduated from the Medico-Chirurgical College in the class of 1904.

Dr. JESSE ALBERT BOLIN died at Philadelphia on May 27 at the age of sixty-five years. He was graduated from Jefferson Medical College in the class of 1881. He was at one time physician to the Coroner's Office. He was a member of the Philadelphia County Medical Society and of the Medical Society of the State of Pennsylvania and of the American Medical Association.

Dr. FRANK H. ROWE, a graduate of Miami Medical College, in 1873, died at his home in Cincinnati, on May 4, at the age of seventy-three years.

Dr. FREDERICK WILLIAM WUNDERLICH of Brooklyn, died of pneumonia on May 16, at the age of seventy-nine years. He was graduated from the St. Louis Medical College in 1864. He was a member of the American Medical Association and the New York Academy of Medicine. He was surgeon to St. Peter's Hospital and consulting surgeon to the Wyckoff Heights Hospital.

Dr. JOHN M. KNOTT of Sioux City, Ia., a graduate of George Washington University Department of Medicine in 1870, died of angina pectoris in Los Angeles, Cal., on May 14, at the age of seventy-four years.

Dr. ROBERT ROY BROWNFIELD of Phoenix, Ariz., a graduate of the Medico-Chirurgical College of Kansas City, Mo., in 1903, died from injuries received in an automobile accident on May 1, at the age of forty years. He was president of the Maricopa County Medical Society in 1919.

Dr. J. C. GRAFFIN, formerly of Grass Valley, N. M., died at Shiprock, N. M., on May 5, at the age of fifty-two years. He was a graduate of the New York Homeopathic Medical College and Hospital in 1895.

Dr. ROBERT B. WOODWARD, a graduate of the Cleveland University of Medicine and Surgery in 1867, died suddenly at his home in Somers, Ohio, May 15, at the age of eighty-two years.

Dr. JAMES M. EARLE of Darlington, S. C., died suddenly on May 14, at the age of sixty years. He was graduated from New York University in 1886.

Dr. LAURISTON HARDIN HILL of Germantown, Pa., a graduate of the University College of Medicine, Richmond, Va., died on May 14, at the age of eighty-four years.

Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, May 31, 1921.

Uniformity Required in the Treatment of Tuberculosis Cases.—It is now generally agreed that there is no one way of treating successfully cases of pulmonary tuberculosis. The sanatorium is not sufficient by itself, nor the colony nor the hospital. All these means are necessary if the

disease is to be eliminated or even greatly checked. If, as is the common belief, the chief source of origin of virulent tubercle bacilli is the sputum of those suffering from pulmonary tuberculosis in an advanced stage, it appears obvious that the provision of adequate hospital accommodation and the segregation and control of these advanced cases will ultimately lead to the stamping out of the tubercle bacillus. There is a certain degree of analogy between leprosy and tuberculosis and leprosy was abolished from Europe in the Middle Ages mainly by compulsory segregation. However, it may be taken for granted that for the sake of the community at large, hospital treatment for advanced cases is absolutely indicated as well as for certain cases still amenable to treatment. But when such accommodation has been provided on an adequate scale there is another point which must be borne in mind, that there is a pressing need for greater uniformity with respect to the therapeutic measures carried out. Dr. H. Hyslop Thomson, Medical Officer of Health for Hertfordshire, read a paper on the subject before the Tubercle Group of the Society of Medical Officers of Health, whose meeting was held a short time ago. Thomson emphasized the importance of rest in the treatment of pulmonary tuberculosis, and in his opinion absolute rest in bed must be regarded as the foundation of hospital treatment. The results obtained by prolonged rest in the treatment of tuberculosis of bones and joints are well-known. Many authorities have laid stress on the need for absolute rest in the treatment of tuberculosis of the lungs. Among these Dr. Marcus Paterson has constantly recommended complete immobilization in the treatment of cases of autoinoculation. He holds that such patients should not only be sent to bed but should be treated in every way, with the exception of diet, like a typhoid patient. T. H. Pratt of Boston, writing in the *American Review of Tuberculosis*, 1918, on "The Importance of Prolonged Rest in the Treatment of Pulmonary Tuberculosis," also advocated complete immobilization not only in febrile cases but also for a definite period in non-febrile cases. Thomson's own experience of the hospital treatment of pulmonary tuberculosis during the past few years is that absolute rest in bed is indicated in all cases in which the month temperature reaches 99° F., even if only occasionally, or in which the pulse rate at rest is persistently up to 90° or higher. He draws attention to one significant fact which has occasionally come under his observation, namely, that certain patients who have steadily improved under hospital treatment have relapsed under sanatorium treatment when transferred from one institution to the other. The cause of this is, no doubt, due to autoinoculation following a too rapid introduction to walking exercise. It will be observed that Thomson is in favor of hospital treatment of those whose cases are not hopeless as well as of those very advanced cases who must be segregated for the good of the race. He thinks that the value of hospital treatment as a curative measure in certain types of the disease is of importance as pulmonary tuberculosis is a disease which shows considerable variation in type and in its charac-

ter of onset. Not infrequently the onset is acute with severe constitutional disturbance. In such cases immediate hospital treatment with absolute rest is essential if the progress of the disease is to be arrested. The treatment of pulmonary tuberculosis at the present time appears to have crystallized into hospital treatment, sanatorium treatment, and colony treatment, and it is anticipated that this trinity of methods in wise cooperation will show excellent results.

Report of the London Radium Institute.—That radium as a therapeutic agent is gaining in favor seems certain and in support of this view the annual reports of the medical superintendent of the London Radium Institute Mr. A. E. Hayward Pinch, F. R. C. S., supply convincing proofs. The report issued recently covers the period, January 1 to December 31, 1920. This report differs essentially from any previously published in that an attempt is made to present radium therapy on a rational scientific basis. The principles of treatment set forth are based mainly on methods hitherto employed at the institute, at the same time full consideration has been given to successful methods introduced by other investigators. Operable cases of malignant disease are not treated, except rodent ulcer, save in those instances in which the patient has absolutely refused to submit to operation. The cases dealt with during the year numbered 896, and are summarized as follows: Examined but not treated, 78; recent report not received, 114; received prophylactic treatment only, 38; apparently cured, 133; cured, 28; improved, 336; not improved, 74; abandoned treatment, 62, and died, 33. Altogether 8,131 treatments were administered during the year, of which 4,598 were given free of all charge to necessitous patients and 765 emanation applicators were prepared during the year and distributed to hospitals and medical practitioners throughout the United Kingdom for the treatment of patients. A study of the report goes to show how wide a field of usefulness radium possesses. More than one form of malignant disease may frequently be successfully treated by radium. Among these diseases may be mentioned different varieties of carcinomata, sarcomata, and rodent ulcer. Non-malignant conditions often respond favorably to the exhibition of radium. Of such affections attention may be drawn to the following: Fibromyomata of the uterus, leucocythemia, exophthalmic goiter, tuberculosis, nevi, keloids, leucoplakia, warts, papillomata, various superficial skin lesions, including chronic eczema, psoriasis, pruritus, etc. A report on the Research Department is submitted by Mr. T. C. Mottram, M.B., D.P.H. It is interesting to note, in view of the fact that somewhat obscure fatalities and injuries have been attributed recently to the action of radium and x-rays on those who administer them, that a paper dealing with the blood of the workers at the institute was published in the *Archives of Radiology and Electrotherapy* for December, 1920. In this communication the red cell content was dealt with. In several cases a mild anemia was found, down to 4,150,000 per cubic millimeter for males and 3,300,000 for females. In all these cases the color index was

above the normal. The report is a valuable addition to the literature on radium.

Dangerous Drugs.—A Departmental Committee on the Draft Regulations under the Dangerous Drugs' Act, 1920, whose report was issued on May 26 last, recommended that the manufacture and sale of the specified drugs, morphine, cocaine, ecgonine, and heroine and their respective salts, and medicinal opium, shall be carried on only by persons and in places licensed by the Home Secretary, and that these drugs shall be supplied only to persons provided with a properly signed medical prescription. These drugs should be supplied in packages or bottles plainly marked with the amount of the drug, and their sale must be entered in a special register. Stringent regulations in regard to the signing of prescriptions are recommended.

Rural Sanitation.—The country would seem to be, in the nature of things, the most healthy place in which to live. It should be but all too frequently it is not. Sanitation in many rural areas of Great Britain, the home of good sanitation, is at a low ebb. Refuse and rubbish are left about to pollute the streams and ponds and possibly contaminate the water supply. The water for household use in country cottages is usually obtained from an open well liable to outside contamination and, what is far more serious, it is liable to be polluted by means of the deep privies situated in the garden often near the well or sufficiently near for the excreta to seep through the soil, of course, sometimes carrying the germs of disease, enteric fever, for instance. As a matter of fact, in some rural districts in this country the standard of sanitation is almost the lowest imaginable. It is therefore encouraging to learn that the Women's Village Council Federation, according to an editorial in *National Health*, April, 1921, is taking steps toward reformation of this really deplorable state of affairs. As the editorial in question points out, what effect are such bad housing and sanitary conditions likely to have upon the children brought up amidst them? In these days we are realizing that the earliest impressions gathered along life's way are the ones that count most toward the making of character and the development of efficiency. Can much be expected from the individual whose early life is impressed by crudities which may and do imperil the refinement which surroundings of rural beauty may induce? The town is often healthier than the country on account of its superior sanitation and to some extent better hygienic conditions. The situation is similar in most countries. The rural sanitation in America is probably as bad as in Great Britain. One of the first steps to be taken in the direction of the prevention of disease is to improve the housing accommodation and the sanitary and hygienic conditions in rural districts.

For the Protection of X-ray Workers.—A meeting of the radiological societies was held in London during the week ended May 21 last, to form an expert committee to investigate and report on the use of x-rays from all points of view. The recent death of Dr. Bruce Ironsides, radiologist of Charing Cross Hospital, from frequent exposure

to high-power x-rays has directed attention to the dangers attending the administration of the rays, and the question of the improvement of existing measures for the protection of the patient and operator will be especially considered. The meeting was called by the Röntgen Society and the objects of the investigation will be to report on: (1) The changes induced in tissues by x-rays and particularly on the blood changes. (2) The properties of the x-rays and the best means of controlling their action. (3) The equipment of x-ray and electrical departments with a special view to the protective measures employed. (4) Recommendations for the guidance of the assistants in these departments, particularly in relation to the hours of work and the need for fresh air and change.

Medical Students in Great Britain.—At the opening of the summer session of the General Medical Council Sir Donald MacAlister, the president, said with regard to the registration of medical students, that in 1919 registration rose to 3420, and in 1920 fell to the more manageable number of 2531. However, this number is still higher than any year prior to 1919. In his opinion it would be in the interests of sound professional education were the number still further reduced. They impose a severer strain, educational and financial, on the schools and hospitals than the necessary recruitment of the profession demands, and in present circumstances the teaching institutions are less able to meet the strain. To raise the educational standard for admission, and to increase the fees for professional tuition, would thus seem from all points of view to be justifiable.

Obituary.—Deputy Surgeon General, Retired, Sir Robert William Jackson, C.B., who died in Dublin on May 12 last in his ninety-fourth year, was probably the oldest medical man in Ireland. He entered the British Army Medical Department in 1854, served in the Crimean war and was present at the fall of Sebastopol. He served throughout the Indian Mutiny, in the Ashanti war and in South Africa. He was present at the battle of Tel-el-Kebir in Egypt.

LETTER FROM GENEVA.

(From Our Own Correspondent.)

GENEVA, June 1, 1921.

Indicanemia.—Dr. Lisbôa has recently carried out some clinical work at the Medical Clinic of the University of Geneva to ascertain the prognostic value of indicanemia. He searched for indican in the blood of 71 patients, 59 of whom presented renal insufficiency and these cases are the ones that need be considered. The 12 remaining cases were for the most part cardiac in nature, but it may be said incidentally that the test for indicanemia was negative in all twelve. The first 8 of the 59 nephritic cases gave positive results for indicanemia as follows:

	Indicanemia	Urea in Blood
Case 1	++	4.64 per cent
Case 2	++	2.87 per cent
Case 3	++	2.50 per cent
Case 4	+	2.08 per cent
Case 5	++	1.80 per cent
Case 6	++	1.70 per cent
Case 7	++	1.30 per cent
Case 8	++	1.25 per cent
	++	2.50 per cent

It is to be remarked that cases 7 and 8 had only 1.30 and 1.25 urea in the blood respectively, therefore a percentage lower than Tchertkoff (Indicémie symptôme d'insuffisance rénale. *Revue Médicale de la Suisse Romande*, Aug., 1917), considers necessary in order that his reaction shall be positive.

On the other hand, the patients comprised in the following table gave a negative result to the test for indicanemia, although the percentage of urea reached or exceeded 1.50.

	Indicanemia	Urea in Blood
Case 5	—	1.97 per cent
Case 9	—	1.50 per cent
Case 10	—	1.50 per cent
Case 11	—	5.28 per cent
Case 12	—	1.70 per cent
Case 13	—	1.75 per cent

As will be seen, Case 8 figures in both tables; the percentage of 1.97 urea was obtained shortly after the patient was admitted to hospital. At the end of three weeks, when her general condition was considerably worse, another blood examination showed a lesser amount of urea, viz., 1.25—which can be explained by the diet—but at the same time the indicanemia was positive.

In Case 13—a hyperacute nephritis causing death in twenty-four hours—indicanemia was negative, although the urea was 1.75. Such a rapid evolution may perhaps have prevented indican from accumulating in sufficient quantity in the blood to be detected and in favor of this hypothesis, Lisboa refers to Case 8, where three weeks was required before the indican reaction appeared.

Indicanemia was absent in Cases 9, 10, 11, and 12. In the first two the limit of the required percentage of urea may, on a pinch, be regarded as having been reached, but in Case 11 the patient had ingested large doses of mercury bichloride and was treated by intravenous injections of glucose serum. The nephritis underwent a rapid evolution, therefore, all these factors taken together are sufficient to explain the 5.28 urea without indican being detected. Finally, as to Case 12, the nephritis underwent a favorable evolution and the patient soon left the hospital about well. Consequently Lisboa regards this case as an argument in favor of the prognostic value of Tchertkoff's reaction. He also concludes that the prognostic value of this reaction is unquestionable in nephritis, and in not a single case in which indicanemia was positive did the patient live. However, Lisboa points out that it may be absent in fatal cases in which the urea is increased, but in his experience this only occurs in nephritides with a very rapid evolution with an evidently fatal outcome, so that the indican reaction would have no clinical utility in the circumstances. As the reaction can be made by any physician on account of its simplicity it is to be highly recommended.

To those unfamiliar with Tchertkoff's test it may be briefly described as follows: During fast 8 to 10 c.c. blood-serum is obtained by venous puncture to which an equal quantity of a 20 per cent. solution of trichloroacetic acid is added; after filtering, an equal quantity of concentrated hydrochloric acid containing six grams of iron perchloride per liter, is added to 10

c.c. of the filtrate. Shake and then add 3 c.c. of chloroform, and after again shaking several times examine in fifteen minutes. The chloroform becomes pale to dark blue, according to the amount of indican contained in the serum. If the serum contains traces of iodine the chloroform assumes a pink or pinkish violet hue, according to the amount of iodine present.

Neosalvarsan and Mercury in Tabes.—At the Dermatological and Syphilographic Clinic of the University, Dr. Danon has studied the results of the treatment of locomotor ataxia with neosalvarsan and mercury, his material consisting of nineteen cases. The syphilitic virus may attack not only the posterior columns but the cranial nerves and cerebral substance as well, so that the symptoms and progress of the process vary greatly from one case to another and consequently, in these circumstances it is difficult to define what may be considered a cure. If it be recalled that the onset of tabes is usually overlooked and the degenerative lesions have, therefore, time to develop into incurable lesions, it is clear that the definition of "cure" is difficult to state. For Danon a cure consists in an arrest in the evolution of the process dating from the time that an effective treatment has been given. Tabes is rare in patients who have been energetically treated in the early years of their syphilis, and, out of his nineteen cases Danon found that in ten the syphilis was unsuspected and, therefore, had never been treated. Excess in tobacco, alcohol or coitus, and especially fatigue of all kinds, is to be avoided, and to show that fatigue is not a negligible factor in the cure of tabes, Danon refers to one of his patients, who, after a salvarsan treatment, became pregnant, which obliged her to remain quiet. Gestation was normal and the patient delivered of a child free of any trace of hereditary syphilis, while the tabetic mother was very greatly improved as well.

Danon divides his cases according to the results of treatment into three groups—namely, on pain, on incoordination, and on other clinical symptoms. He finds that neosalvarsan unquestionably controls the lightning pains in the limbs and trunk, as well as gastric crises. Of the nineteen cases, twelve patients presented lightning pains, six were greatly improved, five fairly so, and in one there was a relapse. Gastric crises were present in four and neosalvarsan improved them in all four patients. The results obtained in incoordination are a matter for discussion, because re-education was practised. In two patients the incoordination was marked, in five others it was slight. In one of the severe cases neosalvarsan produced a slight improvement, in the second its effect was *nil*. In the mild cases of incoordination there was marked improvement in four. The other nosological phenomena of tabes are also favorably influenced by neosalvarsan. In three cases with ocular disturbances two were improved or at least the evolution was arrested. Headache was always relieved, while an improvement in the general condition was likewise noted, a well-marked eutrophic state and an increase in weight. One patient presented an epileptiform paroxysm

which did not recur after treatment was begun. Abolition of the reflexes and unequal pupils are two symptoms that are uninfluenced by arsenical treatment of locomotor ataxia, but Danon believes that this process can be cured by the therapeutic measures now at our disposal, and this is all the more probable the earlier in the evolution of tabes it is begun and continued until both blood and cerebrospinal fluid are definitively negative. The treatment must not only be very active, but continued after the blood and cerebrospinal fluid have been negative for some time. Lightning pains, vertigo, headache and gastric crises are the symptoms most usually and the most completely controlled.

Progress of Medical Science.

Boston Medical and Surgical Journal.

June 9, 1921, clxxxiv, 23.

1. The Prevention of Heart Disease—A New Practical Problem. Haven Emerson.
2. The Essential Factors of Cancer Causation. James W. Shannon.

1. The Prevention of Heart Disease.—A New Practical Problem.—Haven Emerson states that one may say with reasonable accuracy that cardiac diseases are responsible for one in every six or seven deaths. More than 1 per cent. of the entire population is suffering from some form of organic heart disease. There are from five to nine cases of heart disease for every cardiac death per annum. It will be accepted, therefore, that the detection of cases of cardiac diseases in their incipency is important to the community for the prevention and postponement of disability and death. As in the wise plan for the control of tuberculosis, periodical medical examinations, especially trained consultants to counsel with the general practitioner, and medical supervision of school children and industrial workers have been found effective, so similar benefit may be expected from the same method of attack upon heart disease. There is lacking any clinical or pathological information upon which to base even a presumptive curve of incidence of cardiac diseases by age groups. The ages at which communicable diseases chiefly occur, which are believed to be responsible for the majority of cases of valvular and muscular diseases of the heart, certainly fall in the age groups under 35, and a majority before the age of 10, and perhaps the largest number for any one age group before the age of 5. In support of this statement, the writer reports upon the experience of some of the special cardiac clinics of the Associated Cardiac Clinics in the City of New York. A total of 6808 patients are reported upon, of whom 4392 were active cases on May 1, 1921. Among the adults of this group, the histories of 927 appear to have been so carefully analyzed as to permit of a sound opinion as to the probable causative infection, as follows: In 331 cases, acute rheumatic fever; 207, acute tonsillitis; 122, syphilis; 78, scarlet fever; 47, diphtheria; 14, pertussis; 54, measles; 163, carious teeth; 7, chorea. Among 720 children patients at these cardiac clinics where case histories were particularly well reported and studied, infections as possible or probable chief etiological factors were given as follows: In 279 cases, acute rheumatic fever (growing pains, etc.); 282, acute tonsillitis or sore throat; 53, scarlet fever; 63, diphtheria; 130, pertussis (at one clinic only); 232, measles; 207, carious teeth (none at one clinic); 49, chorea (none at two clinics). The writer dwells upon the importance of cardiac clinics and classes and upon convalescent care. The most effective and constructive service for prevention and relief of heart disease is that close cooperation of school and clinic found where the examination of the children picked out by the school medical inspector is taken up by a clinic class operated in the school district, the chief of the cardiac class becoming the specialist adviser for the school and home career of the cardiac child, just as the tuberculosis

specialist has guided the anemic and pretuberculous child in the open air classes of the public schools. The prevention of heart disease is a practical public health problem because it is the cause of the greatest number of deaths and disabilities in the United States; because cardiac diseases fall within the class of preventable diseases, since their exciting causes, or infections, are severally communicable or preventable diseases, or both; because the individual has not the knowledge to, ing, treatment, employment or hazards of life alone, or escape by his unaided, individual effort, the origin and development of these diseases. The first step in the execution of the program of prevention is to make real to the general practitioner the possibility of prevention, the prevention of infection, the prevention of cardiac damage, the prevention of the extension of lesion or disability, and the postponement of death from heart diseases. All this means the introduction of a consciousness, a definite knowledge, and interest in the prevention of heart disease through medical education. Cooperation of the public and the profession is necessary.

Journal of the American Medical Association.

June 11, 1921, lxxvi, 24.

1. Some Medical Problems: Presidential Address. Hubert Work.
2. Exercise Tolerance of Children with Heart Disease as Determined by Standardized Test Exercises. May G. Wilson.
3. The New Era in Pediatrics. Jesse R. Gerstley.
4. Wassermann Test with Secretions. Transudates and Exudates in Syphilis, with a Note on the Origin of the Complement Fixing Antibody. Joseph V. Klauder and John A. Kolmer.
5. Basal Metabolism in Borderline Cases. Charles G. Beall.
6. Relation of Increased Blood Viscosity to Transient Attacks of Hemiplegia. William H. Holmes.
7. Traumatic Surgery Problems. John J. Morehead.
8. The Effect of Prohibition on the Incidence of Portal Cirrhosis. Joseph L. Miller.
9. Chronic Pulmonary Tuberculosis Primarily in the Lower Lobe. Joseph Rosenblatt.
10. American Children in the Tropics. Nathaniel Bercovitz.
11. Lessons in the Management of Diphtheria, Especially as Suggested by the Study of a Series of One Hundred and Forty-Seven Fatal Cases. George H. Weaver.

1. Some Medical Problems: Presidential Address.—Hubert Work. (See p. 1032.)

2. Exercise Tolerance of Children with Heart Disease.—May G. Wilson conducted the series of investigations reported in this paper (1) to formulate a working table of standardized test exercises from a further observation of clinical symptoms and circulatory reactions following test exercise in normal children; (2) to compare the circulatory reactions after test exercises in the cardiac group with those obtained in the normal group, and (3) to determine the exercise tolerance of children with heart disease to standardized test exercises. The investigations were conducted upon a group of average normal children from 6 to 15 years of age, thirty-three girls and twelve boys, supplementing the previous study on twenty normal children, making a total of sixty-five children, thirty-seven girls and twenty-six boys; and a group of 116 children with heart disease, from 6 to 15 years of age, eighty-four girls and thirty-two boys. The conclusions drawn from these observations follow: 1. The circulatory reactions after test exercise in forty-five normal children, and in 116 children with heart disease, confirmed the results obtained in the twenty normal children of the previous study, in all essential points. 2. A working table was formulated of standardized test exercises followed by normal systolic blood-pressure curves without symptoms of dyspnea and fatigue. It was standardized from an analysis of the reactions of an average group of sixty-five normal children according to age, weight and height. 3. The degree of distress and type of systolic blood-pressure curve following standardized test exercises was used as a gauge in estimating the exercise tolerance of children with heart disease. 4. Of the seventy-one children having definite organic heart disease, without symptoms of insufficiency, 69 per cent. had a normal tolerance for standardized test exercises, 29 per cent. had a fair tolerance, and 2 per cent. had a poor tolerance. 5. In children with chronic organic heart disease, exercise tolerance tests gave important and useful information which may be utilized as a scientific basis for intelligent regulation of the child's

activities. The observations resulting from this investigation would seem to indicate that the fear of exercise is unwarranted, and that a wider latitude may be permitted with safety.

6. Relation of Increased Blood Viscosity to Transient Attacks of Hemiplegia.—William H. Holmes holds that in patients of advanced years, or those known to have vascular disease, and in those who have had cerebral vascular crises, dehydration of the tissues should be avoided. The introduction of anticoagulant salts and of fluid may be indicated in certain cases of transient hemiplegia or aphasia in order to prevent actual thrombosis in vessels when slowing of the circulation is the cause of the symptoms.

10.—American Children in the Tropics.—Nathaniel Bercovitz states, from observation and experience extending over six years' residence in the tropics, that healthy American children can be brought up in the tropics, and that no American need hesitate to go to tropical climates if the following conditions are met: 1. The housing facilities must be ample to secure plenty of space, good ventilation, and proper screening protection. From purely business considerations, no business firm should ask an employee to move to a place where housing conditions are not of the best. 2. The wife and mother must be prepared to enter on a period of ceaseless vigilance and cooperation with the physician in (a) problems of nursing and feeding of infants; (b) sterilization of drinking water and food; (c) fighting against flies and mosquitos, and (d) care of the skin, and the protection of children from the heat of the sun and from chills. 3. No family should live in a place where good medical care is not available at the shortest notice. Many tropical diseases are quick and deadly in their action, especially in children. 4. Frequent (yearly) changes from the heat into a cooler climate should be possible for mother and children. Of these conditions, the most important is the responsibility resting upon the wife and mother, from the moment of the birth of the child, through the nursing period, especially if there are difficulties of feeding, until the child leaves the tropics for study at home.

The Lancet.

May 21, 1921, cc. 21.

1. The Goulstonian Lectures on Glycæmia and Glycosuria. Lecture III. George Graham.
2. The Non-Operative Treatment of Surgical Tuberculosis. Sir Henry Gauvain.
3. Spinal Curves in Children. A Method of Fixation. W. T. Gordon Fush.
4. The Action of Digitalis and Atropine on the Peripheral Blood Pressure. I. Harris.
5. The X-Ray Appearance of So-called Osteo-Arthritis of the Spine. Claude Goulesbrough.
6. Manifestations of Hysteria. Hildred Carll.
7. Two Cases of Retroperitoneal Hemorrhage. T. G. D. Bonar.

1. The Goulstonian Lectures on Glycæmia and Glycosuria.—George Graham, in the first two of this series of lectures, discussed the fate of the sugar in the blood, and the types of diabetes mellitus which are already recognized. In the present and concluding lecture he discusses briefly the hypotheses for the cause of diabetes, and the principles and details of the modern treatment. The account of the etiology, he holds, shows how little is really known in spite of the great advance which has been made. Similarly, the treatment has been improved out of all knowledge since 1915, but the disease remains a dread disease. It is true that life is prolonged for several years in the severe cases, and that during most of that time the patient feels comparatively well, yet the treatment is in no sense of the word a real cure. The most that one may hope to do at present is to arrest the disease, and in order to do that the dietetic restrictions must be severe and carried out with the cooperation of the patient.

4. The Action of Digitalis and Atropine on the Peripheral Blood Pressure.—I. Harris, in this study, from the relation between blood pressure and pulse frequency makes certain deductions with regard to the influence of these drugs on the general circulation. The leading idea of the paper is to make the output of the single contraction a sort of criterion by which the effects of these drugs are to be gauged. It is assumed that a large systolic output will give rise to a correspondingly

large pulse-pressure reading and vice versa. The observation was conducted at the heart clinic of the Northern Hospital, Liverpool. Digitalis was prescribed, and blood pressure and pulse tracings were taken before the administration of the drug and once weekly while the patient was under its influence. Under the influence of digitalis, it was found, the diastolic pressure becomes lower and incidentally the systolic, while pulse pressure rises. The decline of the diastolic pressure is not due to a diminished output of the heart—the contrary is the case. The low diastolic pressure is never due to dilatation of the arteries. The conclusion is that the blood stream leaves the arterial circulation at a greater rate than under normal conditions. The corollary to this conclusion is that under digitalis the heart contains at the beginning of the systole a greater amount of blood than before. The quickening of the pulse observed in the latter stages of digitalis is due to the fact that in a shorter time than normal the intra-cardiac pressure is sufficiently high to excite contraction.

British Medical Journal.

May 21, 1921, i, 3151.

1. A Clinical Lecture on Acute Infective Arthritis. F. J. Steward.
2. An Address on Elementary Psychology in General Hospital Teaching. William Calwell.
3. Acute Intestinal Obstruction: A Series of 252 Cases. E. R. Flint.
4. Abdominal Pain: Its Mechanism and Clinical Significance. A. E. Maynard.
5. The Physiological Cost of Muscular Work. Leonard Hill and J. A. C. Campbell.
6. Comparative Systolic Blood-Pressure Readings in the Arm and Leg in Aortic Incompetence. O. K. Williamson.
7. Obstruction by a Band in a Large Scrotal Hernia. Philip Turner.
8. The Radical Cure of Varicocele. Sir John O'Connor.

1. A Clinical Lecture on Acute Infective Arthritis.—F. J. Steward reminds one that the ways in which a joint may become infected may be arranged conveniently in four groups: 1. From the exterior, due to accidental and gunshot wounds. 2. By spread from neighboring parts, especially in cases of acute infection of one of the bones forming the joint. 3. By metastasis, from an infective process in some other part of the body. 4. In general blood infection. The synovial membrane, in a case presented, as in others, played an important part, and much depended upon whether its resistance was equal to the occasion. It was necessary that such treatment should be adopted as would aim at supporting that resistance in every way possible. Particular emphasis was laid by the writer upon the local characteristic of the synovial membrane of a joint which enables it to deal with infection probably even more efficiently than the peritoneum. War experience emphasized this, for results clearly show that the best way to treat a joint infected by a bullet or piece of shell or clothing was to remove the foreign body, cleanse the joint so far as possible, close the wound, and let the synovial membrane do the rest. The synovial membrane may be assisted in the exercise of its function by treatment: 1. By letting out the pus. By so doing the blood supply to the synovial membrane, which must be greatly interfered with by the direct pressure of the pus, will be restored, in addition to getting rid of the local and general poison. 2. By keeping the limb at rest by the application of a suitable splint with extension. The extension is very necessary in order to overcome the pain, and so render the patient comfortable and able to rest. 3. By the injection of antiseptics into the joint. The necessity for this is by no means certain, and, although it has been held to be of great service by some surgeons, its value must be to a large extent, problematical.

6. Comparative Systolic Blood-Pressure Readings in the Arm and Leg in Aortic Incompetence.—O. K. Williamson bases this paper on his observations of 24 cases of undoubted and, indeed, well-marked aortic incompetence. His conclusions follow: 1. Although higher systolic readings in the leg than in the arm appear to occur in the majority of cases of aortic incompetence, there is a large minority in which they do not obtain. 2. There is no evidence that such cases, when they do exist, are the result of the actual aortic incompetence rather than of the commonly associated

condition of hypertonic contraction or hypertrophy of the muscular coat, with or without accompanying sclerotic changes, conditions which also occur independently of aortic incompetence. 3. In support of the arterial explanation of such differences is the fact that the large majority of cases of the series in which the arteries were thickened showed the difference, being a much larger proportion than obtained in the total number of cases of the series (all of which had aortic incompetence); and further, that in the adult cases of aortic incompetence, nearly all of which had thick arteries, the phenomenon was more than twice as common as in the children in none of whom were the arteries thickened. 4. If due to the aortic incompetence it would seem reasonable to suppose that the difference of reading should show some relationship to the degree of incompetence, which for practical purposes may be considered as measured by the pulse pressure. No parallelism, however, exists between these arm-leg differences and the corresponding degrees of pulse pressure. 5. In the few cases in which this was tried, in the majority the difference of pressure was abolished by repeated recompression, a fact decidedly in favor of the arterial explanation. (In cases of a higher leg reading than that in the arm in arterial disease it has been frequently found that the difference is abolished by such recompression.)

American Journal of the Medical Sciences.

May, 1921, clxi, 5.

1. The Symptomatology and Diagnosis of Foreign Bodies in the Air and Food Passages. Based Upon a Study of 789 Cases. Chevallier Jackson.
2. Cancer of the Uterus. John B. Deaver.
3. Multiple Sclerosis and Psychoanalysis. A Preliminary Statement of a Tentative Research. Smith Ely Jelliffe.
4. The Surgical Treatment of Empyema by a Closed Method. Arvine E. Mozingo.
5. Post-Natal Development and Pathological Organ Reconstruction in Relation to Function and Disease. Horst Oertel.
6. The Transfusion of Blood, with Report of 186 Transfusions. I. S. Ravdin and Elizabeth Gleen.
7. A Study of Polycythemia Vera with Splenomegaly, with a Report of Two Cases, and a Discussion of the Treatment by the Roentgen Rays. E. P. Pendergrass.
8. Atypical Tuberculosis with Mikulicz's Syndrome: Report of a Case, with Unusual Pulmonary and Subcutaneous Lesions. Phil L. Marsh.
9. Syphilis of the Trachea and Bronchi: A Résumé of the Diagnostic Features, with Three Case Reports. Philip Moeen Stimson.

4. The Surgical Treatment of Empyema by a Closed Method.—Arvine E. Mozingo for eighteen months had charge of the empyema wards at Walter Reed General Hospital, Washington, D. C., and at the Base Hospital, Camp Pike, Arkansas, during which time he developed what he calls a closed method of treating empyema. This communication is based on a series of 138 cases, 45 acute and 93 chronic, treated by him by this method, with a mortality of less than 2 per cent. The technique of the method is described in detail. From his experience in the series and from a comparison of the closed method with others, the writer draws the following conclusions: 1. Early operation by the closed treatment method has the following advantages: (a) It can be done, regardless of the stage of pneumonia or serious condition of the patient, without the least shock or collapse of the lung. (b) It provides complete evacuation of the empyema cavity, relieves cardiac and respiratory embarrassment and prevents the absorption of toxins and the usual resultant complications. (c) It lessens the usual thickening of the pleura and prevents the lung, compressed by the exudate, from becoming fixed in compression. 2. The closed method has the following general advantages: (a) Productive of great economy of time, labor and dressing material. (b) Causes minimum pain and discomfort to the patient. (c) The dressing is small, lasts several days, without skin irritation, and does not constrict the chest. (d) Uncomplicated cases of empyema are not kept in bed. (e) Cases are less likely to have recurrence, become chronic, or need a secondary operation. (f) The constant negative pressure gives maximum expansion of the lung. (g) The scar is very small and there is no chest deformity. (h) Practical in the home and in country practice. (i) The postoperative treatment in greater part may be done by a nurse or a properly instructed

member of the family. (k) Bacteriological and roentgenographic laboratories, while always to be preferred, are not absolutely essential. (l) The mortality is lower than by any other method. (m) Can effect cure in acute bilateral empyema, both sides being operated at the same time, with acute bilateral pneumonia present, which treatment is impossible by the open method. 3. Dakin's solution, because of its great solvent and bactericidal action, is the most nearly ideal solution to use in the preliminary treatment of the empyemic cavity to dissolve the fibrinous exudate and partially sterilize the cavity. 4. Liquor formaldehyde in glycerin, 2 per cent. dilution, is the best solution to use in the empyemic cavity after the preliminary treatment with Dakin's solution, to complete sterilization, shorten the course of treatment, and prevent a recurrence. 5. Smears and cultures after the formaldehyde solution treatment is begun will each show a rapid decrease in the number of bacteria, which are sometimes found two or three days in the smear after the culture will be sterile. 6. Bronchial fistulae are more common than is generally suspected. With this complication salt solution should be used in amounts as large as possible but not to cause the patient to cough. 7. A hypochloride solution of increased strength over Dakin's solution in both alkalinity and available chlorine can be used in the empyemic cavity with safety. 8. The available chlorine in Dakin's solution after injection into the empyemic cavity rapidly decreases. The strength after one minute averages 0.38 per cent., and after five minutes 0.07 per cent. 9. Dakin's solution can be made with sufficient accuracy from various commercial products by those who do not have the usual facilities for making and testing this solution. 10. The progress of acute cases when less frequent treatments were given indicates that cures can be effected in a little longer time by giving only one to three treatments daily. 11. Cases becoming chronic following open operation generally can be cured in a comparatively short time by instituting the closed method treatment, so making unnecessary a major secondary operation of the Schede, Eastlander or Delorme type.

6. The Transfusion of Blood with Report of 186 Transfusions.—I. S. Ravdin and Elizabeth Gleen trace the history of transfusion, give the indications, discuss the amount of blood to be transfused and the selections of donors, and describe the method employed in the hospital of the University of Pennsylvania. The series of cases include one arteriovenous suture, 47 transfusions by the Kimpton-Brown method, and 138 by the citrate method. The following deductions are drawn from this experience: 1. With the element of risk practically eliminated blood transfusion has become one of the most effective procedures in modern therapeutics. 2. Transfusion is a specific in acute hemorrhage where the "limit of bleeding" has not been reached, in melena and in the hemorrhage of hemophilia. 3. It is of definite value in primary pernicious anemia in hastening and prolonging remissions. It is indicated in cases of severe secondary anemia. After transfusion operations on debilitated or anemic individuals may often be safely undertaken that otherwise would involve serious risk. 4. Transfusion in shock is not as efficacious as in cases of shock associated with hemorrhage. 5. They have not been able to prove the value of transfusion in acute infections, but in chronic infections have had results justifying its use. 6. Transfusion is of unproved value in acute leukemia. In aplastic anemia it is at the most a temporizing procedure. 7. The difference, as far as reactions are concerned, between the citrate method and the Kimpton-Brown method have been found to be practically nil, and such being the case the simplicity of the former warrants its preference.

Allergic Nature of Scarlet Fever.—Schiff claims that the original exciter of scarlatina conjoined with the streptococcus causes the outbreak of disease proper, while the severe postscarlatinal complications are due to an allergic sensitization by the same symbiosis. The blood picture recalls that of serum disease but appears late or during the postscarlatinal period. Relapse of the disease has an analogous mechanism.—*Jahrbuch f. Kinderheilkunde*.

Society Reports.

AMERICAN MEDICAL ASSOCIATION.

*Seventy-Second Annual Session, Held in Boston,
June 6-10, 1921.*

(Special Report to the MEDICAL RECORD.)

SECTION ON DISEASES OF CHILDREN.

(Continued from page 1086.)

Heart Disease in Children of School Age.—Dr. ROBERT H. HALSEY of New York presented this contribution. He stated that just before the war an investigation was started to make a study of heart disease as it occurred in school children in New York City. At the same time the Association for the Prevention and Relief of Heart Disease was organized, and classes for cardiac children started. A large number of organizations had had a part in the work in addition to his department at the Post-Graduate Hospital. In order to learn something about the incidence of heart disease among school children they selected seventeen public schools from which the children were sent to them. Forty-four thousand children registered with them and of this number there were 948 that they had reason to believe were heart cases; 443 were found to come within the group which had been used to classify the cases attending the cardiac clinic. This classification was as follows: 1. Those having organic heart disease who were able to carry on their habitual physical activities. 2. Those having organic heart disease in whom there was a slight diminution of activity or even a great diminution of activity, but who were still able to carry on some activity. 3. Those having organic heart disease and not able to carry on their activities. 4. Cases, possibly heart disease, which were not able to carry on physical activity. These were called the accidental group, some of whom might develop actual heart disease. 5. Potential heart cases. Of the 948 cases, 228 fell in the first three groups. In group 4 there were 163 cases. Only one-half of one per cent. of the 44,000 cases had actual organic heart disease. Of these having organic trouble, 77 per cent. mitral lesions and 9 per cent. had aortic disease. The acquired lesions amounted to from 87 to 89 per cent., leaving 14 per cent. which might be considered to be congenital. A Group 1 child was thought not to require any special attention. In a study of 125 cardiac children the histories showed tonsillitis in 65 per cent.; rheumatism in 45 per cent.; measles in 36 per cent.; pneumonia in 18 per cent.; diphtheria in 21 per cent.; chorea in 18 per cent.; pertussis in 17 per cent.; scarlet fever in 12 per cent. Measles in normal children had an incidence of 58 per cent. and whooping cough of 33 per cent. Tonsillitis, chorea, and rheumatism were much more common in cardiac than in normal children, whereas measles and whooping cough were much more frequent in normal than in cardiac children. The reason for the lower incidence of measles and whooping cough in the cardiac child was believed to be due to the fact that he was not allowed to come in contact with other children to the same extent as did the normal child. The statement was often made that the gathering together of a group of children with heart disease had a depressing effect upon the children which was distinctly bad. That was not the case in these children; on the contrary their outlook on life was better as they came to feel that they were able to do something. The attitude of teachers and parents was changed when they felt that there was something these children could do. The philosophy of handling these children lay in teaching them to do the things that were within their capacity. The practical classification which had been presented was a valuable aid in differentiating and managing cardiac children. By careful attention to improving the nutrition of the children and by regulated graduated physical exercise which included improving the carriage and posture of these children, they had been greatly improved. This improvement was evidenced by the improvement in their general condition, in their alertness, precision and ability to carry on with less mus-

cular effort. The better school attendance of these same children after supervision bore witness to the value of the methods used.

Dr. WILLIAM ST. LAWRENCE of New York said he thought those interested in the cardiac problem had listened to Dr. Halsey's paper with a great deal of interest because he had started upon an experience which would aid in solving the question of the attendance of the cardiac child at school. The places where the work Dr. Halsey had reported overlapped that in which he had been interested showed that their results were in harmony at these points. In Dr. Halsey's series of cases, the second group included a much larger number of children than one found in the rank and file of cardiac cases. In his experience 75 per cent. of cardiac children had exercise tolerance and 25 per cent. had a relative amount of exercise tolerance. There were only a few who had such a diminished exercise tolerance as to be a problem. In only three per cent. of the children in their clinic had the exercise tolerance been sufficiently low to be a serious factor. As to the proper care of the cardiac child, attention to the tonsils, a proper amount of sleep, a suitable diet, etc., played an important part. After these matters were regulated a great deal of attention need not be directed to the question of exercise. The child as a rule tended to seek his own exercise level. One did not as a rule need to prescribe physical exercise. Adults did not tend to seek exercise but children were naturally active. As to the result of therapeutic exercise in adults he could not speak but in children he did not see dramatic results.

Dr. HAVEN EMERSON of New York expressed the belief that in Dr. Halsey's paper and those of Dr. Lawrence it must be apparent that there had been thrown open a large field for preventive medicine. The whole thing was in the hands of the private physician. In dealing with this disability there was an opportunity for the private practitioner to come into his own. The outcome was going to depend upon the keenness of the profession in handling it. We had seen the death rate of tuberculosis drop from 250 per 100,000 to 124 as a result of efforts to control that disease. The mortality from cardiac disease still stood at 200 per 100,000 population. Approximately one per cent. of the population had tuberculosis and there was practically the same incidence of active cardiac disease. In New York City they had 30 clinics for tuberculous patients and 8 per cent. of sufferers from tuberculosis attended these clinics. We now had an equal number of cardiac clinics and that number was probably sufficient for the community. In the regulation and control and prevention of tuberculosis and communicable diseases they did not get control of the situation until more cases were reported than actually occurred of the diseases under discussion. It was equally true that we would not reach the true worth of cardiac clinics until more cases of cardiac disease sought treatment than actually had heart disease. This promised to be a step toward the annual overhauling of everyone. These cardiac clinics were developing unconsciously the ability to diagnose heart disease before the patient knew he had it. If the situation was properly handled the cardiac clinics would have not only the opportunity of finding early cases of tuberculosis, but they would get the cardiac in the incipient stage. The cardiac patient today did not come to a clinic until four to eight years after he had first observed symptoms. It used to be that the tuberculous patient did not come to a clinic until his disease was far advanced. He thought the problem would have to be segregated and that they would have to have not only special preventive and diagnostic clinics but a service to give temporary relief in cases of periodic decompensation.

Dr. GEORGE DOW SCOTT of New York expressed the view that it was impossible to put down a general statement for the general physician as to the management of cardiac cases. It was not difficult to say which patients should be put to bed and which should not be put to bed, but there was a large group of cases, the so-called functional murmurs, that should be put to bed only as long as was necessary and should be allowed to be up as soon as possible; others should not be allowed to know of their condition. In many cases that he had seen he had not told the mothers or the

patients that heart disease was present. He had told them to go on with their regular exercise and their natural normal play. He felt that play was far better than regulated exercise. With normal play and proper nutrition these children with functional murmurs got on well. About 90 per cent. of these children had mitral regurgitation and he only put them to bed long enough to get them back on their feet. In his estimation there were many potential heart cases not due to tonsillitis or to rheumatism or chorea but to malnutrition, because an enormous amount of protein formed the basis of their diet. Many of these cases came with meteorism, constipation or not constipation and with tonsillitis, or without tonsillitis, and in many of them the diagnosis of incipient heart disease had been made. Those cases should not be relegated to a place where there were segregated cases. To segregate these cases and center their attention on the cardiac condition was wrong. The heart was a muscle and the more it was developed under proper regulation the better and quicker would the individual be able to carry on. He knew of cases of this kind that had been allowed to carry on normal activities which were better off today than they were twenty years ago.

Dr. C. H. WAHRER of Fort Madison, Iowa, said that sometimes these heart cases were very serious and one felt that they were not very hopeful cases, but they should not be given up. In reality they were very hopeful cases. In decompensation in children one should support the heart and unload the portal system; the latter was very important. He cited a case of the worst kind of decompensation in which he had followed the plan of treatment he had mentioned. In three weeks the child was taking graduated exercise and in three months she was able to climb an elevation of seven hundred feet and to resume her studies. Today she had complete compensation. The main point in handling these cases was never to give up.

Dr. HERMAN SCHWARZ of New York said it was due Dr. Halsey and his associates to explain just what they, with the aid of the City of New York, were trying to do. There was a surprising difference between the children one saw in private practice and those that came to the dispensaries in New York City. For many years it was a terrible thing to see one cardiac after another come to the dispensaries and all they did was to send them home. They were glad everyone was becoming interested in the care of cardiac children. There was no question as to the value of the work. The question was how to do it. They had first tried the convalescent home, but there were too few of these institutions, and now they were trying the cardiac classes in the schools. Those cardiac classes through Dr. Halsey's instigation had tried to supervise the child during most of the day. They used to be told when the children went home the mothers did not have time to look after them so these cardiac classes were formed which took care of the children from 8.00 A.M. to 5 P.M. which was a great step forward in the care of cardiac children among the poor. Branch cardiac hospitals were needed; such hospitals should be connected with general hospitals, where a child with marked decompensation might be put to bed under good medical care and remain months or even years if necessary. He could, when ready, be graduated into the cardiac schools and then graduated into adult life and do good work. Dr. Schwarz said he had a dream of such plan. The discovery of the etiological factor in rheumatism would obviate a great deal of the difficulty surrounding the solution of the problem of cardiac disease in children.

Dr. HALSEY, in closing the discussion, emphasized the advantages of the classification of heart disease which he had presented. With reference to the question which Dr. Scott had raised he expressed the opinion that it was all wrong to say that the cardiac should not know of his condition. That was one of the very important advances that had been made in the treatment of heart disease. If one was going to get the cooperation of the people among whom the cardiac child lived he must tell them what they had and what could be done for the condition. They must be told that a great deal could be done for these children and how far they could go as regards exercise and when

they must stop. That was what was being done by the clinics. What could be the objection to the segregation of these children—of sending them to a man specially interested in cardiac disease who had a special knowledge which was entirely technical and diagnostic? They used the fluoroscope and the electrocardiograph for what information those instruments could give though they did not make the diagnosis of heart disease. As to the question of food for the cardiac child, the little patient needed food so far as he could take care of it. One should not get the idea that one protein was as good as another. All meat should not be excluded from the diet. Some had spoken of the Class 3 children or those with heart failure. He had not gone into that group because he was speaking more particularly of the children in the schools. One more question was brought up and that was what they were trying to do in New York. They were trying to find the solution of the problem and this was only preliminary work. They had tried this plan with the small group of 44,000 out of the 800,000 children in the public schools. As in any work of this kind the assistance of well educated, tactful social workers was essential. A social worker could take care of about one hundred children and no more. Beyond that she could not find time to look after the individual child. The child's temperature and pulse were taken every day. Not to know what the temperature was but know whether the child was running a temperature as a regular thing. The social worker did many things beside taking the temperatures. She gained the confidence of the child and that of the mother so that instructions would be carried out, and to be in a position to get her cooperation if a tonsillectomy were necessary or for whatever they believed should be done. This propaganda was in its infancy and it was essential that they should have a proper boost.

The Treatment of Furunculosis in Infants.—Dr. CLIFFORD G. GRULEE and MISS CASSIE BELLE ROSE of Chicago presented this communication in which the relative merits of the treatment of furunculosis by means of antiseptic ointments and liquid antiseptics were discussed, and their inadequacy pointed out. They had tried a combination of the treatment by antiseptic solutions and the x-ray. Dr. Pancoast recommended the application of doses of x-ray two to four sittings over a period of two weeks. They had not attempted the treatment of furunculosis in babies. The difficulties of treating infants with the x-ray and their susceptibility to the x-ray were well known. In one instance some of the furuncles were treated while others were left untreated. The individual furuncles treated subsided but the x-ray did not prevent other furuncles from appearing. In a general way their impression of the x-ray treatment of furunculosis was favorable, though the series was too small to warrant a statement as to the ultimate results as compared with other methods of treatment. It was better to use the soft ray and no filter. Certain reactions had occurred so regularly following the use of the x-ray in this way that they suggested that others employ it in order that a just estimate of the value of this form of treatment might be reached. It had not done away with the necessity for surgical procedures, but it had reduced the necessity for opening furuncles where they were superficial. They felt that there was ground for the hope that the x-ray might add materially to their means of treating furunculosis.

Dr. MEYER SOLIS-COHEN of Philadelphia stated that the results of the vaccine treatment of furunculosis had been rather unsatisfactory, but they could see the explanation in some work done recently. The blood of animals immune to a disease killed the organisms that caused that disease while the blood of animals susceptible to the disease did not kill those organisms. For instance, if the fresh blood of a chicken killed the pneumococcus that chicken was immune to that type of pneumonia. Kolmer had found the same thing true of the meningococcus. Another investigator had found that the blood of rats immune to diphtheria killed the diphtheria bacilli while the blood of animals not immune did not kill the diphtheria organisms. Dr. Heist and the writer had applied this method to various infections and they had found that it was true of furunculosis. Dr. Solis-Cohen then described a method they

had used in preparing a convalescent serum for use in furunculosis, and also a method of making vaccines. They had found that furunculosis would respond to these methods of treatment.

Dr. GRULEE, in closing the discussion, said in reply to the question as to whether he had used the x-ray in pemphigus in the new born, that he had not had the temerity to try the x-ray in the new born because the skin of a new born infant was too tender to run that risk. As to the vaccines, it was quite a while since he had abandoned their use as he had never gotten any good results. Where the results appeared to be good he thought it was merely a happening. He had had no experience with the methods Dr. Cohen had described.

The Beneficial effects of Tonsillectomy Upon Cyclic Vomiting and Allied Affections.—Dr. ALBERT H. BYFIELD of Iowa City read this paper in which he gave a brief review of the important aspects of cyclic vomiting. Among the points that had impressed him was the fact that in the large percentage of cases cyclic vomiting began in the second year; another point was the high percentage of true migraine in the parents of children suffering from cyclic vomiting. In his series of 27 cases 16 were blondes and 4 were brunettes, while in seven no observation was made on this point. This raised the question whether the preponderance of blondes was more than a coincidence. Pyuria was present in many of the cases during and between the attacks. The most prominent symptoms were nausea, vomiting, abdominal pain and light-colored stools; some cases were atypical and were called simple bilious attacks. Cyclic vomiting seemed to have a neuropathic content. The child who suffered from cyclic vomiting was born of a strain that was impaired, as evidenced by the frequent history of migraine in the parents. The preponderance of blondes suggested the possibility of that the exudative constitution might play a part if one admitted as some claimed that blondes were more likely to have the exudative constitution than were brunettes. It was also pointed out that the arthritic diathesis might have a relation to cyclic vomiting and some had held that the exudative and the arthritic diseases were perhaps identical. The production of acetonuria by starvation did not always bring on an attack and it was a question whether acetonuria played a prominent etiological part. Attempts to control the disease had not always given the results desired. There was a suspicion that the Jersey cow was a common source of trouble. The calf of the Jersey cow frequently could not take its mother's milk, and only a human being would be so presumptuous as to give to a child a milk with such a high fat content. In a few cases removal of the appendix had brought about relief and cure. Dr. Sedgwick and Dr. Rude Taylor had called attention to the tonsils as a source of infection that might be responsible for recurrent attacks of vomiting. Of the 27 cases in this series, 20 in which dietetic measures had failed were operated upon for removal of their tonsils and adenoids. Of these 10 had had no further attacks; four had had three attacks and then none. Thus 14, or 47 per cent., were cured by tonsillectomy, according to the statements of the parents. Four were improved and of these two had sinus and nasal infection. Two of the 20 reported no improvement. Of the seven cases not operated upon only one was cured; the parents of four of the children were positive that the child was not improved. In one instance in which removal of the appendix had failed to give relief, removal of the tonsils and adenoids caused a prompt disappearance of the vomiting. Dr. Byfield called attention to a tendency to regard recurrent vomiting as an acidosis. Acidosis was a complication and not a cause of the condition, and acetonuria occurred in many other conditions. The main points in the medical treatment of these cases was the avoidance of the indulgence in excessive amounts of fat; undue nervous strain should also be avoided. Where medical treatment failed to give relief conservative surgery was justifiable. Incomplete removal of the tonsils might fail to give relief.

Dr. JOHN ZAHORSKY of St. Louis stated that this class of vomiting cases was often dependent upon some infection of the tonsils, and when that was the case the children were benefited or cured by operation. By

watching these cases and seeing them repeatedly one was often able to come to the conclusion that there was an infected focus. However, those cases due to infection of the tonsils, adenoids, and nasal sinuses should be differentiated from cases of neurotic cyclic vomiting. He had had two cases in which the attacks of cyclic vomiting came on after complete operations by the best operators but these were children of the neurotic type. In cases of cyclic vomiting one should always have corroborative evidence of local infection in the tonsils and adenoids before recommending operation.

Dr. E. P. GENGENBACK of Denver, Col., stated that it was easy to differentiate these cases. By examining the tonsils one would usually find that the vomiting was associated with tonsillitis in cases in which the tonsils were infected. There was no question that focal infection was harmful to the individual and if the infected tonsils were removed the child would be improved but one must have the courage of his convictions. One should not omit the examination of the tonsils when treating a case of cyclic vomiting, and if they were found infected he should insist upon their removal.

The Physiology of the Blood in Infancy and Childhood.—Dr. WILLIAM PALMER LUCAS of San Francisco presented this contribution in which he gave some of the results of a comprehensive morphological study of the blood cells and hemoglobin in the new born, and emphasized the point that the study of the blood as a tissue gave much information as to what was going on in the body. What was just as important, if not more so, was that such a study gave a fair idea of what was going on in other tissues and organs. Directly, it furnished a conception of the existing state in the blood-forming tissues, as the bone marrow. An analysis of the various factors of the blood supplied a means of studying directly the functioning power and the potential capacity under strain of different organs, as the kidneys, liver, lungs, and, to a certain extent, of the conditions existing in the tissue cells throughout the body at the time of the study.

Second Day, Thursday, June 9.

Diagnosis and Treatment of Infectious Diseases.—Dr. DENNETT L. RICHARDSON of Providence, R. I., presented this communication in which he said that very few physicians realized the extent of infectious diseases and the prominent part they played as a cause of sickness and death, and particularly the place they held in the mortality tables in the United States. In the registration area of the United States, in 1918, of 1,471,367 deaths, 490,275 were due to infectious disease. In other words, infectious diseases caused one-third of all deaths in the United States in that year. However, 1918 was the influenza year. The average number of deaths due to infectious diseases was about 244,681. The actual number was in reality much larger. Eighty or 90 per cent. of these deaths occurred in children under 12 years of age. It was important that all physicians, and particularly pediatricists, should be taught to diagnose infectious diseases and to know how these were transmitted from person to person. Few medical schools put the teaching of infectious diseases in the hands of those who were experienced in the treatment of such conditions, namely, physicians in charge of contagious hospitals. Students graduated with the idea that scarlet fever always presented a definite clinical syndrome, whereas there was a considerable percentage of cases that did not conform to it. The schools could easily teach the cause of each disease, by what routes it escaped from the body, how soon the patient became infected, for how long it continued to be infectious, and what diseases developed the carrier condition. The diagnosis, however, could only be taught in a contagious hospital. This was a training which no pediatrician could afford to omit, since these diseases were chiefly seen in childhood. The new hospital for contagious diseases would care for erysipelas, typhoid fever, meningitis, poliomyelitis, syphilis, gonorrhea and other infectious diseases as well as of scarlet fever, diphtheria, measles and smallpox. Infectious diseases did not belong in a hospital where other diseases were cared for. The acute infectious

disease hospital might be located on the grounds with the general hospital but it should be manned by physicians and nurses who knew how to treat and nurse infectious diseases. If we had had properly trained physicians to care for infectious diseases we would not have had to pass through such an experience as we had during the World War when so few physicians and nurses were trained to care for this class of diseases. All children's hospitals should be conducted along the lines of contagious disease hospitals. An aseptic nursing technique should be carried out in contagious disease hospitals, since it had been fairly well demonstrated that diseases were rarely air-borne. By the use of aseptic technique cross infections in the Providence Municipal Hospital had been reduced as low as one per cent. More than one-half cross infections were due to measles and chickenpox. Our knowledge of infectious diseases was very limited. Of this the average practitioner was not aware. Our text-books on contagious diseases were very faulty. We had not made the progress in the knowledge of these diseases that should have been made. Scarlet fever was as prevalent as ever and diphtheria was more common than it should be. The statement that 90 per cent. of all scarlet fever cases were cared for in hospitals was not true.

Dr. EDWIN H. PLACE of Boston said that so far as the hospital went he thought a great deal of misunderstanding occurred among laymen and even among physicians as to the methods of isolation of contagious disease which had always been used. The Boston Hospital, which was started in 1891 and occupied in 1895, had certain elements in its arrangement that indicated that people believed that disease was air borne. Many did not believe in the cubicle system as they did not see how contagion could be prevented when there was open air space above the cubicles. It was rather strange that while people had recognized the need for insulation and had provided adequate screening, they had made no provision for guarding against infection from linen or hands. The doctors had had to wash their hands in the contagious hospital in 1900 and subsequently with a bowl and pitcher. This was an illustration of how slow hospitals had been to carry out in practice well known facts with reference to the prevention of contact infection. He disagreed with the statement as to the difference in the spread of measles and chickenpox as compared with diphtheria and scarlet fever. He did not think the spread of measles and chickenpox was any different from that of scarlet fever and diphtheria. There was a difference in the susceptibility of the individual; that was the only difference. He knew of one instance where measles and scarlet fever were in the same ward service. They had the same ward service from the same nurses and the same diet kitchen. There was no instance of measles being carried into the scarlet fever ward but there were many instances of scarlet fever being carried into the measles ward. Measles required much more direct contact than scarlet fever, but scarlet fever might be carried on the clothing.

Dr. HENRY BERG of New York said he was connected with a large contagious disease hospital and unfortunately polyinfections occurred quite frequently, though he did not know that it occurred more frequently now than it formerly did. If any doctor could tell us how to prevent polyinfections he would do an inestimable service to humanity. There were many infections not transmitted. Typhoid fever and diphtheria were not transmitted, and the reason was because we knew the organism. We knew how it entered the body and how it was extruded. The trouble with measles and scarlet fever was that we did not know the organism. He feared that we should never be able to prevent polyinfections until we knew the causative organisms of these diseases, their life history, clinical characteristics, transmissibility, the way they acted, and the way they were extruded from the body. He knew of no greater misfortune than that a child should be admitted to the hospital for measles and then should have scarlet fever, and diphtheria. The man who could designate, not in general terms but specifically, how these polyinfections could be prevented would be one of the greatest benefactors of humanity.

Dr. C. H. WAHRER of Fort Madison, Iowa, related

an instance in which a doctor treated several children in a family for scarlet fever and then three weeks later confined the mother. She became infected and three laparotomies were necessary. She was living but had passed through death to life. A doctor who was treating a scarlet fever case should know enough to keep his hands off of other cases while he was doing it.

Dr. A. W. PLUMMER of Lisbon Falls, Me., said he would be glad if the author of the paper would vouchsafe some information with reference to the diagnosis of scarlet fever on a point he wished to raise. He had had two cases in which so far as he could see the only symptoms of scarlet fever were temperature, rapid pulse, vomiting and sore throat, and in one a strawberry tongue. In one of these cases he had had a consultation and the diagnosis of scarlet fever was confirmed. In neither case were there any signs of desquamation. The question he raised was whether his diagnosis was correct and whether others had seen similar cases.

Dr. RICHARDSON, in closing the discussion, said he did not want to give the idea that chickenpox was carried by the air. It was a long story but they would find out sooner or later that these were surely contact diseases. Relative to the last speaker's question about scarlet fever, it did not matter how many contagious diseases a man had seen he could not diagnose them all. There was a considerable percentage missed because we had no means of recognizing them. Probably not more than 30 per cent. of scarlet fever cases had strawberry tongue. Many times he had seen a sore throat in a child in a family in which there had been a case of definite scarlet fever and in such a case one was justified in making the diagnosis of scarlet fever on the grounds of exposure, whether the child had a rash and strawberry tongue or not. There were many more cases of diphtheria that did not show a membrane than of those that had a membrane. With known contact he had the suspicion that measles might occur without any rash whatever.

Certain Aspects of Postdiphtheritic Diaphragmatic Paralysis.—Dr. HAROLD R. MIXSELL and EMANUEL GIDDINGS presented this paper, in which they gave a résumé of the subject and discussed the anatomy and pathology of phrenic nerve involvement by the diphtheria toxin and toxon. The frequency of diphtheritic paralysis was higher than one would suppose, being 8 per cent. of all cases of paralysis and 0.2 per cent. of 4259 cases of diphtheria. The average date of onset of the paralysis was 39½ days after the onset of the disease. Death usually occurred within forty-eight hours. The symptoms were those of respiratory failure. There was no active treatment by means of drugs when the damage was done by the diphtheria toxin. Marriott had reported a case in which artificial respiration had resulted in tiding the child over the acute stage of respiratory failure. The child ultimately recovered. The writer reported eight cases and stated that the prognosis was 100 per cent. fatal. In view of this fact treatment by means of intratracheal insufflation, the pulmotor, and the Erlanger-Gessel apparatus was worthy of trial.

Dr. ROBERT J. WILSON of New York said he was glad to have a paper of this kind emanate from Willard Parker Hospital because it showed that the hospital was taking its place as a teaching institution. They were all familiar with the unreliability of statistics. These statistics were reliable but they came from an institution notable because it received the many cases in a hopeless condition. So in a way it might be taken that the proportion of cases of paralysis was far too low. A second point Dr. Wilson made was that if the doctors in New York City had been doing their duty since the discovery of antitoxin there would not have been a chance to report these cases. All this was preventable. It was the duty of the American Medical Association to see that the people themselves and the mothers were educated, as far as possibly could be done, to a sufficient degree to know when to call a doctor, and that the doctor be sufficiently intelligent to know when to give antitoxin, and to know that he should not wait for a Schick test or a culture.

Dr. HENRY BERG of New York thanked Dr. Mixsell for this extremely interesting series of cases. These

cases were important because they were fatal and furthermore because every bilateral phrenic nerve paralysis was fatal. It occasionally happened if one could make the diagnosis when the paralysis had affected only one side that one might get a case early enough to have one side getting well before the paralysis on the other side developed. Many unilateral cases occurred and were not recognized because the rest of the diaphragm on the other side was doing the work. How should one recognize the unilateral and bilateral forms of paralysis. Litten's phenomenon on the affected side was absent, there was no abdominal respiration on the paralyzed side, and the x-ray picture showed an immobile diaphragm on one or both sides. The hypoglossal and glossopharyngeal muscles supplied by these two nerves became involved and there was an inability to swallow and the secretions fell back into the bronchi and the patient being unable to cough drowned in his own secretions, after having developed a bronchopneumonia. As to therapy, a great deal had been said about artificial respiration by various methods. There was absolutely nothing to be expected from them. The patient finally died because he could not contract his diaphragm, which caused a peculiar paralytic cough. Treatment had to be directed to the site of the paralysis. If but one side was paralyzed one should use strychnine injection on the paralyzed side at the site of the sixth intercostal space. This stimulated the long respiratory nerve of Bell to bring aid to the embarrassed respiration. These cases of unilateral paralysis recovered if one got them in time, and they were kept alive long enough by stimulating the respiratory centers. It was important to keep the bowel empty, as a distended bowel elevated the diaphragm, contracted the lung, and made complete respiration impossible.

Dr. BORDEN S. VEEDER of St. Louis, Mo., said there was one point in which he agreed with the previous speaker and that was that these cases occurred more often than was recognized. Some degree of phrenic nerve paralysis was often overlooked. He disagreed with the statement that these cases were hopelessly fatal. He had seen the case referred to in the paper which was treated by the Erlanger apparatus. He had seen two other cases of postdiphtheritic involvement of the phrenic nerve and both cases recovered, so he felt that the prognosis was not absolutely hopeless.

Dr. EDWIN H. PLACE of Boston said that one of the speakers had referred to paralysis of the pharyngeal muscles and that the secretions caused hypostatic pneumonia. In private cases and in a large number of hospital cases the effort was made to turn the patient from side to side and the foot of the bed was elevated so that the secretions flowed out of the corner of the mouth. If the diaphragm was in a bad position it embarrassed other muscles, so an effort should be made to keep the diaphragm at the lowest level. To do this it was important to avoid distention of the bowels.

Dr. BARBOUR of Milwaukee said that the New York men had outlined a treatment for postdiphtheritic diaphragmatic paralysis which was very agreeable to listen to. He cited the case of a child 9½ years of age with a mild diphtheria who was injected on the third day with antitoxin. When, in the course of his duties as health commissioner he called on the child, he found him up and playing on the third day after the injection of the antitoxin. The mother said the doctor had not forbidden his being up. He told the mother that if he were the family physician his advice would be to keep the child quiet, and on a light diet. When he called at the house two days later there was crepe on the door; the child had fallen over dead. Drugs were of little benefit in postinfectious conditions, but rest in bed in a dark room and light diet were very important.

Dr. E. C. FLEISCHNER of San Francisco called attention to several simple procedures that might aid one in making an early diagnosis of postdiphtheritic paralysis. These were routine daily observations with reference to the knee jerks and other reflexes, particularly the palatal reflex. Postdiphtheritic nerve involvement might be avoided if proper attention were given to rest over a sufficiently long time.

Dr. A. F. M. GREENY of Fergus Falls, Minn., asked for information with reference to the case of two boys

who had an attack of mild pharyngitis and later involvement of the nasal mucous membrane. Five weeks later they began to suffer from difficult swallowing and regurgitation, then entire paralysis of speech and involvement of the limbs. They became helpless. One of the boys died and the other recovered. At the time they had the sore throats they were given only palliative treatment but no antitoxin. The physician in attendance claimed they had had a streptococcus infection. The surviving boy was extremely nervous and irritable. Dr. Greeny asked what the prognosis was with reference to the nervous symptoms and what the opinion was as to the diagnosis in this case.

Dr. MIXSELL, in closing the discussion, said there was not much he wished to add to the paper, but he might lay emphasis on some of the points brought out by the men who had discussed the paper. The importance of the early administration of antitoxin should be emphasized. In certain parts of New York City clinicians held that all cases of tonsillitis whether they looked like diphtheria or not, if there was any doubt as to the diagnosis, were given antitoxin. Dr. Berg brought up the question of the injection of strychnine, personally he had failed to see much benefit from the injection of strychnine into the diaphragm or elsewhere. He might be wrong. He agreed with Dr. Veeder that the various forms of artificial respiration should be employed. If two or three cases had recovered so far as we now knew that was the only way of bringing them through. He agreed also with what had been said about rest, they would like to keep these children in bed five or six weeks after the administration of antitoxin and they were planning to do it at Willard Parker. Dr. Fleischner's suggestions were very important; they made a daily examination on those points in almost all of their cases, probably all. Dr. Greeny's cases might be postdiphtheritic diaphragmatic paralysis or they might be something else, possibly encephalitis, but the doctor might have gone ahead with the antitoxin whether the cultures were positive or not. One should not rely upon one negative culture, but should send cultures to several laboratories if necessary before deciding that the cultures were negative.

(To be concluded.)

Books Received.

The MEDICAL RECORD is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.

MICROBIOLOGY. Edited by CHARLES E. MARSHALL. 1043 pages with 200 illustrations. Published by P. Blakiston's Son & Co., Philadelphia.

MANSON'S TROPICAL DISEASES. Edited by PHILIP H. MANSON, M.D. 960 pages with illustrations. Published by William Wood & Co., New York.

TRAUMATIC SURGERY. By JOHN J. MOORHEAD, M.D. 864 pages with illustrations. Published by W. B. Saunders Company, Philadelphia.

MONOGRAPHS OF THE ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH. No. 14, Feb. 1, 1921. 42 pages. Published by the Rockefeller Institute for Medical Research, New York.

THE JOHNS HOPKINS HOSPITAL REPORTS. Volume XX. Fasciculus 111. 314 pages with illustrations. Published by the Johns Hopkins Press, Baltimore.

MEDICAL NOTES. By SIR THOMAS HORDER, M.D. 112 pages. Published by Henry Frowde and Hodder & Stoughton, London.

GRAPHIC METHODS IN HEART DISEASE. By JOHN HAY, M.D. 178 pages with illustrations. Published by Henry Frowde and Hodder & Stoughton, London.

THE SCIENCE OF OURSELVES. By SIR BAMPFYLDE FULMER, M.D. 326 pages with illustrations. Published by Henry Frowde and Hodder & Stoughton, London.

THERAPEUTISCHE TECHNIK. Edited by JULIUS SCHWABE. 1117 pages with 666 illustrations. Published by Georg Thieme, Leipzig.

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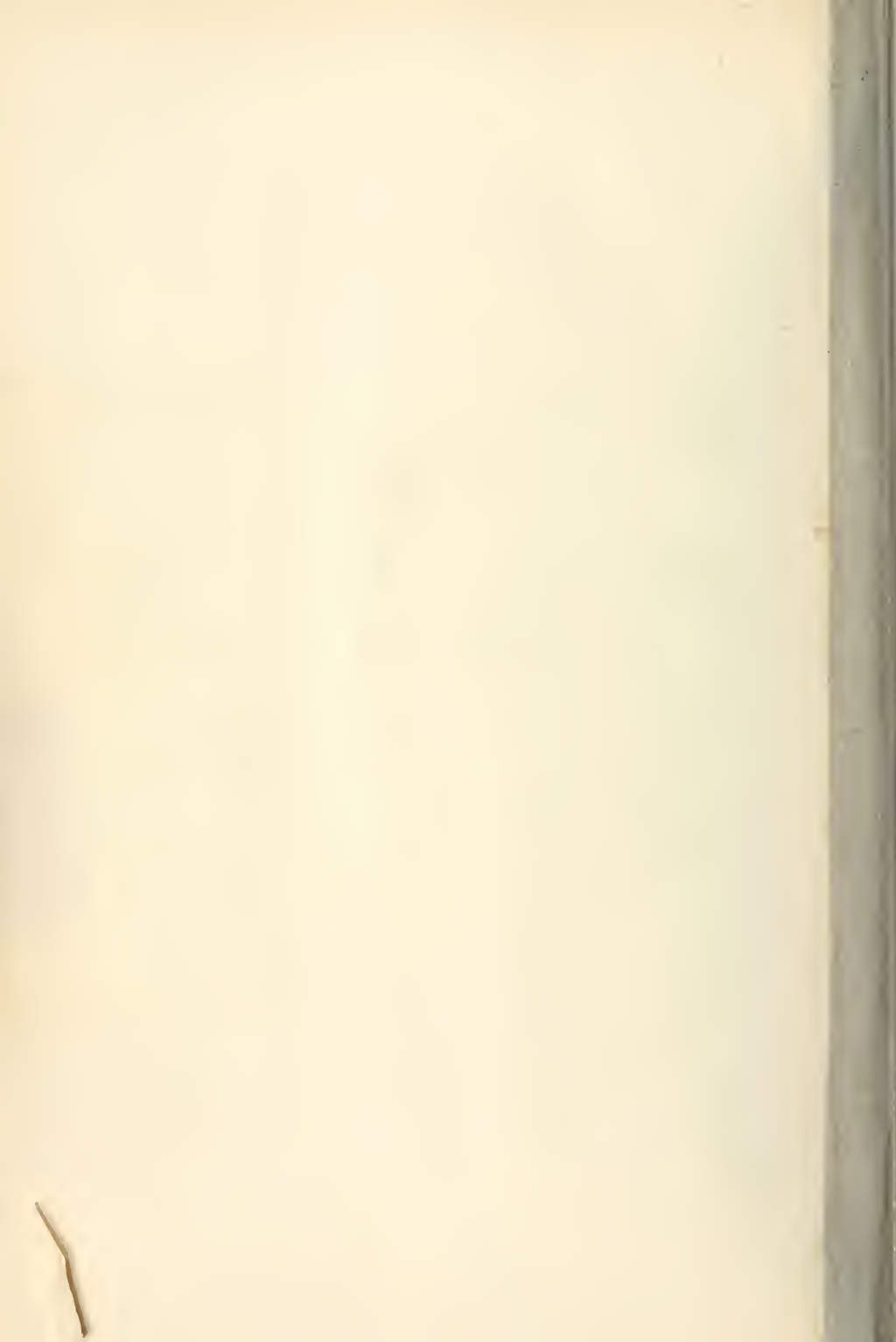
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